IP Valuation Committee

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www.les-france.org

Why do we focus on intangible (IP) assets?

- **Intangible value of enterprises**
  - Recognition of intangible assets as part of Company value
  - Increasing trend of % intangible value vs. total value
  - A recognized need to increase market actors' confidence in Intangible Value
  - Intangible assets interact: complementarity of assets

- **Intellectual Property assets**
  - Intangible in essence
  - In interaction with other assets (tangible and intangible – e.g. human capital)
  - Protected by Rights and/or secret
  - Forward-looking: what usage do they allow? **How and why are they bearing a value now or are they going to bear a value later ?**
  - **...**

Why value intangibles?
Because (some) economic value is needed for a wide spectrum of usages

- **Enterprise/ Management-Oriented**
  - R&D cost decision/allocation
  - Other strategic decision-making / cost allocations /...
- **Transfer-oriented**
  - Intra-Group Transfer Pricing
  - Licensing /Sale-purchase of technologies, trademarks
  - R&D partnerships, ...
- **Conflict-oriented** : **evaluation of damages**
- **Finance and accounting-oriented**
  - Mergers & Acquisitions: Purchase Price Allocations
  - Income or market- view (e.g. debt financing)

LES FRANCE IP VALUATION COMMITTEE

- **Our Objectives**
  - Foster a common culture and understanding of IP Valuation
  - Prepare us to be able to use best judgement when choosing/applying/being provided with valuations
  - Detect and promote complimentary and/or new approaches where needed
- **Our general roadmap**
  - **Think and act worldwide (i.e. exchange and cross-fertilize with other LES and LESI)**
  - **Share and educate : build and update Toolbox, Databases and Literature Repository**
  - **Be concrete: case studies & applied methods**

WHAT IS THE VALUE OF AN INTANGIBLE ASSET?

- **It is AN OPINION (*)**
  - At a given point in time
  - Under given circumstances
  - In many ways similar to a legal opinion
- **It is influenced and complicated by a huge spectrum of factors**
  - Need to evaluate the perimeter of IP Assets encompassed in the Opinion (patents, trademarks, know-how, designs, copyrights…)
  - Need to state the context in which the Opinion is requested : Knowledge is not put in practice equally by potential users
  - Need to find comparables, knowing that no two IP assets are equal: comparisons are at best judgements
  - Convincing forward-looking assumptions: the future is uncertain...
- **Thus it contains an intrinsic uncertainty.**

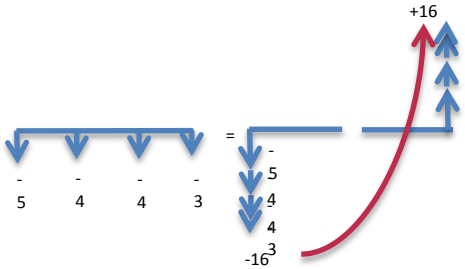
(*) Final Report from the Expert Group on Intellectual Property Valuation, European Commission, Nov 2013

Methodologies: Past, Present, Future-Rooted

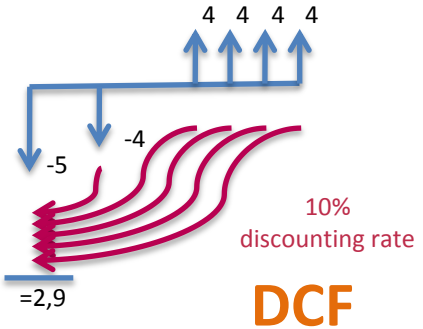
Past

Present

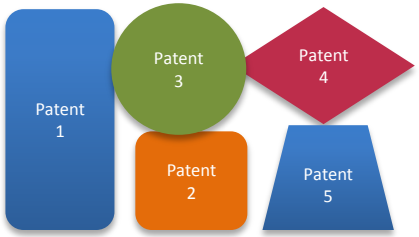
Future



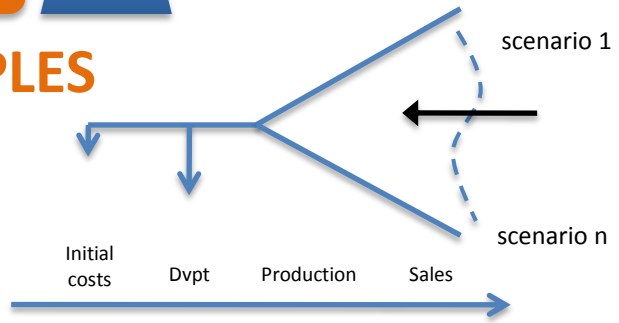
HISTORICAL COSTS



DCF



MULTIPLES



REAL OPTIONS

Cost Approach

Approximates the IP/Technology by the costs of replacement/creation of equivalent IP/Technology

- Generally R&D costs and patent filing related costs

Correlation between costs and value is generally highly questionnable

- Wholly disregards the uniqueness of the IP/Technology
- Does not reflect the evolution of the environment: time-lag effects
- Does not reflect earning power of IP/Technology and ultimate market share

Useful in case there is no other available data

- **More adapted to Early Stage development IP/Technologies**

Market Approach

Parallels the subject intangible asset with comparable or similar intangible assets that have been sold or listed for sale

- Difficulty lies in comparability
- **More adapted for mature and fully developed technologies**

Multiple Index approaches rationalize comparability

- Patent family sise
- Citations analysis, technical coverage
- Geographical coverage, legal strength
- Market attractiveness

Comparisons are as good as the transactions database is....

Revenue-based Approaches

Identifies the value of the assets with that of the future revenues derived from it

- Means a reasonable business plan exists
- **Thus adapted for technologies close to market**

The most common approaches are based on Discounted Cash Flows

- Implies estimating the **probable** incremental cash provided by the asset
  - Royalty, Incremental margins (Sales increase ad/or cost savings)
- Implies to assess the part of revenues strictly linked to the IP/technology/IP

Real Options approaches integrate explicitly in a dynamic way probabilities and revenues

Discounted Cash Flow – The basics of NPV

- **NPV is based on the following trends**

$$NPV \sim \frac{Cash\ Flow}{Discount\ Rate\ - Growth\ Rate}$$

- **When Cash flow is a Royalty**

$$\boldsymbol{NPV \sim \frac{\%Royalty.Sales}{Discount\ Rate\ - Growth\ Rate}}$$

Orders of magnitude and variability

Sales 100 M€/y

		Discount Rate			
		9%	**10%**	**11%**	**1% DR impact**
					-13%
Royalty Rate	**4,0%**	67 €	57 €	50 €	
	5,0%	83 €	**71 €**	63 €	**1% Royalty impact**
	6,0%	100 €	86 €	75 €	**22%**

		Discount Rate			
		9%	**10%**	**11%**	**1% DR impact**
					-12%
Growth Rate	**2,0%**	71 €	63 €	56 €	
	3,0%	83 €	**71 €**	63 €	**1% Growth impact**
	4,0%	100 €	83 €	71 €	**18%**

Only considering ± 1% on Discount Rate, Royalty Rate or Growth Rate implies >±15M€ uncertainty on the 71M€ central value: **one has to live with uncertainty**

Royalty Rates

- **Most generally : benchmark from databases – a specialist job**
- **Many issues**
  - Comparaility of benchmarks
    - Read agreements
    - Rejection process
  - Stacking issues for complementary technologies
- **Need to be commensurate with business performance**
  - **20-30% of EBIT rule**
  - **No standard**

	Average	Median	1st Quartile	3rd Quartile	Maximum	Minimum	Count
Chemicals	4.9%	4.5%	2.5%	5.5%	40.0%	0.1%	181
Internet	16.6%	12.5%	5.0%	24.1%	80.0%	0.3%	408
Telecom (excluding Media)	6.4%	4.5%	2.3%	6.5%	50.0%	0.0%	187
Consumer Goods, Retail & Leisure	5.9%	5.0%	2.8%	7.0%	40.0%	0.0%	313
Media & Entertainment	9.8%	5.5%	2.8%	10.0%	80.0%	0.1%	85
Food	5.8%	4.0%	2.5%	5.5%	70.0%	0.3%	133
Medical & Health Products	5.9%	4.5%	2.5%	6.8%	80.0%	0.0%	939
Pharmaceuticals & Biotechnology	7.7%	5.0%	2.5%	9.0%	90.0%	0.0%	2,655
Energy & Environment	5.9%	4.5%	2.5%	7.0%	75.0%	0.1%	495
Machines & Tools	5.9%	4.3%	2.8%	6.3%	50.0%	0.5%	141
Automotive	5.1%	4.3%	2.5%	6.0%	30.0%	0.5%	142
Electrical & Electronics	4.7%	4.1%	2.5%	5.5%	25.0%	0.1%	220
Semiconductors	5.0%	3.9%	1.9%	5.5%	50.0%	0.0%	144
Computers & Office Equipment	5.4%	4.0%	2.3%	6.8%	30.0%	0.2%	133
Software	14.0%	9.0%	4.5%	21.0%	77.0%	0.0%	491
Summary	**7.8%**	**5.0%**			**90.0%**	**0.0%**	**6,667**

Discount Rates – KEY ISSUE

- **Discount rates must capture the risk profiles of cash flows**
  - Databases provide estimates
  - No real consensus

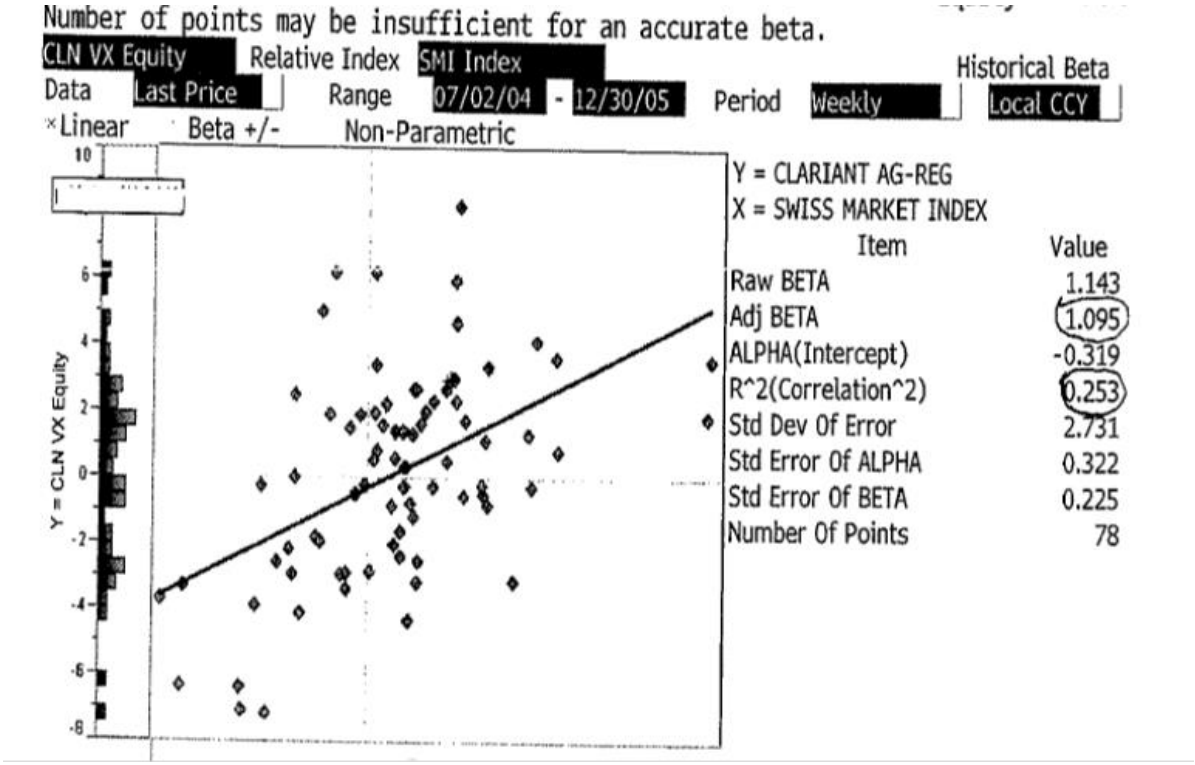
- **Some models exist : example Capital Asset Pricing Model (CAPM)**
  - **Assumes linear relationship between market behaviour and asset risk**

Discount Rate = Low risk D.R + Beta x Risk Premium

Beta = covariance of market and cash flow volatility

Discount Rates – CAPM Statistical relevance

- **Beta has generally a (very) poor statistical meaning**



Conclusion: use common sense and ... Wait for / develop a real science of discount rates

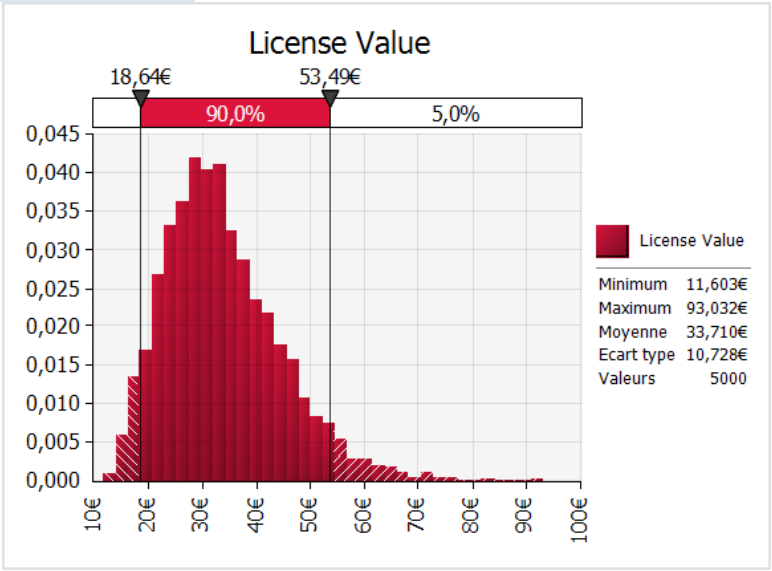
Putting it all together - Variability

- **Real example of a License purchase negotiation (€ rescaled)**

	Base Case	Min	Peek	Max
Net sales first year	**100**	80	100	120
yoy Growth rate	**3%**	1%	3%	10%
Royalty Rate vs. Net Sales	**5%**	3%	5%	10%
Duration	**10**	5	10	15
Peers WACC	**10%**	8%	10%	12%
Technology Risk Premium	**1%**	0,5%	1,0%	5,0%
Statutory Tax Rate	**30%**	25%	30%	35%
Withholding Tax on Royalty	**10%**	0%	10%	10%
Tax amortization time for Buyer	**5**	5	10	15

Input parameters ranges: from experience and statistical analysis

Simulation of 5000 Scenarii
(« Monte Carlo »)
License Value lies in a range
15M€ - 50 M€
3x is rather usual



Real Option Valuation and Reasoning (ROV & ROR)

The value is that of the right but not the obligation to exercise an option

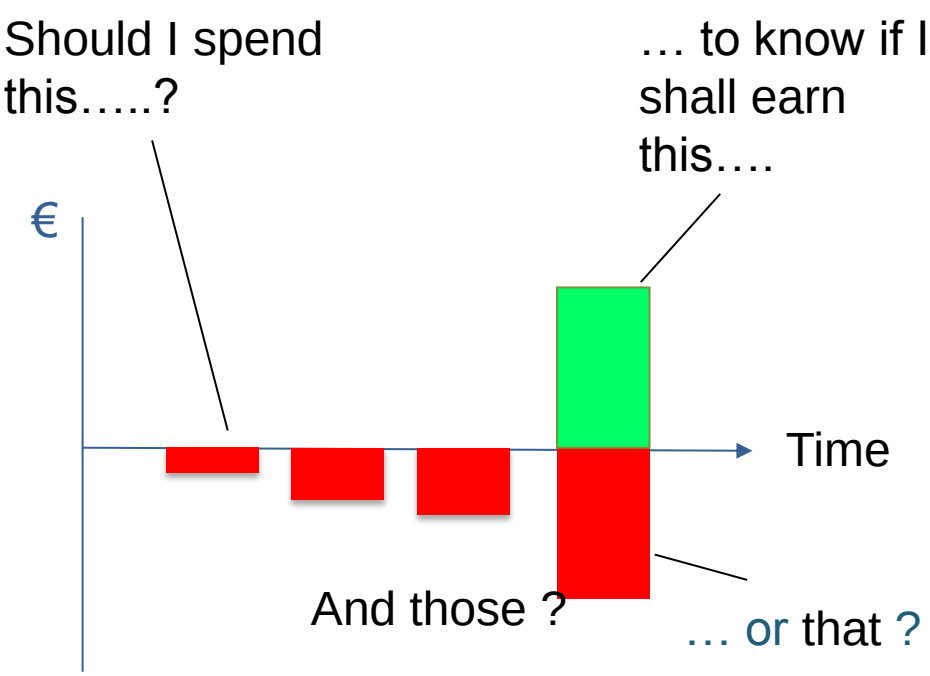
- The RO Approach allows the recognition of flexibility and of multiple outcomes,
- **A vision of the possible outcomes is required**

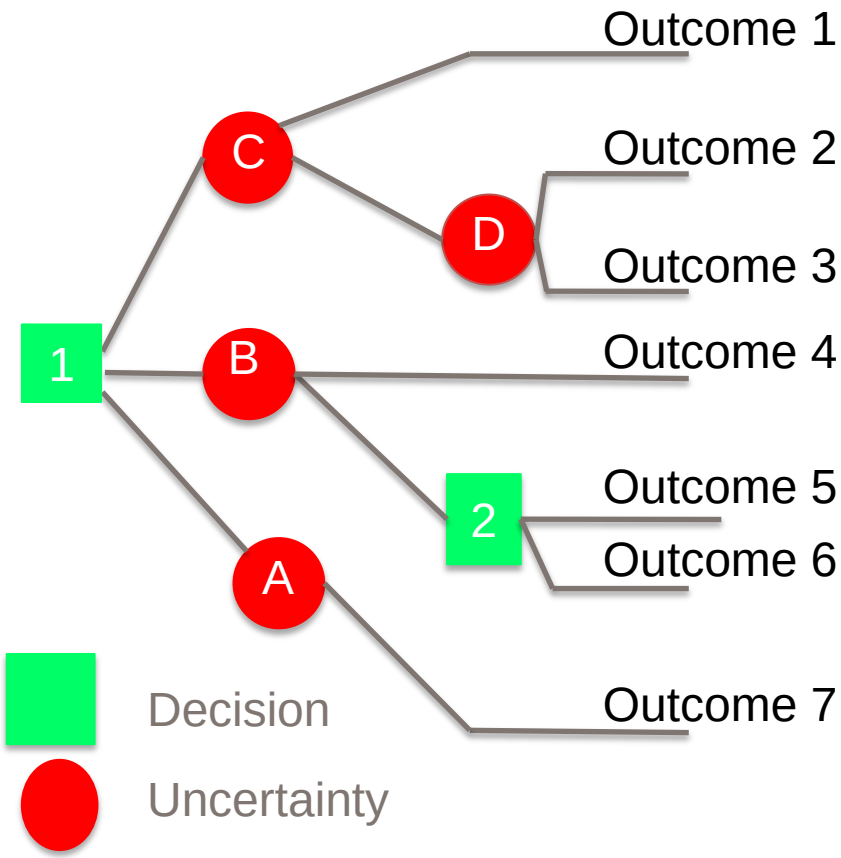
Based on Black and Scholes or a lattice model in discrete time.

- Implies that the decision to invest is **reversible**
- Rejects determinism but a diffusion processes must be specified
- Also relies on a busines plan and on DCF as proxy of the underlying asset value, i.e. requires discounting rates

ROR allows dynamic projections and multiple scenarios, and reduces the power of assumptions

REAL OPTIONS APPROACH
TIME IS ON YOUR SIDE – ALTERNATIVE PATHS

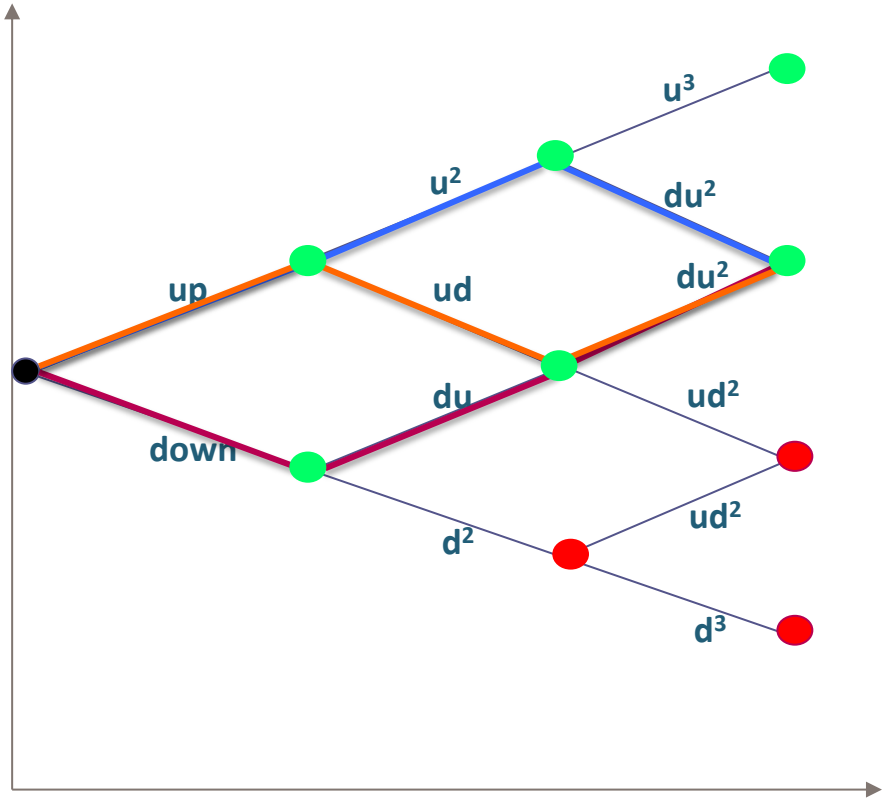




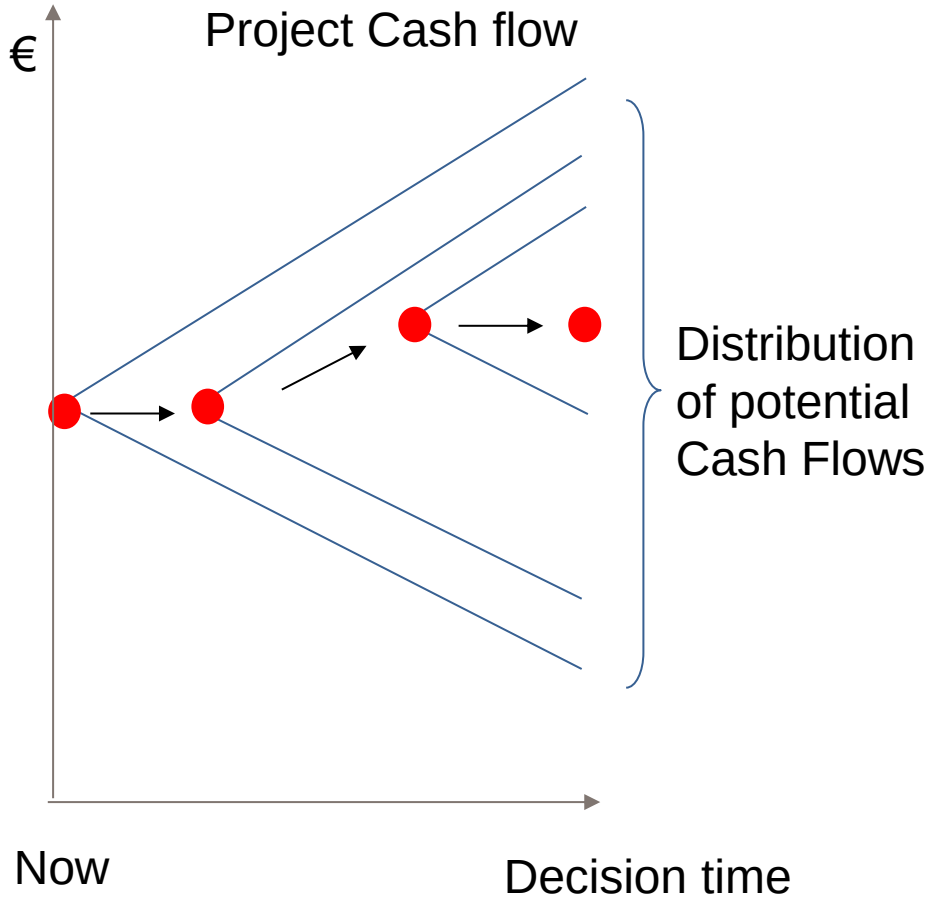
TIME + CHOICE = VALUE PREMIUM

REAL OPTIONS APPROACH

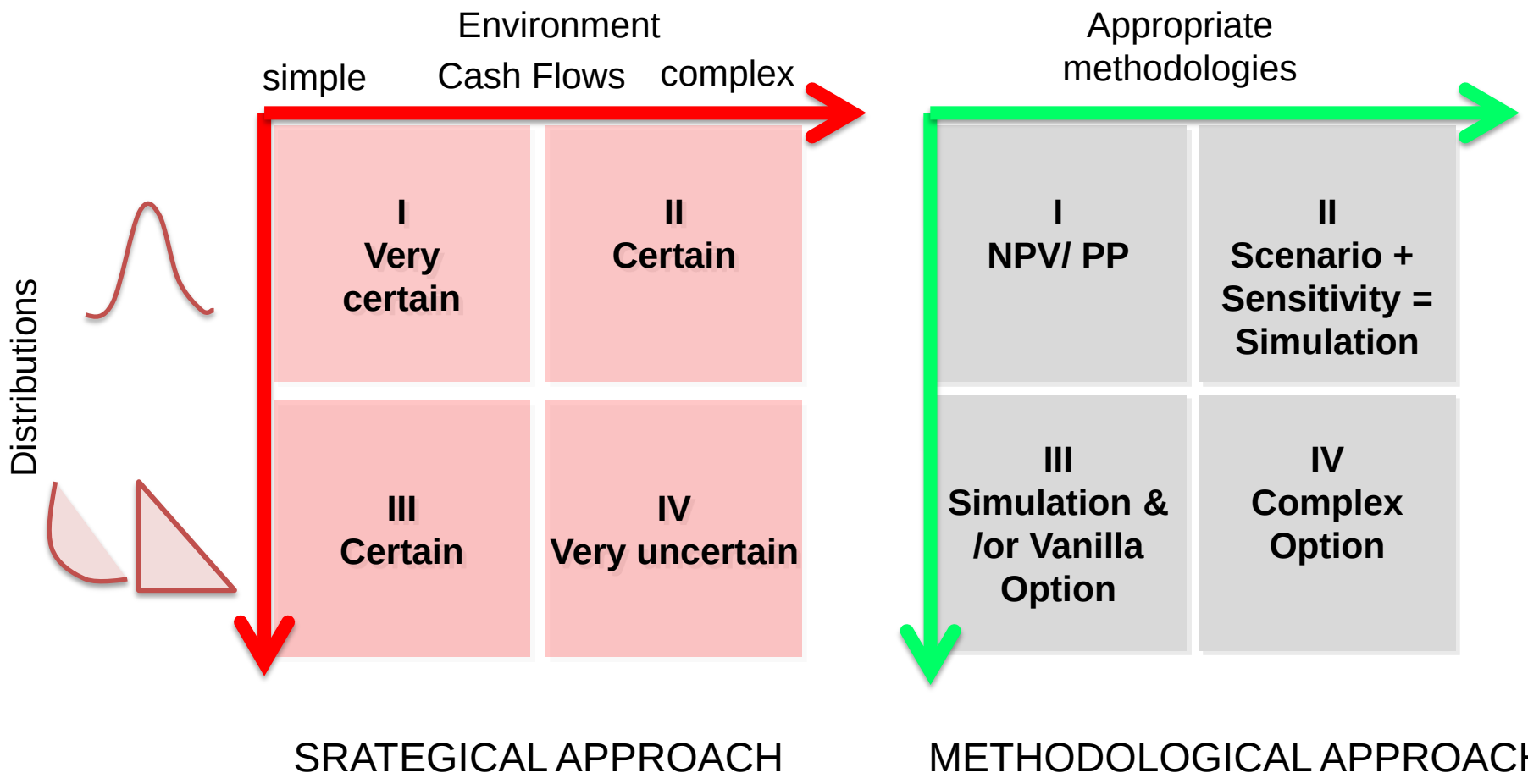
Time reduces uncertainty – One value, several paths



Extended project value
=
NPV+ flexibility (option)



REAL OPTIONS APPROACH
One size doesn't fit all : a quadrant approach



IP Valuation Committee – What we achieved so far

- **Meetings in Nov 2016, March, July, November 2017**
  - Prepared with the Restricted Committee (A. Carrel, A. Bounfour, A. Dupont, F. Hagel, J.C. Lafon, J. Planté-Bordeneuve)
  - 18-24 attendants, High level of satisfaction
- **Content**
  - General themes
    - Critical dimensions & KPI (F. Hagel, A. Gorius)
    - Strategy & Complementarity of assets (A. Bounfour)
  - Methods
    - Market Comparables (A. Zagos, ext.)
    - Revenues (A. Dupont)
    - Software and Discount Rates (S. Gamet)
    - Real Options (V. Blum)
  - Case Studies
    - FRAND Huawei Unwired Planet (Laurent Labatte)
    - Variability : xls pricing of a license (A.Gorius)
    - Transfer Pricing - Veritas: quiclky discussed (A. Gorius

IP Valuation Committee(s) – Our Path Forward

- **Internationalisation – IPV is not « franco-français » ;-)**
  - Contacts taken with LES USA/Canada, LES Italy, LES Germany, to be extended
  - Chairmanship of LESI IPV Committee (A. Gorius and co + vice-chairs)
    - State of the art - exchanges
    - Cross-fertilization through invitations

- **Toolbox and Literature dedicated Workstream**
  - Operational objectives: list unmet needs, create collaborative reference library
  - Perimeter: include academia (education)
  - Sources: our own networks + other LES's
  - First presentation: Q2 2018 IPV Meeting

- **Continue case studies & methods**
  - Q1 2018: Live Real Options Case Study (V. Blum)