The Conceptual Company
Risks, Rewards and Research Ideas

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What Is a Conceptual Company?

- Negligible physical assets: PP&E, inventories.
- Intangibles-intensive: R&D, brands, alliances, human resources, organization capital.
- Strong patent/trademark protection.
- Extensive outsourcing of manufacturing, distribution and other low-knowledge functions.
- Extensive trade in intellectual property (IP): patent sale and licensing, know-how sale.
- Flexible business model.

This is the future

Cisco Systems As Conceptual Co.

- Investments in fiscal 2006 (scaled by total assets):

Property and equipment:	2.3%
Technology/business acquisition:	16.0%
Research and development:	12.3%
Marketing	17.8%

- Specific assets—end of fiscal 2006 (scaled by total assets):

Inventories	3.2%
Property and equipment	7.9%
Goodwill and Intangibles	26.3%

	Cisco	Boeing	Exxon
• Gross margin ratio (2006)	66%	18%	41%

The Rewards of Being Conceptual

- Scalability of operations is limited only by demand (drug sales).
- Virtually zero marginal costs (search engines).
- Network externalities—Positive feedback (Microsoft operating system).
- Customers are often “locked-in” (high switching costs). (Airlines’ loyalty programs).

Think American Airline’s reservation system.

But the Risks are High Too

- Heavy, largely irreversible sunk-costs, upfront investments in R&D, technology, brands (new drug development = $1 billion). 70% higher cost of capital.
- Competition pushes prices to zero ($100 laptop).
- Property rights on most intangibles either nonexistant (human capital) or hard to enforce (know-how). (RIM's patent settlement).
- Disruptive technologies and unsuccessful technologies (wireless communication, Radio frequency identification—RFID, Pfizer's $2.8 billion Exubera loss).
- Large mispricing by investors. (On March 27, 2000, Cisco Systems had the largest valuation of any U.S. company—$555 billion. On July 18, 2007, Cisco's capitalization was $180 billion, very respectable, but only 32% of its March 2000 value).
- Risks of outsourcing (Mattel recalling 18 million toys in 2007).
- Unlicensed use of technology (better known as counterfeiting and piracy) is widespread and fast growing (the Business Software Alliance estimates that 35% of worldwide software for PC were unlicensed, for a total loss in 2006 of $39.6 billion).

Accounting Does Not Help

- Internally-generated intangible assets not recognized—no indication of efficiency-of-use and value impairment. No market discipline.
- Acquired intangibles (R&D, brands, workforce,...)—no information about efficiency-of-use.
- Risk disclosures in financial reports (interest rates, foreign exchange, commodity prices, derivatives—VaR) ignore technological and innovation risks (disruptive innovations).

Demonstrating the Incremental Risk of Conceptual Investments

- Impairment (writeoffs) of goodwill vs. physical assets (scaled by total assets) in various 2-digit industries with >25 firms: 2001-2005

Industry	Goodwill	Physical Assets
Food and kindred products	.011	.006
Printing, Publishing	.025	.008
Chemicals And Allied Products	.019	.011
Rubber And Plastics	.031	.007
Primary Metal Industries	.007	.012
Machinery And Computer Equipment	.023	.009
Electronic And Other Electrical Equipment	.139	.020
Transportation Equipment	.004	.006

Continued

Industry	Goodwill	Physical Assets
Measuring, Analyzing, And Controlling Instruments	.111	.009
Communications	.058	.016
Wholesale Trade-non-durable Goods	.028	.005
Miscellaneous Retail	.021	.007
Business Services (software)	.113	.022
Health Services	.072	.011

A recent example: eBay wrote off in October 2007 $1.43 billion of its investment in Skype ($2.6 billion).

And the Inevitable Regression

(Period: 2001-05. T-value in Paren.)

Goodwill Impairment = .001 + .070 R&D (2.58) - .016 Cap Ex (-0.25) - .012 Op. Marg (-3.59)

- .001 Size (-0.66) + .020 Divers (4.28) + .007 Beta (4.88)

+ .105 RetVol (5.68) ; R^2 = 26.6%

Organization Capital: The Most Important & Vulnerable Intangible

Definition:

"Organization capital is the knowledge used to combine human skills and physical capital into systems for producing and delivering want-satisfying products." (Evenson and Westphal, 1995).

It is the agglomeration of technologies, business practices, processes and designs, as well as incentive/compensation systems, embedded in:

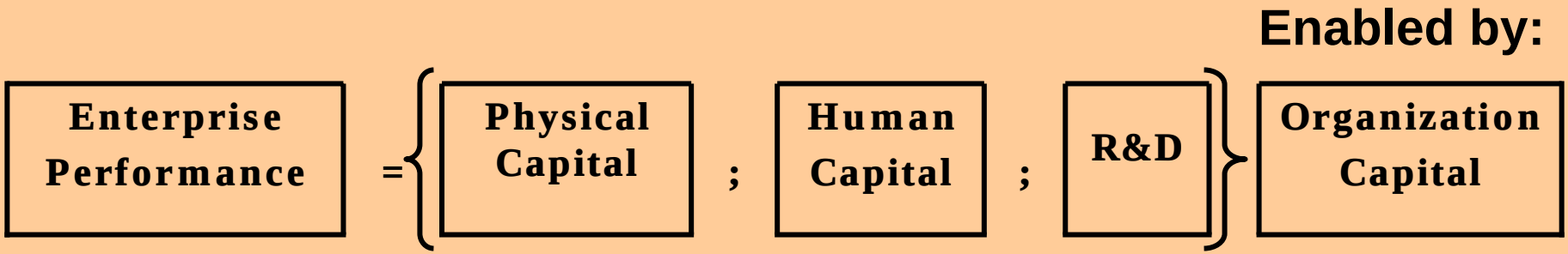
Operating capabilities: such as product design systems, production management & engineering, input outsourcing (supply channels), and marketing technologies.

Investment capabilities: such as advanced project selection methodologies, financial engineering and risk management.

Innovation capabilities: such as scientific R&D, adaptive capacity, knowledge management, IP protection.

The Measurement of Organization Capital* (Inspired by Economic Growth Theory)

A Production Function:



*From B. Lev and S. Radhakrishnan, "The Valuation of Organization Capital," in Measureing Capital in the New Economy, Corrado, Haltiwanger and Sichel, eds., National Bureau of Economic Research, 2005.

Proof of Concept: Does Organization Capital Affect Shareholder Value?

Equity Valuation Model

Enterprise Value	=	Assets In Place	+	Growth Potential

Growth Potential	=	Present Value Abnormal Earnings	=	Expected Earnings Minus Cost of Equity	+	Terminal Enterprise Value

Inserting our estimate of organization capital:

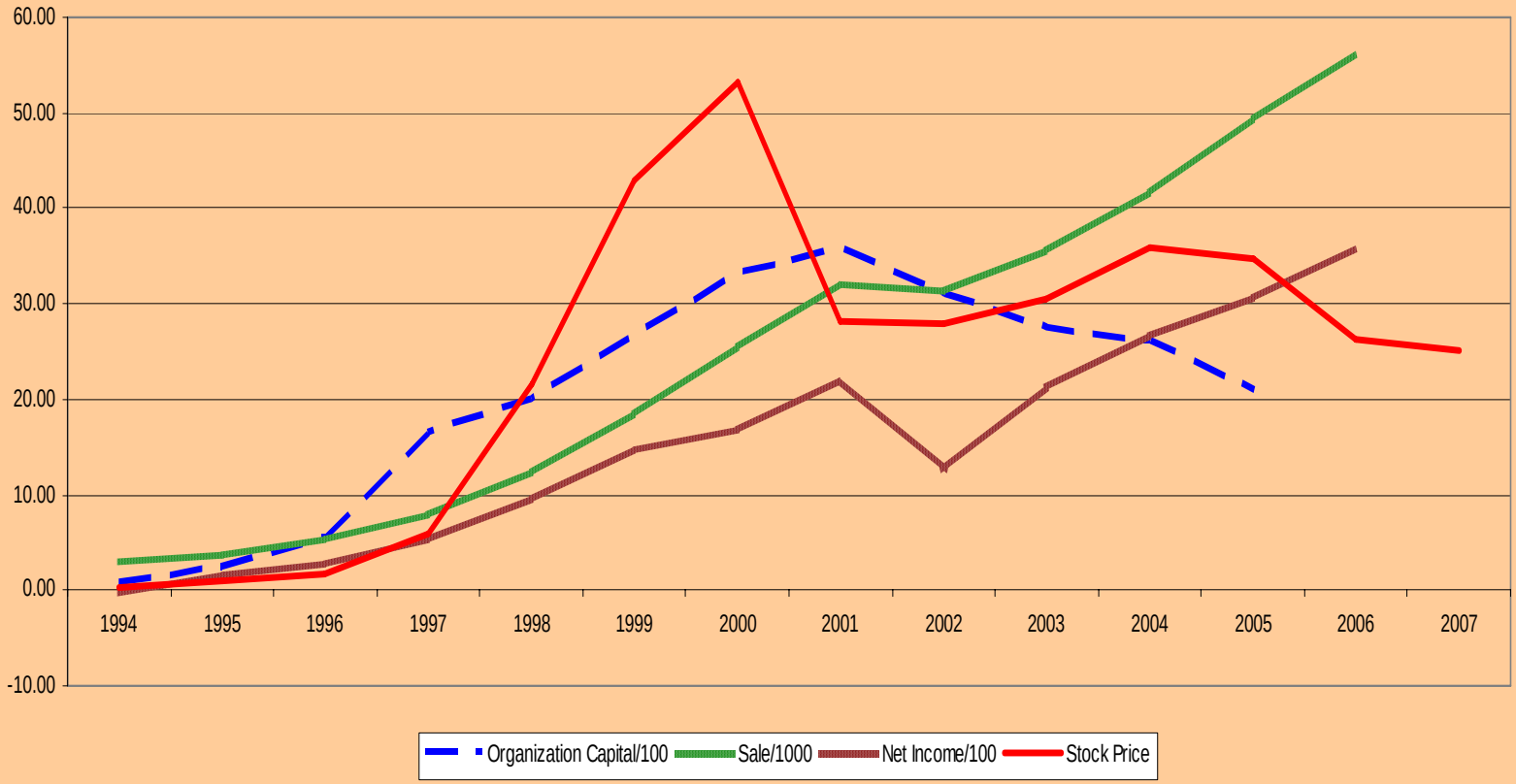
Enterprise Value	=	Assets In Place	+	Growth Potential	+	Organization Capital

33%!

Why the Vulnerability of Organization Capital?

- Ineffective patent protection (Dell's "built to order" model).
- Much of the know-how is tacit ("walks out in the evening")—Intel's founders.
- Unmeasured by accountants, hence largely ignored internally (GM's software "assets").
- Hard to measure: Competitors diminishing your edge (Palm edge eroded by RIM, Nokia, etc. Net income down 43% in 2007).

Dell: Organization Capital Leading Earnings, Sales and Stock Prices



Ad Hoc Risk Mitigation Measures

- Leakage of IC in Dow Chemical's alliances.
- "Everything for sale" at IBM.
- Securitization of IP—risk sharing.
- Product pipeline disclosure at Novartis.
- Slaying glass blowers and families in Venice (13-14 Century).

The Main Problem: Mangers'-Investors' Shared Ignorance

A survey of 250 executives by Deloitte:

"While the overwhelming majority of board members and senior executives said they need incisive information on their companies' key non-financial drivers of success, they often find such data lacking. When non-financial information is available, it is of mediocre or poor value."

OECD, 2006:

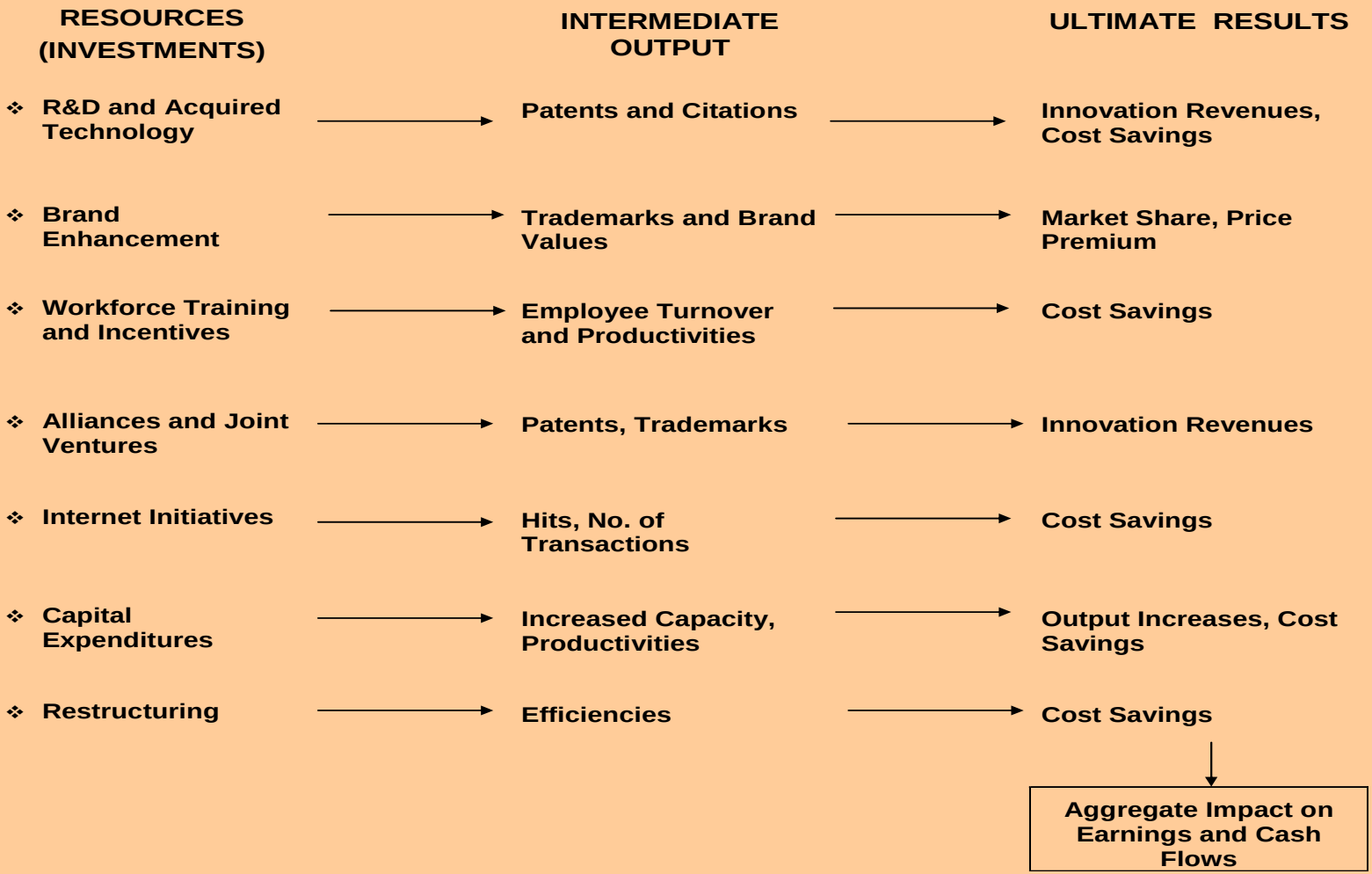
"Increasing the efficiency of resource allocation is a major challenge, as research has shown that, for example, an increase in R&D expenditures is not necessarily linked with more and successful innovation."

McKinsey, 2002:

"Most large companies now have at least 30 alliances, and most have more than 100. Yet, despite the ubiquity of alliances—and the considerable assets and revenues they often involve—very few companies systematically track their performance. Our experience suggests that fewer than one-in-four has adequate performance metrics... Few senior management teams know whether the alliance portfolio as a whole really supports corporate strategy."

In Defense of Concepts—Know Your Intangibles

Value Creation in Organizations



Takeaway

- Risk assessment and mitigation—the new intangibles frontier.
- Some research/consulting ideas:
  - Case study documentation of risk management.
  - Large sample studies on goodwill and other intangibles' writeoffs, and ROI.
  - Systematic and specific (not boilerplate) disclosures of risk issues by companies.
  - Implementation of my Value Creation chart.
  - Executives surveys of risk management.
  - How do financial analysts assess and quantify risk?
  - Patent protection vs. secrecy as risk mitigators.