



***Negoceval*** <sup>SM</sup>



**VALUATION OF INTELLECTUAL PROPERTY  
AND INTANGIBLE ASSETS  
TECHNIQUES USED & ASSESSMENT OF RESULTS**

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**John D. Swaim**  
swaim@negoceval.com  
+41 78 808 78 50

# REVOLUTIONARY CHANGES IN THINKING ABOUT INTELLECTUAL PROPERTY AND VALUE

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- ◆ **Economic Paradigm Shift**
- ◆ **Communication/IT Revolution**
- ◆ **Mergers & Acquisitions**



## DEFINITION OF INTANGIBLE ASSETS FROM A VALUATION PERSPECTIVE

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- ◆ **Smith, Parr definition**
- ◆ **Brookings Task Force definition**
- ◆ **U.S. FASB definition**
- ◆ **International Valuation Standards Committee definition**



## DEFINITION OF INTELLECTUAL PROPERTY (IP) FROM A VALUATION PERSPECTIVE

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- ◆ **Special class of Intangible Assets**
- ◆ **Protected by law from exploitation by others**
- ◆ **Patents, trademarks, copyrights, trade secrets (know-how)**

## TANGIBLE AND INTANGIBLE ASSETS HAVE VASTLY DIFFERENT CHARACTERISTICS...

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- ◆ **Value from Tangible Nature v. Value from Property Rights and Intangible Factors**
- ◆ **One Place at One Time v. Multiple Uses for Multiple Returns**
- ◆ **Depreciation v. Cumulative Property of Knowledge**  
"Knowledge is cumulative, with each idea building on the last, whereas machines deteriorate and must be replaced."

- Baruch Lev



## ...LIKE THE ECONOMICS OF THINGS VERSUS THE ECONOMICS OF INFORMATION

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- ◆ **Costly Replication v. Zero Cost Replication**
- ◆ **Diminishing Returns v. Perfectly Increasing Returns**
- ◆ **Efficient Markets v. Requirement of Imperfect Markets/Tendency towards Concentration**

# RELATIONSHIPS AMONG THE DIFFERENT TYPES OF ASSETS

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- ◆ **Highest and Best Use Analysis**
  - Generally achieved within the context of a business enterprise
- ◆ **Business Enterprise as a Portfolio of Assets**
- ◆ **Complementary Assets**





## ROLES OF IP IN VALUE CREATION

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- ◆ Producing an Economic Advantage
- ◆ Raising Barriers to Competition
- ◆ Protecting or Creating a Strong Market Position



## IP VALUE DETERMINANTS

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- ◆ **Benefit Stream**
- ◆ **Risk**
- ◆ **Time Period**



## BENEFIT STREAM

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- ◆ Economic Conditions
- ◆ Profitability
- ◆ Complementary Assets

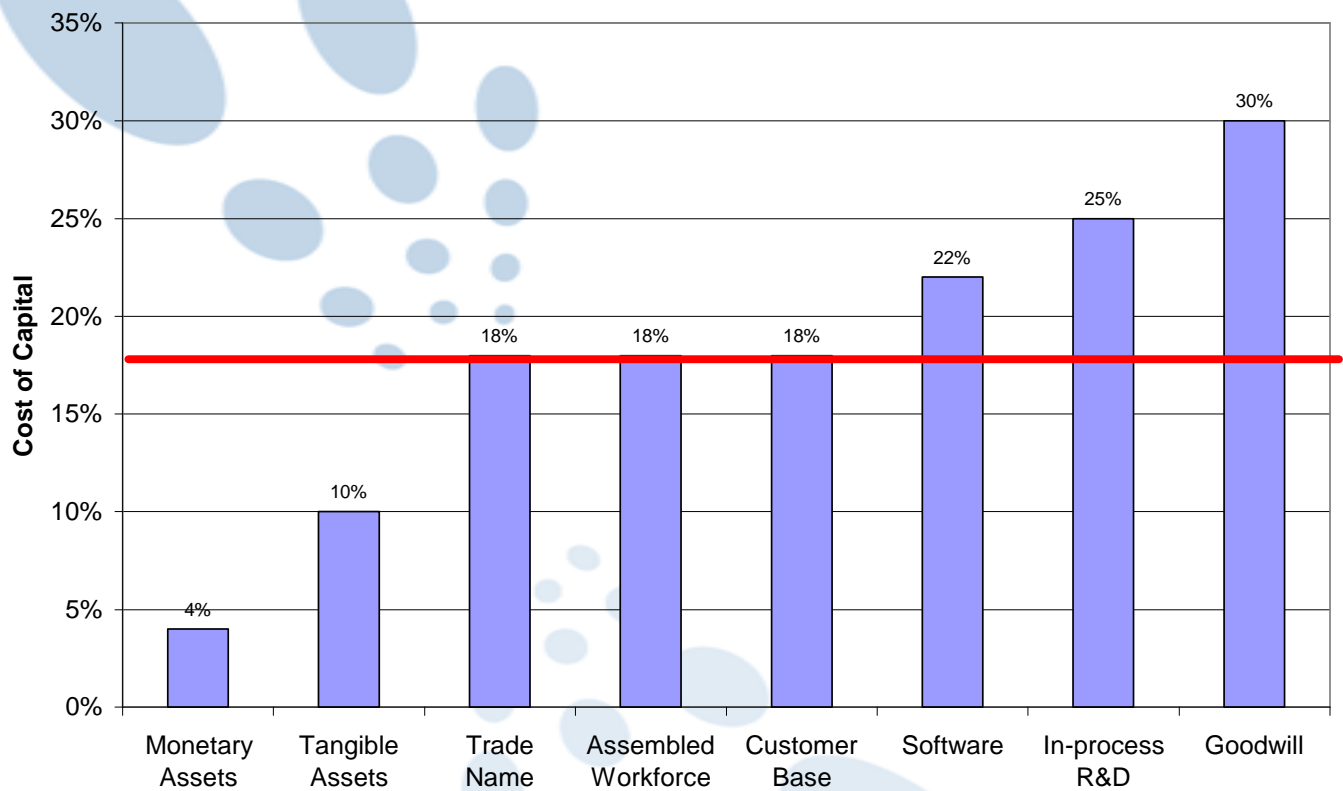


## **RISK**

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- ◆ **Use of Discount Rates**
- ◆ **Relative Risk among Asset Classes**
- ◆ **Required Return by Asset Class and Cost of Capital**
- ◆ **Country/Political Risk**
- ◆ **Legal Risk (e.g., Degree of Legal Protection afforded)**

## Required Return by Asset Class and Cost of Capital

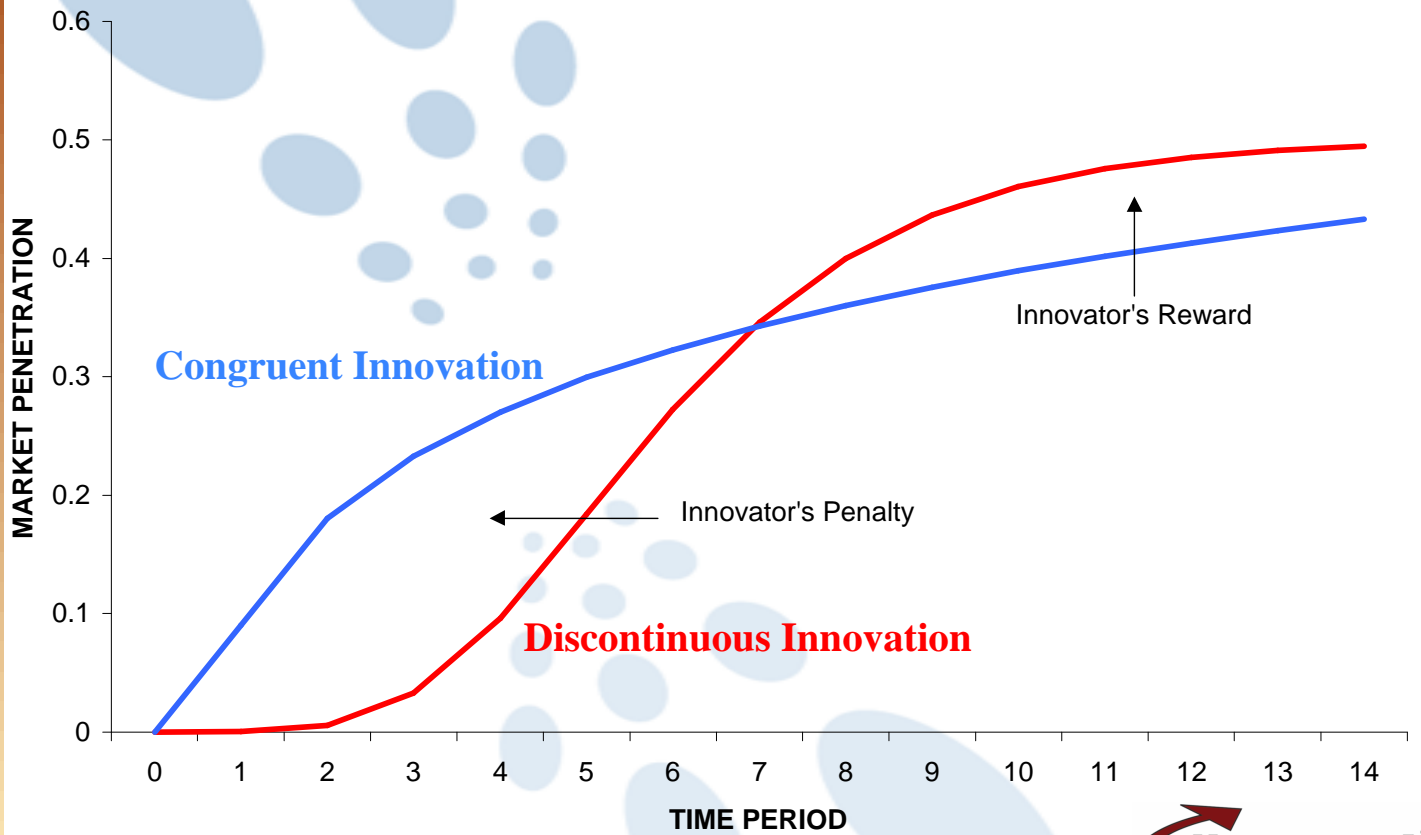


## TIME PERIOD

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- ◆ **Economic Life - Product Life Cycle**
  - Discontinuous Innovation
  - Congruent Innovation
- ◆ **Economic Life - Technological Obsolescence**
- ◆ **Economic Life - Functional Obsolescence**
- ◆ **Legislated/Statutory Life**
- ◆ **Contractual Life**

## CONGRUENT VERSUS DISCONTINUOUS INNOVATION



## VALUATION OF INTANGIBLE ASSETS / IP

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- ◆ Purpose and Use of Valuation
- ◆ Standards of Value - Value to whom?
- ◆ Premises of Value - How?
- ◆ Valuation Approaches





## PURPOSES AND USES OF IP/INTANGIBLE ASSET VALUATIONS

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- ◆ Financial Reporting
- ◆ Sale Transaction Support
- ◆ Licensing
- ◆ Strategic Alliances
- ◆ Infringement Damages
- ◆ Transfer Pricing
- ◆ Equity Raising
- ◆ Collateral-based Financing

## STANDARDS OF VALUE

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- ◆ Fair Market Value
- ◆ Fair Value
- ◆ Market Value
- ◆ Investment Value
- ◆ Collateral Value
- ◆ Arm's-Length Standard
- ◆ Other Standards of Value



## PREMISES OF VALUE

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- ◆ **Highest and Best Use Criteria**

- ◆ **Alternative Premises of Value**

- Value in continued use, as part of a going-concern business enterprise
- Value in place, but not in current use in the production of income
- Value in exchange, as part of an orderly disposition
- Value in exchange, as part of a forced liquidation (fire sale)



## VALUATION OF IP - THREE APPROACHES

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- ◆ **Market Approach**
- ◆ **Cost Approach**
- ◆ **Income Approach**



## MARKET APPROACH

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- ◆ Provides indications of value by studying transactions of property similar to the property for which a value conclusion is sought.
- ◆ Requirements
  - Active market involving comparable property
  - Past transactions of comparable property
  - Access to transaction price information
  - Arm's-length transactions between unconnected parties



## **COST APPROACH**

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- ◆ **Replacement Cost Method**
  - Cost of obtaining a property of equivalent utility
    - "Cost of Replacement"
- ◆ **Reproduction Cost Method**
  - Cost to obtain an unused replica of the subject property
    - "Cost of Reproduction New"
- ◆ **Valuation (as opposed to accounting) Depreciation**
  - Physical depreciation - wear and tear
  - Functional obsolescence

## INCOME APPROACH

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- ◆ Defining the Economic Benefit
- ◆ Capitalization or Discount Rate
- ◆ Economic Life

# INCOME APPROACH METHODS FOR DEFINING ECONOMIC BENEFITS

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## ◆ Direct Methods

- Increased revenues
  - Product sales
  - Licensing
- Cost savings

## ◆ Indirect Methods

- Relief from royalty
- Comparative business valuation
- Analytical methods - IP as part of a portfolio of assets of the business enterprise





## USE OF VARIOUS VALUATION APPROACHES & METHODS

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- ◆ The various valuation approaches and methods provide the valuer with a “toolkit.”
- ◆ An assortment of tools will probably be used on a “job.”
- ◆ Proper use of the tools is guided by standards, for example
  - International Valuation Standards
  - Uniform Standards for Professional Appraisal Practice
  - Business Valuation Standards of the Institute of Business Appraisers.
- ◆ Proper use of the tools requires professional judgment and experience.
- ◆ Independence and lack of bias are key.



## VALUATION FOR FINANCIAL REPORTING - BUSINESS COMBINATIONS

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### ◆ Magnitude of Issue

- Explosion in M&A activity
- Relative importance of Intangible Assets/ IP
  - In the U.S., since 1980, the average ratio of market capitalization to book value has risen from slightly over one to a multiple higher than five.
  - In 1970, intangible assets represented less than 20% of the market value of the majority of U.S. public corporations. Now they represent 85%.



## VALUATION FOR FINANCIAL REPORTING - BUSINESS COMBINATIONS (Cont.)

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- ◆ **Monumental Change in Accounting for Business Combinations - SFAS 141 & 142**
  - **SFAS 141: “*Business Combinations*”**
  - **SFAS 142: “*Goodwill and Other Intangible Assets*”**
    - see: [www.fasb.org/st/summary/stsum142.shtml](http://www.fasb.org/st/summary/stsum142.shtml)
    - [www.fasb.org/st/summary/stsum142.shtml](http://www.fasb.org/st/summary/stsum142.shtml)
  
- ◆ **Status of International Accounting Standards re: Business Combinations**
  - see: [www.iasplus.com/index.htm](http://www.iasplus.com/index.htm)

## VALUATION ISSUES IN TRANSFER PRICING

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- ◆ **Increasing Role of Intangible Assets and IP in Cross-border Transactions**
- ◆ **Arm's-length Standard**
- ◆ **Comparable Methods**
- ◆ **Profit Split Method**
- ◆ **Other Methods**

# VALUATION ISSUES IN LICENSING & ROYALTY RATE DETERMINATION

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- ◆ Exploiting IP
- ◆ Bundle of Rights Theory
- ◆ Allocating Returns to IP
- ◆ Effect of Key Licensing Clauses on Valuation
- ◆ Discounted Cash Flow Analysis



## COMING ATTRACTIONS

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- ◆ Accounting Standards continue to move toward Fair Value - Internally Generated Intangibles
- ◆ Valuing Intangible Assets and IP as Real Options



## REAL OPTIONS: A BUSINESS, PROJECT OR INTELLECTUAL PROPERTY IS LIKE A STOCK OPTION

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- ◆ Stock options provide the holder the right, but not the obligation, to purchase (“call”) or sell (“put”) the underlying asset.
- ◆ Holder is able to wait and learn before spending.
- ◆ A drug development project provides management with a series of options to wait and learn.
- ◆ Before investing in Phase II trials, management learns outcome of Phase I (technology risk).
- ◆ Before investing in Phase II trials, management can reassess market developments (market risk).
- ◆ Before exploiting a patent, holder can assess market acceptance.



## REAL OPTIONS: SOME COMMON TYPES & FINANCIAL OPTION ANALOGS

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### REAL OPTION

- ◆ Defer investment
- ◆ Expand
- ◆ Shrink or contract
- ◆ Abandon / liquidate
- ◆ Shut down & restart
- ◆ Option to switch resources
- ◆ Option for phased and sequential investments

### FINANCIAL ANALOG

- ◆ Call
- ◆ Call
- ◆ Put
- ◆ Put
- ◆ Put / Call
- ◆ Call
- ◆ Call



## REAL OPTIONS: WHEN DO THEY REALLY HAVE VALUE?

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- ◆ A contingent investment exists.
- ◆ High volatility exists.
- ◆ A future opportunity exists apart from value created by currently controlled assets.
- ◆ For an expansion or deferred investment option, when the first investment is necessary to make subsequent investments (you have to purchase the option)
- ◆ When the investment can be divided and / or delayed.
- ◆ When the option entails a partially or totally exclusive right.

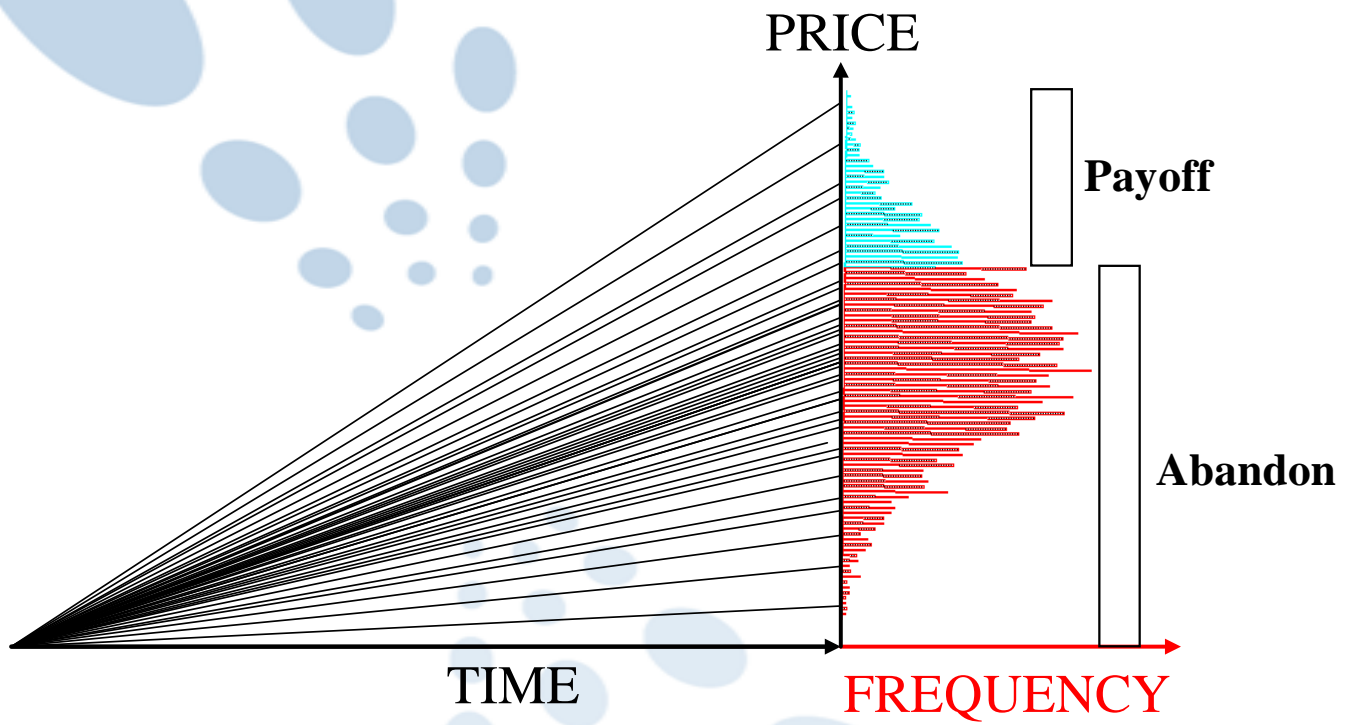


## VALUATION OF REAL OPTIONS

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- ◆ Black-Scholes Method
- ◆ Binomial Method
- ◆ Monte Carlo simulation

# OPTION VALUATION CONCEPT



## CONCLUSIONS

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- ◆ The proper valuation of Intellectual Property and Intangible Assets in today's economy is critical to the value creation process.
- ◆ Though valuers have a number of tools in their toolkits, the field is fast developing. More work remains to move from the theoretical to the practical.
- ◆ As valuation of IP is extremely complex, judgmental and developing, priority must be placed on valuer independence and competence.
- ◆ Standards are critical.