IP Valuation Committee

June 2018

Advancing the Business of Intellectual Property Globally

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 International IP VALUATION COMMITTEE

- **Our Objectives**

    - Foster a common culture and understanding of IP Valuation, especially the economic perspective

    - 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**

    - **Foster communication between local IPV committees**

    - **Share and educate : share and update Toolboxes, Databases and Literature Repositeries with LES members**

    - **Methods and standards: share best practices, address qualitative and quantitative approaches as complimentary**
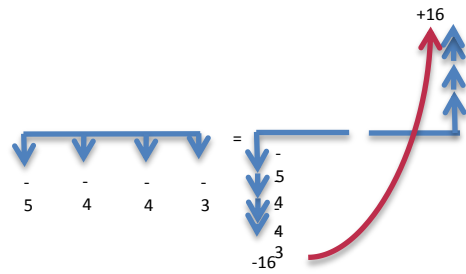
WHAT IS THE VALUE OF AN INTANGIBLE ASSET?

- **It is AN OPINION (*)**
    - At a given point in time
    - Under given circumstances
    - In many ways similar to a legal opinion, but considering economic terms
- **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 : the way one uses an invention strongly depends on his own abilities
    - 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...
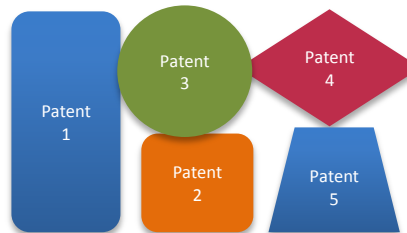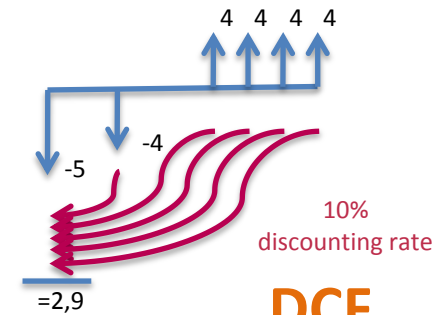- **Thus it contains an intrinsic uncertainty.**

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

Methodologies: Past, Present, Future-Rooted

Past

Present

Future

+16

-
5
4
4
3

-
5
-
4
-
4
-
3

-16

HISTORICAL COSTS

4 4 4 4

-5 -4

10% discounting rate

=2,9

DCF

Patent 1

Patent 3

Patent 4

Patent 2
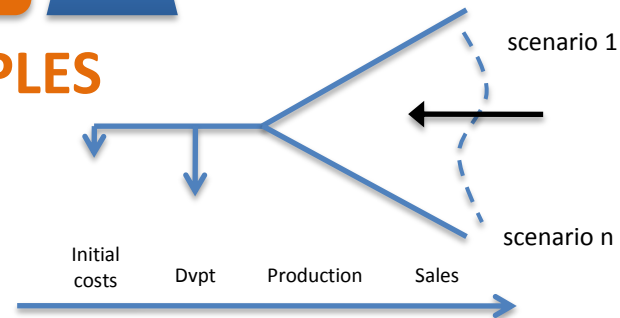
Patent 5

MULTIPLES

scenario 1

scenario n

Initial costs   Dvpt   Production   Sales

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

Utilized whenever replacement is possible, and if not generally useful in case there is no other available data

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

LES International - IP Valuation Committee

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 size
- Citations analysis, technical coverage
- Geographical coverage, legal strength
- Market attractiveness

Comparisons are at best 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 probabilities and revenues in a dynamic way

Discounted Cash Flow – The basics of NPV

- **NPV reflects the way you consider cash flows and allows to choose between alternatives such as: take 100€ today or wait 1 year to expect 115€ ?**

- **The main parameters impacting NPV are:**

  - **The expected useful life of the asset**

  - **The variation of yearly cash flows (e.g. royalties), namely their growth rate**

  - **The discount rate, capturing both future risks and value of money**

Parameter	Impact on NPV
Useful life ↗	↗
Royalty Rate ↗	↗
Growth rate ↗	↗
Discount rate ↗	↘↘

2018

Orders of magnitude and variability for a perpetuity (infinite useful life)

		Sales	100	M€/y

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

		Discount Rate				**1% DR impact**
		9%	**10%**	**11%**		**-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**
- **The valuators' expertise to reduces this uncertainty by defining the right parameters, following a rigorous and replicable process**

Royalty Rates

- **Most generally : benchmark from databases – <u>a specialist job</u>**

- **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

IPscio reports

ROYALTY RATE INDUSTRY SUMMARY 2016

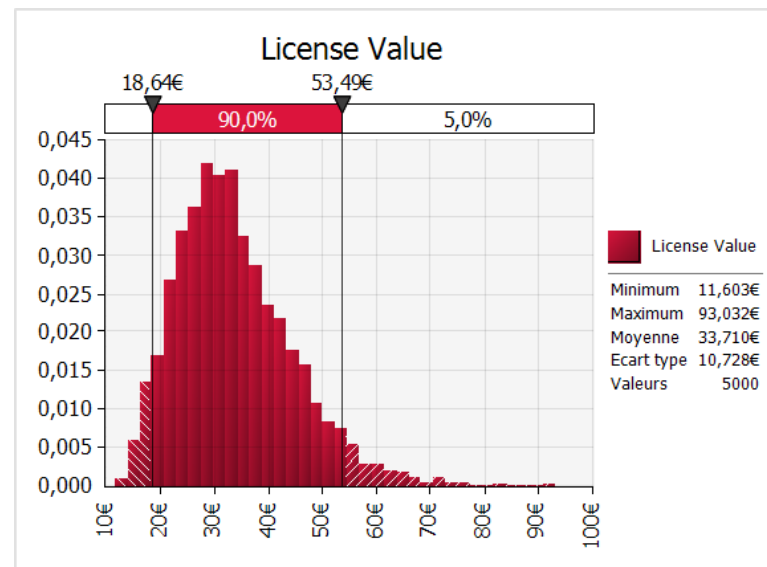# Discount Rates – KEY ISSUE

- **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**

- **There is room for new theories; LESI IPV Committee will be part of the effort**

Let us be provocative – simulating a license value

	Base Case	Simulation	Min	Peek	Max
Net sales first year	100	100	80	100	120
yoy Growth rate	3%	4%	1%	3%	10%
Royalty Rate vs. Net Sales	5%	6%	3%	5%	10%
Duration	10	11	5	10	15
Peers WACC	10%	10%	8%	10%	12%
Technology Risk Premium	1%	3%	0,5%	1,0%	5,0%

Simulation of 5000 Scenarii
(« Monte Carlo »(*))
**License Value lies in a range
15M€ - 50 M€**

License Value

Minimum	11,603€
Maximum	93,032€
Moyenne	33,710€
Ecart type	10,728€
Valeurs	5000

(*): using MS Excel plug-ins, create 5000 scenarii choosing randomly parameters in the given variation range

Real Option Valuation and Reasoning (ROV & ROR)

> The value is that of <u>the right</u> but <u>not the obligation</u> to exercise an option

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

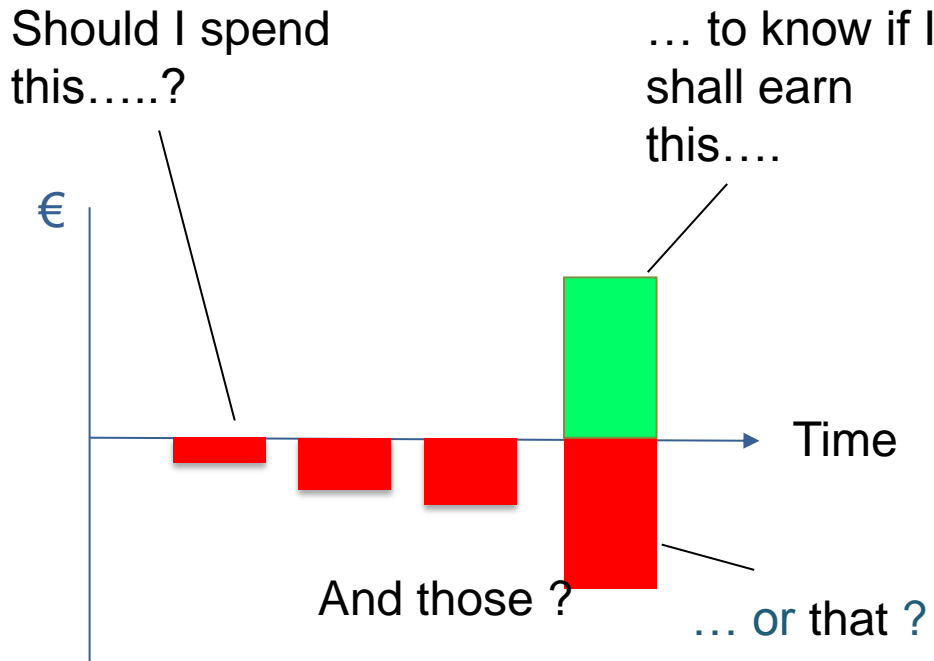> Based on Black and Scholes or a lattice model in discrete time.

- Implies that the decision to invest is **reversible**
- Rejects determinism but a diffusion processes must be specified
- Also relies on a business 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
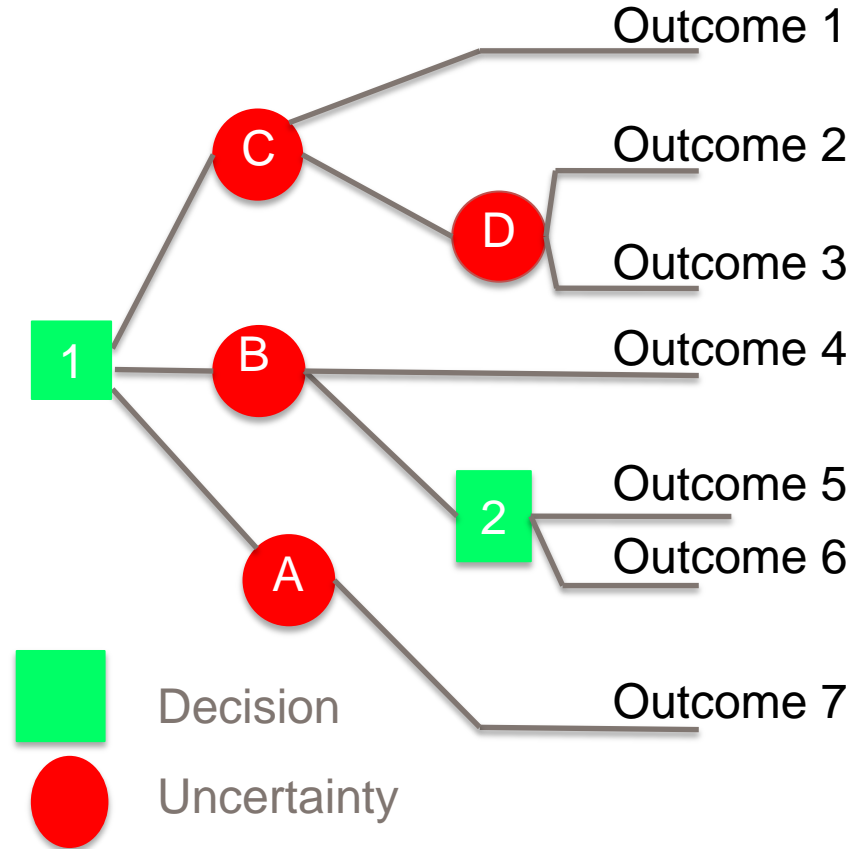
REAL OPTIONS APPROACH
TIME IS ON YOUR SIDE – ALTERNATIVE PATHS

Should I spend this…..?

… to know if I shall earn this….

€

Time

And those ?

… or that ?

TIME + CHOICE = VALUE PREMIUM

Outcome 1

Outcome 2

C

D

Outcome 3

1

B

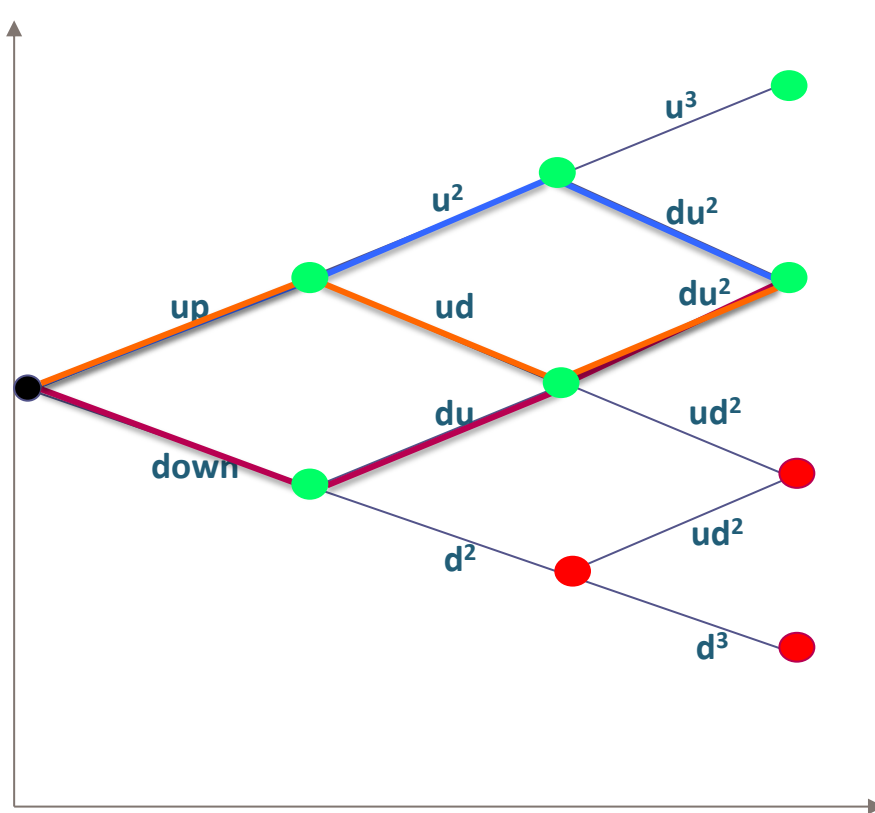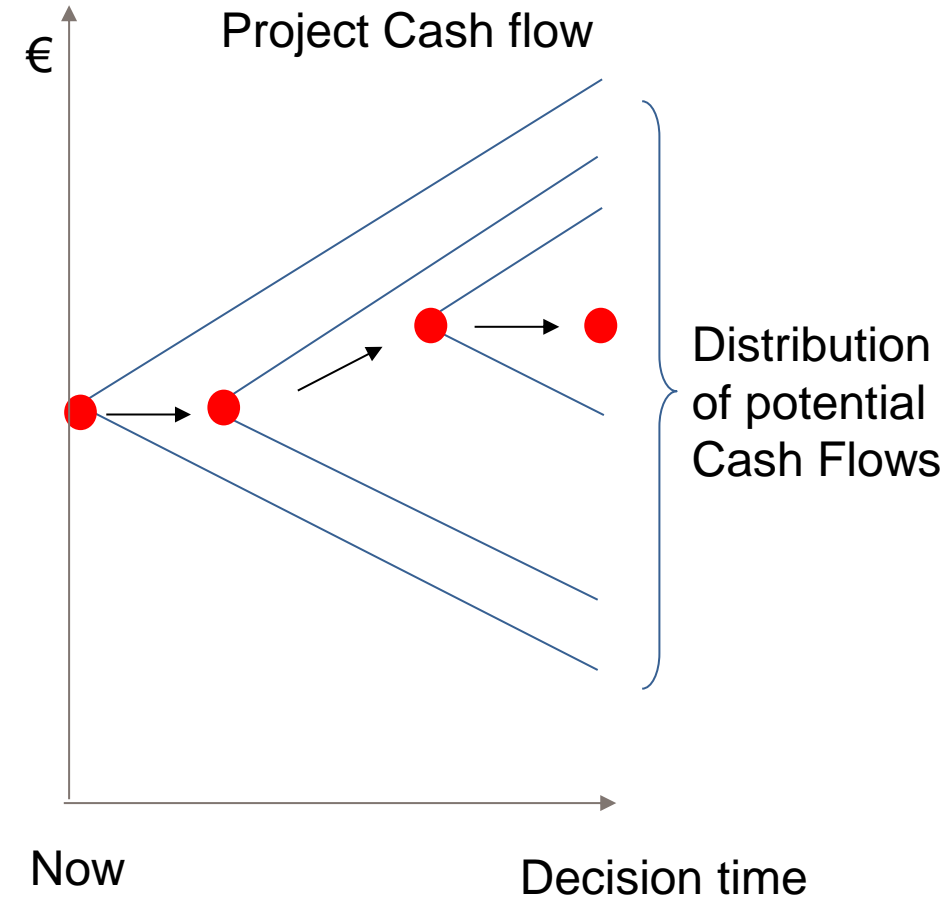Outcome 4

Outcome 5

2

A

Outcome 6

Outcome 7

Decision

Uncertainty

REAL OPTIONS APPROACH
Time reduces uncertainty – One value, several paths

Extended project value
=
NPV+ flexibility (option)

Project Cash flow

Distribution of potential Cash Flows

Now

Decision time

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

Environment

Appropriate
methodologies

simple   Cash Flows   complex

Distributions

I **Very** **certain**	**II** **Certain**
III **Certain**	**IV** **Very uncertain**

I **NPV/ PP**	**II** **Scenario +** **Sensitivity =** **Simulation**
III **Simulation &** **/or Vanilla** **Option**	**IV** **Complex** **Option**

SRATEGICAL APPROACH   METHODOLOGICAL APPROACH
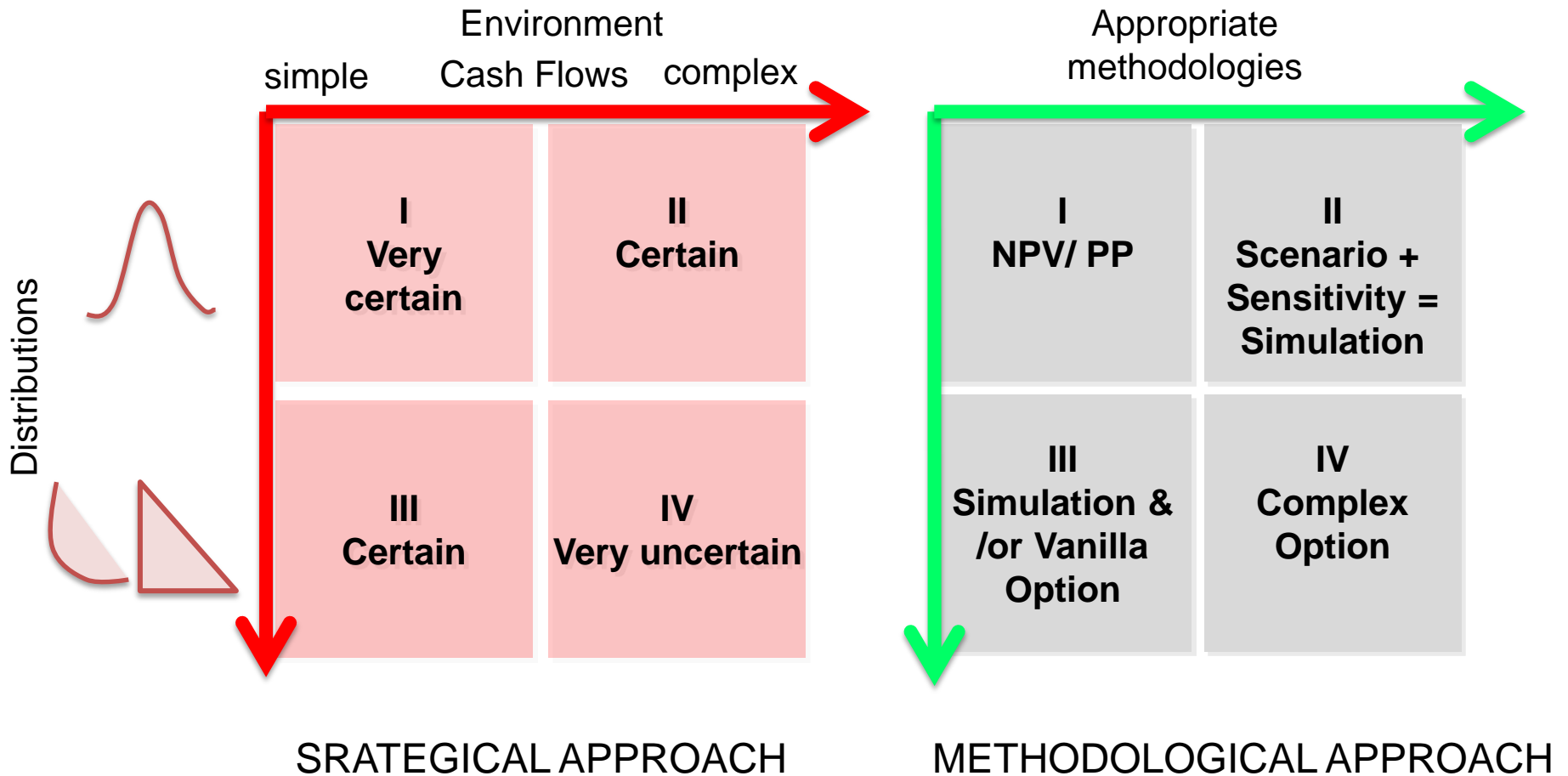
IP Valuation Committee – Our Path Forward

- **Our organization:**

  - **Operational Committee : steers and animates the WW IPV Committee**

    - A. Gorius – France (Chair), Martha-Laura Lopez – Mexico (Co-Chair)

    - Vice-Chairs: A. Chaouat – France, P. Ewbank – Belgium, K. Gala (Asia Pacific), A. Nestler – Germany, A. Vestita – Italy

  - **Worldwide LESI IPV Committee: do not hesitate to join us**

- **Our Roadmap**

  - **Priorities 2018-2019:**

    - Education and communication around methods; provide access to tools and literature references; webminars with reconized specialists

    - Provide access to specific licenses/royalty: Case studies

  - **Deliverables 2018-2019**

    - ToolBox – in coordination with local LES Committees

    - Best Practices – publication in Les Nouvelles

    - Case studies / specialized webminars