

The logo features the word "Negoceval" in a bold, italicized, black sans-serif font. A thick red arrow curves around the text, starting from the bottom right, looping under the word, and pointing towards the top left. To the right of the word is the trademark symbol "SM".

Negoceval SM



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

**Geneva, Switzerland
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REVOLUTIONARY CHANGES IN THINKING ABOUT INTELLECTUAL PROPERTY AND VALUE

◆ Economic Paradigm Shift

— 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%.

◆ Communication/IT Revolution

◆ Mergers & Acquisitions



DEFINITION OF INTANGIBLE ASSETS FROM A VALUATION PERSPECTIVE

- ◆ **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

- ◆ **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...

- ◆ **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

- ◆ **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

- ◆ **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

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



IP VALUE DETERMINANTS

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



BENEFIT STREAM

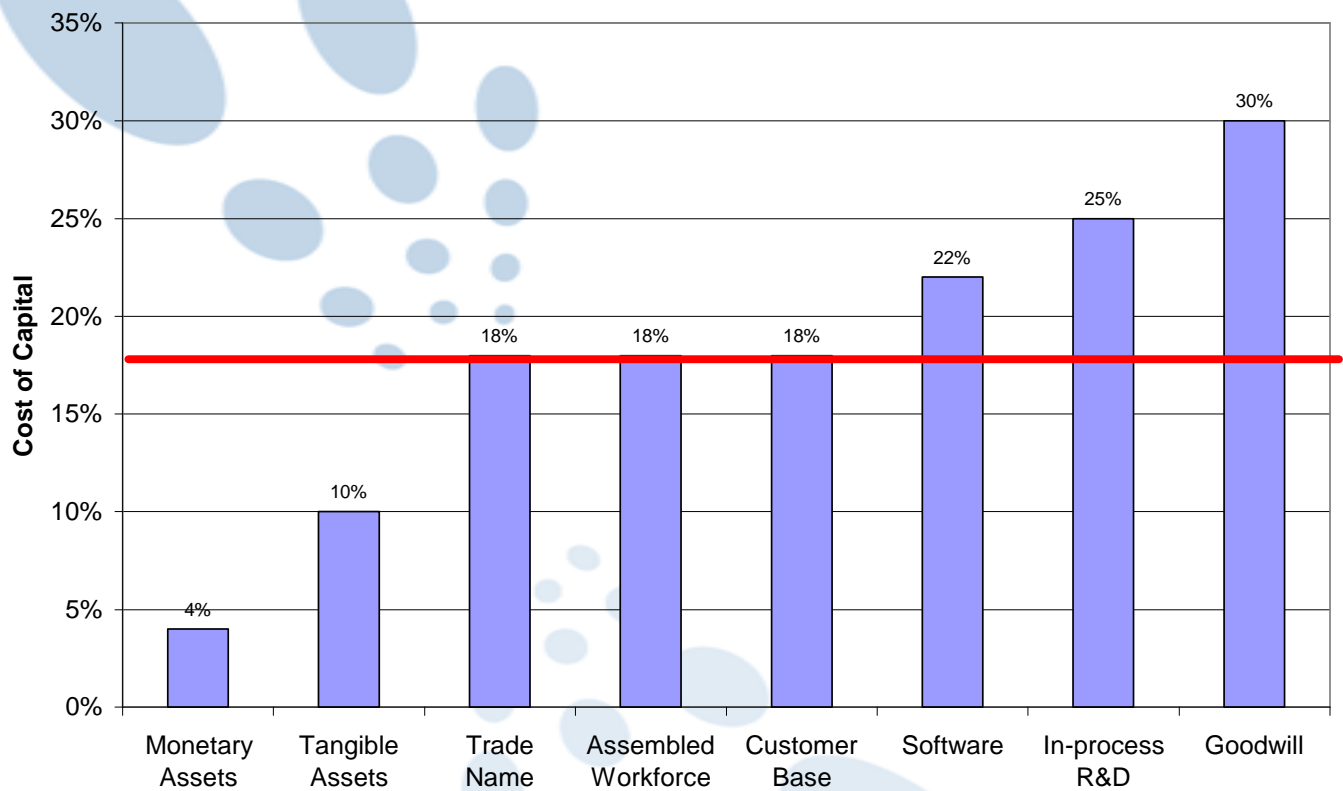
- ◆ Economic Conditions
- ◆ Profitability
- ◆ Complementary Assets



RISK

- ◆ **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

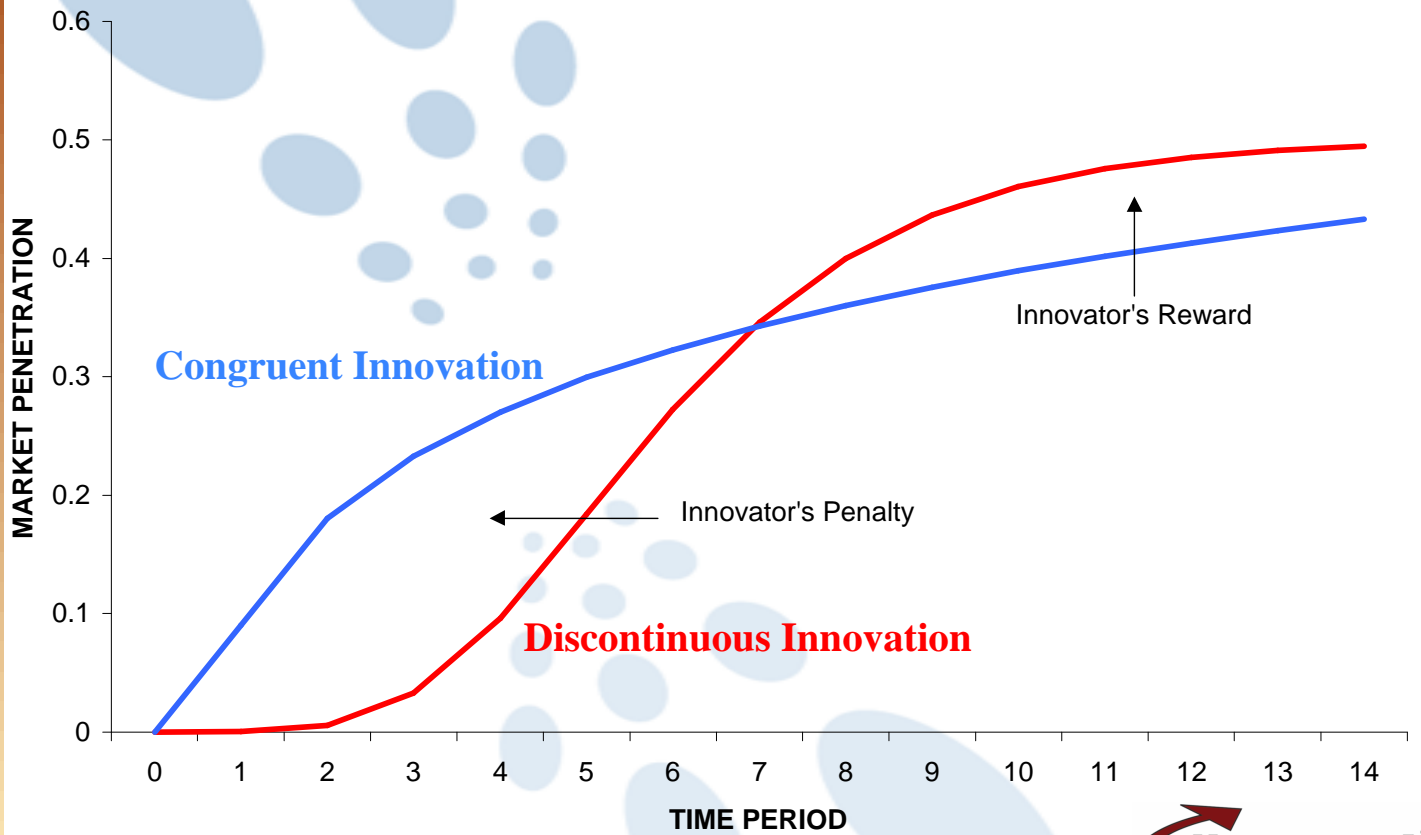


TIME PERIOD

- ◆ **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

- ◆ 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

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



STANDARDS OF VALUE

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



PREMISES OF VALUE

- ◆ **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)



VALUE IN USE VERSUS VALUE IN LIQUIDATION

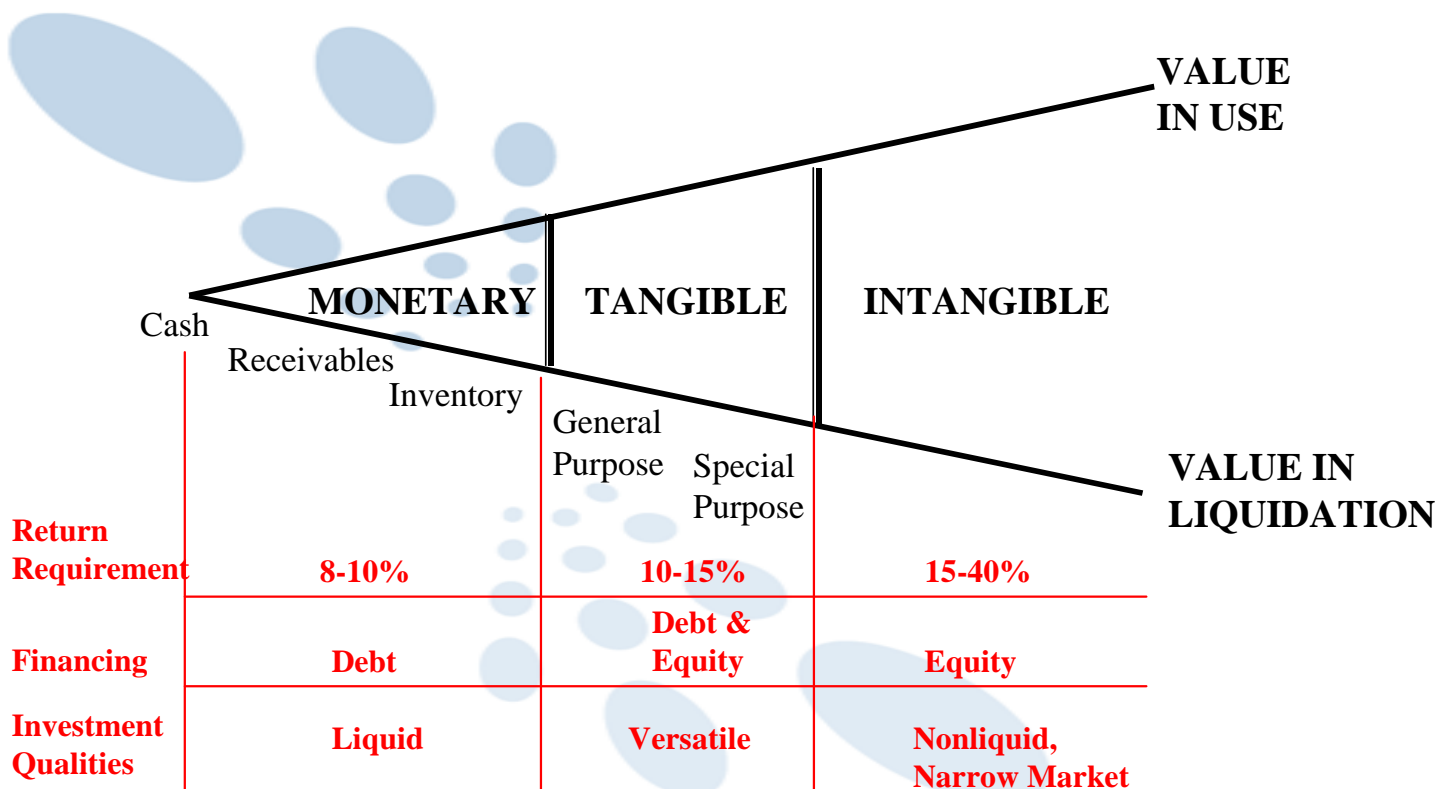
◆ Asset Characteristics

- Monetary Assets
- Tangible Assets
- Intangible Assets (including Intellectual Property)

◆ Other Factors

- Why has the business become insolvent
- Insolvency caused by internal events versus insolvency caused by external events

ASSET CHARACTERISTICS & PREMISE OF VALUE



Source: Russell L. Parr and Gordon V. Smith
Valuation of Intellectual Property and Intangible Assets



VALUATION OF IP - THREE APPROACHES

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



MARKET APPROACH

- ◆ 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

- ◆ **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

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

INCOME APPROACH METHODS FOR DEFINING ECONOMIC BENEFITS

◆ 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

- ◆ 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.



COMING ATTRACTION

- ◆ Valuing Intangible Assets and IP as Real Options



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

- ◆ 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

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?

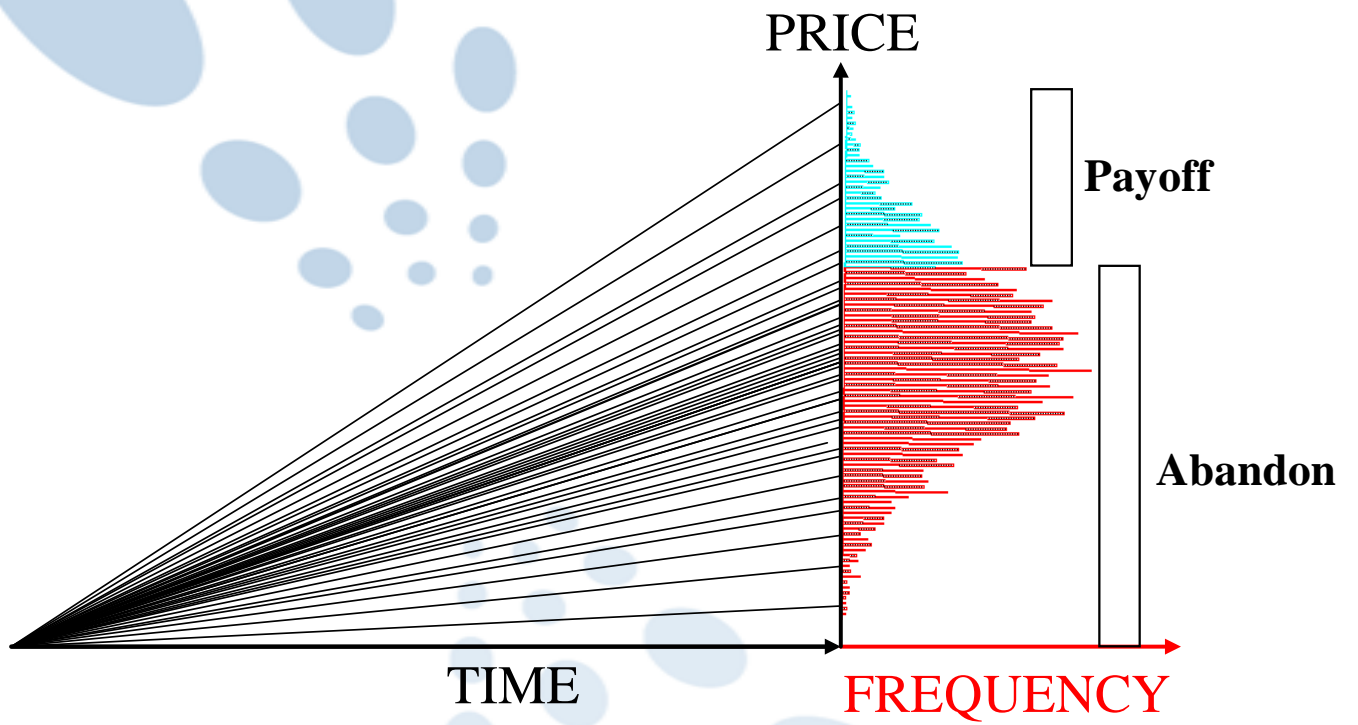
- ◆ A contingent investment exists.
- ◆ High volatility exists.
- ◆ A future opportunity exists apart from value created by currently controlled assets.
- ◆ For an expansion or deferred investment option, when the first investment is necessary to make subsequent investments (you have to purchase the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



VALUATION OF REAL OPTIONS

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

OPTION VALUATION CONCEPT



CONCLUSIONS

- ◆ 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.