

Easy-to-use methods for Valuation of Intellectual Property should facilitate open innovation, knowledge diffusion and have implications for private and public sectors.

Massimo Iacobelli, MD
VP Scientific director
Gentium SpA (GENT, NASDAQ),
Villa Guardia (Como), Italy

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Innovation = competitiveness

- It is an established notion that technology innovation plays a vital role in building national competitiveness
- Every state and corporation is concentrating on fortifying their global competitiveness with high technology development capability that is difficult to imitate.

Open Innovation

- Open Innovation is a paradigm that assumes that firms can and should use external as well as internal ideas.....as the firms look to advance their technology'
- Components have been around for 20 to 80 years
 - Adaptations from other industries and geographies
 - Technology scouting, technology watch, ...
 - Partnerships and joint ventures
 - Corporate Venture Capital
 - Spin-outs

Open Innovation

- This seems an easy concept, but into the late 1990s:
 - Collaboration was Rare
 - “Do-it-Yourself” was the method
 - “Not invented here.....”
- But things changed....
 - Procter & Gamble was one of the first....



The Logic of Open Innovation

- Up to now most of the innovations have been marginal. We have not seen disruptive innovation.
- Good ideas are widely distributed.
No one has a monopoly on useful knowledge anymore
Not all smart people in the world work for us
- Being first to discover is neither necessary nor sufficient to win in the market
- A better business model beats a better technology
- IP must be managed as a perishable asset
 - “use it or lose it” - Market and customers won’t wait
 - too much unused IP

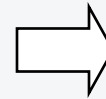
Best Practice in Managing IP.....

- The defensive mentality of managing IP:
 - Preserve freedom to operate
 - Minimize risk of being sued for IP infringement
 - Little interest in revenue generation
 - Cross licensing (products) viewed as best approach
 - No interest in exploring new markets
 - Manage what could go wrong
- **But this is changing.....**

A new approach to Managing IP

- Manage IP to create value, and capture value:

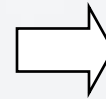
- **Use external IP to growth your own business**



additional
revenue

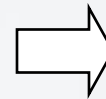
- **Allow other to use your IP to growth their business**

- Explore new markets through outlicensing activity



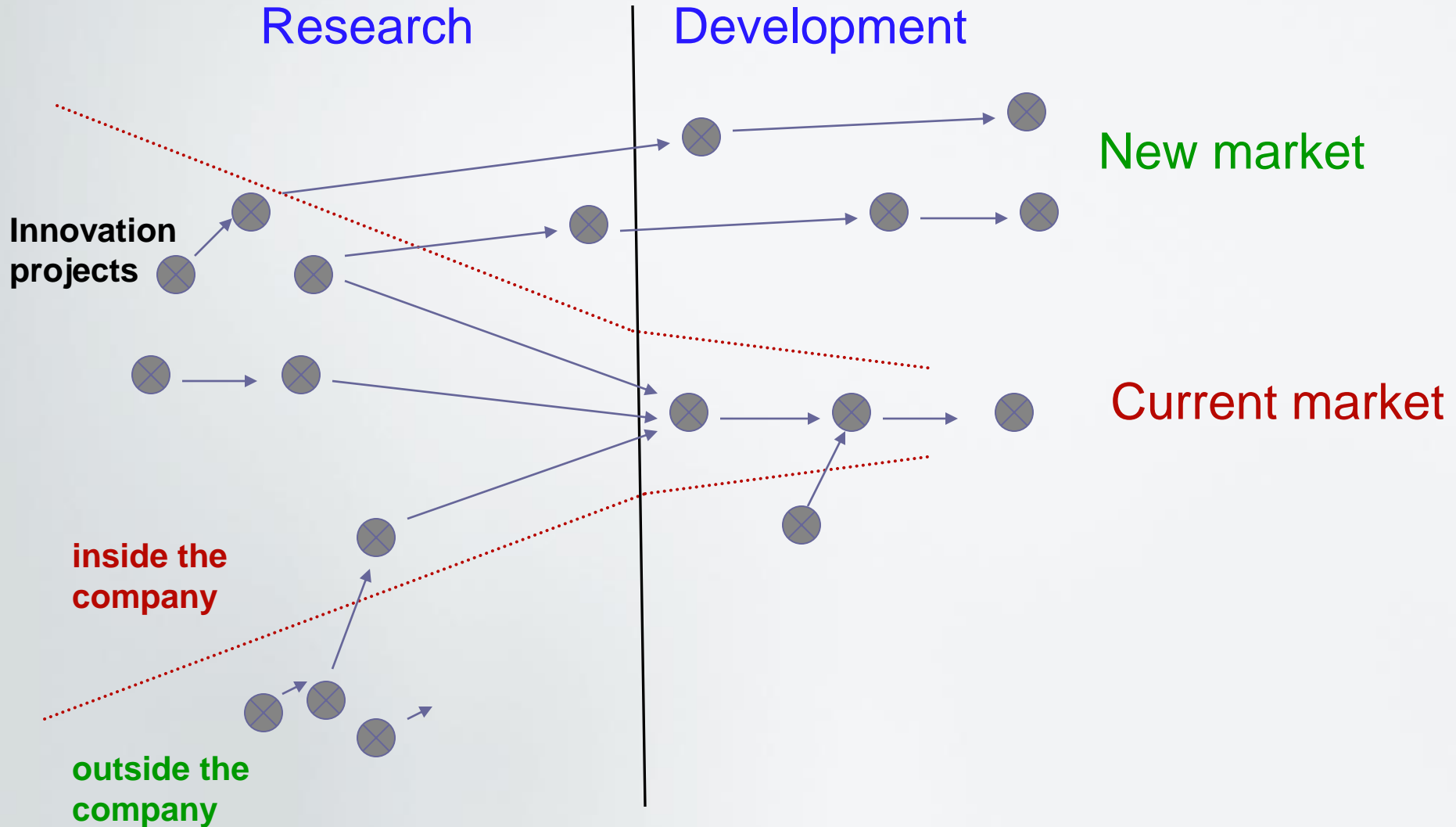
additional
profit

- Reduce maintenance fees for your IP



reduction
of cost

Open Innovation



Open Innovation

- Recently, a number of big companies are making available most of their not used patents.
- Most of these patents are going to be transferred to small companies and start-ups
 - that should receive new technologies in change of royalty payments when the technology enter the market.
- Universities should be part of this process and some new models for collaboration are emerging.

Technology Valuation

- In this context, the number of available technologies that need valuation by subjects looking to new technologies is higher than in the past
- Easy to use methods should facilitate and increase efficiency in the process of decision making for technology transfer.

Price vs. Value

- **“Price is what you pay.**
- **Value is what you get.”**

-- Warren Buffett

Technology Valuation

- Valuation is a prediction of an asset's price
- Price is the amount actually paid for an asset in an arm's length exchange.
- Asset liquidity affects valuation:
 - less liquid asset have farther apart valuation and price
- Intellectual property is highly non-liquid asset.

Concept of technology valuation

- Technologies that are not defined as intellectual properties are
 - mostly those that are difficult to recognize
 - or difficult to assess their value independent of the owner (company, individual),
- it is rare for such technology to become the object of valuation.

Concept of technology valuation

- Valuations need to be turned into Pricing
- Economically speaking,
 - the **value refers to the opportunity cost**, which becomes the standard of the transaction,
 - while **the market price becomes the exchange value**

Concept of technology valuation

- However, as the market for technology cannot be created easily,
- a difficulty arises in determining the exchange value of technology through the market mechanism efficiently.
- additional effort in estimating the fair market value, supposing a competitive market, is required.

Technology Valuation

- Objective input about an invention's likely value becomes more available over time, as one moves through each phase.
- However, it should be necessary to assess value of technologies at very beginning of the cycle (ie invention disclosure, patenting decision),
 - to define a technology transfer portfolio
 - to allows prioritization of resources,
 - calculation of potential returns.

Technology Valuation

- Many Subjects may need to value technologies:
 - Universities
 - Start-ups
 - Big companies
 - willing sellers and buyers in general
 - Investment Bankers
 - Secured creditors

Technology Valuation

Technology is valued:

- prospectively by deal makers



- technology value is extracted over time and valuation may occur at many different points in the invention cycle.

- retrospectively by litigators



- value is established at a point in time and, normally, the valuation is adversarial with an outcome imposed judicially.

Concept of technology valuation

- Technology, which becomes the object of technology valuation, is divided into:
- **Narrow concept of technology**
 - refers to intellectual property including patent, utility model patent, and trademark in addition to disparate technology such as knowhow, trade secret, and computer software.
- **Broad concept**
 - is not limited to individual technology, but covers the firm's total technological capability as well.

Technology Valuation

- Valuation models thus far have assessed the value of technology from the perspective of the firm in possession of the technology,
 - but such assessment is greatly influenced by the firm's technological capability, capitalization, brand, and human resources.
- what the market needs is the worth of technology as a product to be traded in the market,
 - and this calls for an impartial and objective value that is **not influenced by the specific company that owns it.**

Concept of technology valuation

Payments for a technology should be made:

- by cash 

- with upfront and milestones payments
- up-front fees are a lump-sum payment that represent the “present” or “now” value of the technology.

- through royalties 

- running royalties represent a “future” payment for the technology.
- The royalty rate for a license deal depends on a large number of factors.

- equity 

- in stock of a company

Technology Valuation

- The royalty rate for a technology license deal depends on a large number of factors.
- One important factor is the strength and scope of Intellectual Property (IP) protection.
- Stronger patent protection translates to higher royalties:
 - For example, a technology fenced using multiple patents will generally command higher licensing royalties than one covered through a single weak patent.

The economic value of a patent depends fundamentally upon the nature and extent of non-infringing substitutes.

Methodology for technology valuation

- Many different methods have been used:
- Normally a mix and match is used.
- Additional techniques are available.

Methods for Valuation of IP

Methodology	
Cost Analysis	Estimates the cost of recreating the technology being valued
25 Percent Rule	The Rules of Thumb (ie the 25% rule) is based on the Goldscheider Principle (Goldscheider, 1980). It is expressed in % of net sales in license royalty rate (25% of expected profit margin).
Industry Standard/Royalty Rate	Royalty rates in past transactions in an industry. The Industry Standards–Comparables is probably the most important method for academic licensing.
Ranking/Rating	Based on panels of expert reviewing technology from various perspectives (ie market size, patent protection, stage of development, probability of success). This method need scoring criteria and decision tables.
Auction	The Auction is growing in the interest of sellers and buyers of technologies. It only works for a hot technology with seller's market.
Equity	In a license, Equity should substitute for one or more cash components, generally the upfront fee (to pay early milestone payments in stock).
Discounted Cash Flow	Time Value of Money. Need to be compensated for: inflation, risk the payment won't be made, a return on the investment

Easy to use methods for Valuation of IP

- The valuation methods that have been developed are:
 - either inexpensive, but yielding very coarse results,
 - or expensive, but yielding more detailed valuation results.
- Additional methods that measures the principal determinants of IP value in an affordable, easy-to-use way are available.

Easy to use methods for Valuation of IP: Competitive Advantage Valuation™ (CAV)

- Competitive Advantage Valuation™ (CAV) is a new method to value intellectual property assets.
- Developed by the Technology Commercialization Research Center at Syracuse University (Hagelin, 2002)
- The CAV method was specifically developed to strike a unique balance between cost and precision.
- This method measures the principal determinants of IP value in an affordable, easy-to-use way.
- This method is the only intellectual property valuation method that is implemented in a software program.

Easy to use methods for Valuation of IP: Competitive Advantage Valuation™ (CAV)

- The major premise of the CAV method is that intellectual property assets have no inherent value;
 - the value resides entirely in the value of the tangible assets which incorporate them.
 - the value can best be measured by the competitive advantage which that asset contributes to a product, process, or service.
- In comparison to other valuation methods, the CAV method combines a number of unique features: it is easily understandable, is affordable in terms of time and cost, is flexible and scalable, precise and repeatable.

Conclusions

- A number of new methods to value intellectual property have been developed in recent years.
- Although each of these methods has certain limitations, together they have provided intellectual property and technology transfer managers a very useful new set of decision-making tools.
- No single method for valuing intellectual property assets is definitive.
- Also, as with the valuation of tangible assets, the methods for valuing intellectual property assets will be subject to continuing research and refinement.

Conclusions

- Not expensive and easy-to-use methods for technology valuation should be useful for companies looking to new technologies, and other subjects involved in technology transactions, to value the number of technologies that become available in the context of open innovation.
- The Competitive Advantage Valuation™ (CAV) is a new easy-to-use method to value intellectual property assets.

Easy to use methods for Valuation of IP: Competitive Advantage Valuation™ (CAV)

<p>(a) the CAV method is easily understandable</p>	<p>to the broad cross-section of professionals practicing in the fields of licensing and intellectual property management. The easier a valuation method is to understand, the lower the transaction costs of negotiation and the quicker the parties can know whether an agreement can be reached.</p>
<p>(b) The method is affordable in terms of the time and cost</p>	<p>of obtaining necessary information and performing the valuation analysis. More affordable a valuation method is, the more broadly it can be adopted and the more likely it can be standardized. This method is the only intellectual property valuation method that is implemented in a software program. The software makes intellectual property valuation analyses quicker, easier and even more precise.</p>
<p>(c) The method is flexible</p>	<p>and can be used to value any type of intellectual property as well as licenses, prospective research and development investments, and pre-market products. The more flexible a valuation method is, the more it can be shared across business divisions and used as a common benchmark.</p>

Easy to use methods for Valuation of IP: Competitive Advantage Valuation™ (CAV)

<p>(d) The CAV method is scalable.</p>	<p>A simple analysis can be performed using built-in default formulas to calculate values and more advanced analyses can be performed using statistical software tools to calculate values. The more scalable a valuation method is, the greater the user's ability to choose the trade-off between the time and cost of the valuation, and the desired degree of accuracy of the result.</p>
<p>(e) The method is precise</p>	<p>and it can be used to determine the exact dollar value of individual intellectual property assets and to calculate differences in dollar value within a group of related intellectual property assets. The more precise a valuation method is, the more useful it is in managing intellectual property assets and in comparing intellectual property asset values.</p>
<p>(f) The CAV method is repeatable</p>	<p>and not dependent upon the subjective choices of individuals or groups. The more repeatable a valuation method is, the easier it is for parties to focus their attention on the variables and value inputs on which they agree or disagree.</p>

Easy to use methods for Valuation of IP: Competitive Advantage Valuation™ (CAV)

Step 1:	Calculate the Net Present Value of total profits for intended application market
Step 2:	Calculate the percentage of dollar amount of profit attributable to Technical Intellectual Property asset
Step 3:	Calculate specific competitive advantage relative to average substitute technology, based on price & performance criteria, within the context of market needs & customer priorities
Step 4:	Calculate predicted market share and profit based on competitive advantage relative to average substitute technology
Step 5:	Adjust for technical, market and intellectual property risk, based on stage of technical development, vulnerability, competition and potential for competitors to engineer around patent
Step 6:	Based on inventor/ assignor/ licensor pre-transfer investment, and assignee/ licensee post-transfer investment, calculate an equal return payment – a dollar payment which provides the inventor/ assignor/ licensor and assignee/ licensee an equal rate of return on their respective, risk adjusted investment in the technology
Step 7:	Determine upfront payment versus royalty rate, as basis for discussion and negotiation
Step 8:	Compare CAV valuation results with standard 25% Rule, and 25% Rule modified for ntechnical intellectual property disaggregation, and technical, market and intellectual property risk adjustment
Step 9:	Review, save and/or print the valuation summary, for negotiation, consulting, planning or reporting purpose