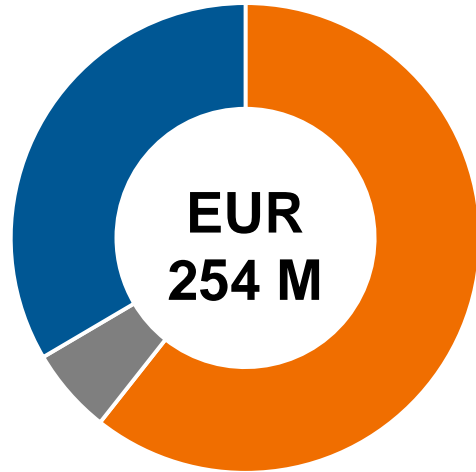


IPR kaupallistaminen – out-licensing

Jari Rantala

12/12/2022 VTT – beyond the obvious

VTT today



154.2 M€ net turnover
14.4 M€ other operating income
85.1 M€ government grant

2,093

employees

530

scientific articles

45%

of net turnover
from abroad

~ 410

patent families

VTT

is under the state ownership steering of the Ministry
of Economic Affairs and Employment of Finland

Content

- VTT Strategy & IPR as Impact Investment
- IPR Challenge and Culture Change
- Impact through Licensing

VTT Strategy & IPR as Impact Investment

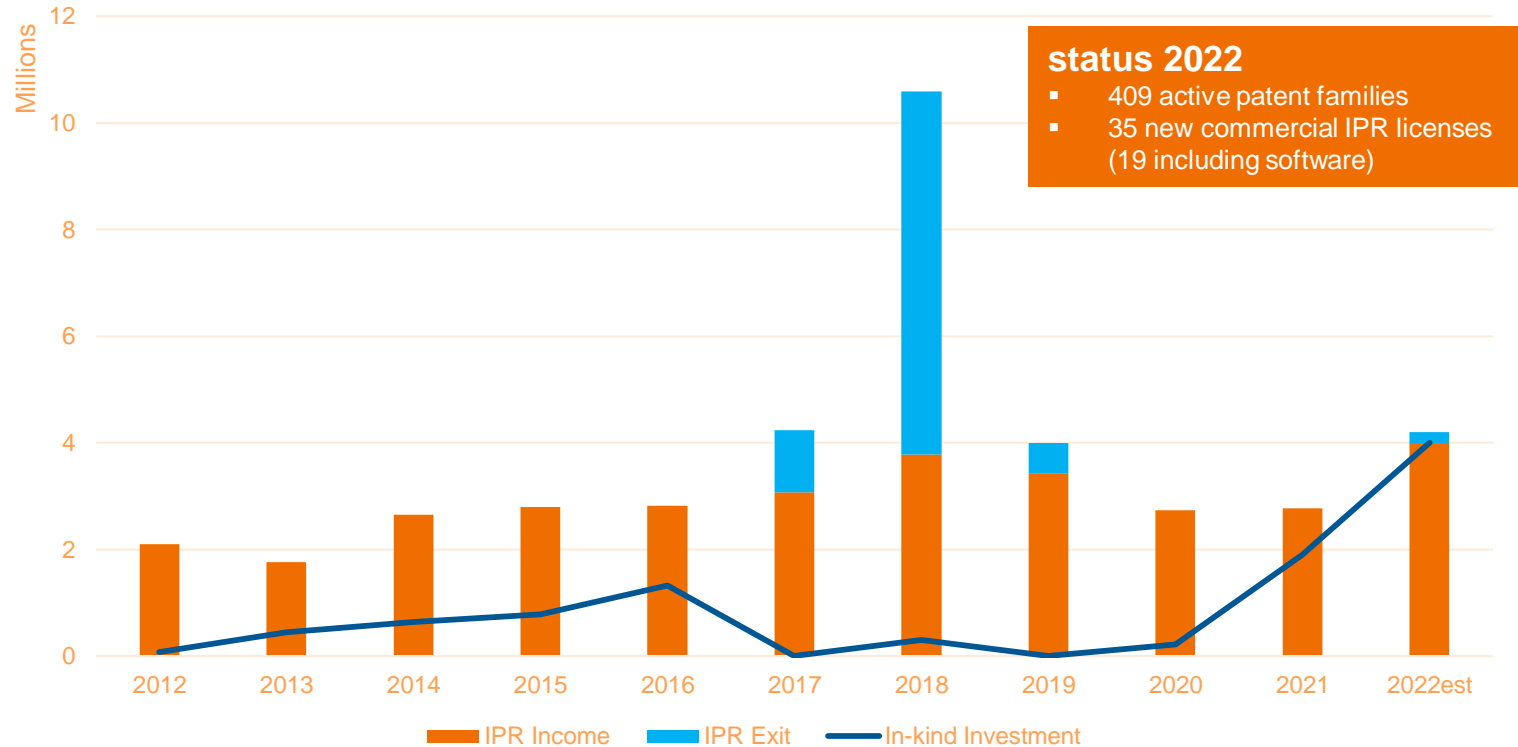
OUR PURPOSE

We bring together people,
business, science and technology,
**TO SOLVE THE WORLD'S
BIGGEST CHALLENGES,**
creating sustainable growth,
jobs and wellbeing.

Motivations for creating and protecting IP in VTT

- Promoting contract research – protection for customer's business
- Future recurring revenue – IPR licensing and sales
- New venture creation – IPR is essential for raising capital
- Marketing value – patent portfolio establishes credibility internationally
- IP protection serves the commercialization of research results
 - Benefit for the society
 - Enhances investments in VTT research results and IP

VTT IPR (Direct) Financial KPIs



Challenge Focuses define our direction and research agenda

SYSTEMIC CHALLENGES

- 1. To reach a carbon neutral economy in the coming decades**
 - Carbon-neutral process industry
 - Low-carbon and smart mobility
 - Sustainable and smart-built environment
 - Sustainable food system
 - Carbon-neutral and flexible energy system
 - Hydrogen for future society
- 2. To achieve a 10-fold productivity leap from resources**
 - Value creation and sharing in circular economy
 - Recovery of materials from challenging secondary streams
 - Sustainable manufacturing
 - High-impact renewable materials
- 3. To secure society's functions, fiscal sustainability and wellbeing while demographics shift**
 - Safe and secured society's functions
 - Personalised health and wellness

TECHNOLOGICAL CHALLENGES

- 4. To bring about the quantum leap in computing**
 - Technologies and algorithms for quantum computers
- 5. To create superior-performing materials and shorten design cycle by 50%**
 - Fully virtual material design and testing for optimised performance
- 6. To unleash superior performance and sustainability in digital systems**
 - Integrated electronics and photonics for critical systems
 - Performance-driven next-generation microelectronics
 - Space-based communication and observation technologies
- 7. To match nature's engineering skills through synthetic biology and bioinspired production**
 - Bioinspired production for sustainable products and processes

EMERGING TOPICS

- Small Modular Reactors (SMR) for carbon-neutral heat production
- Competitiveness in Volatile, Uncertain, Complex, Ambiguous (VUCA) world
- Connectivity in Critical Environments

SUPPORT FOR PUBLIC SECTOR

- Supporting the technology needs of Finnish defence forces
- Safety of nuclear energy in Finland
- SI unit system realisation in Finland
- Support for decision making and innovation of resilient, sustainable society

Digital technologies

We create cutting-edge digital technologies and identify future opportunities to solve global challenges

Quantum technologies

Next-generation microelectronics

Integrated electronics and photonics

Personalised health and wellness solutions

Connectivity in critical environments

Space-based communication and observation

Security & defence technology

Competitiveness in an uncertain, complex, and ambiguous world

We innovate tomorrow's solutions together with our customers and partners

Strategic foresight

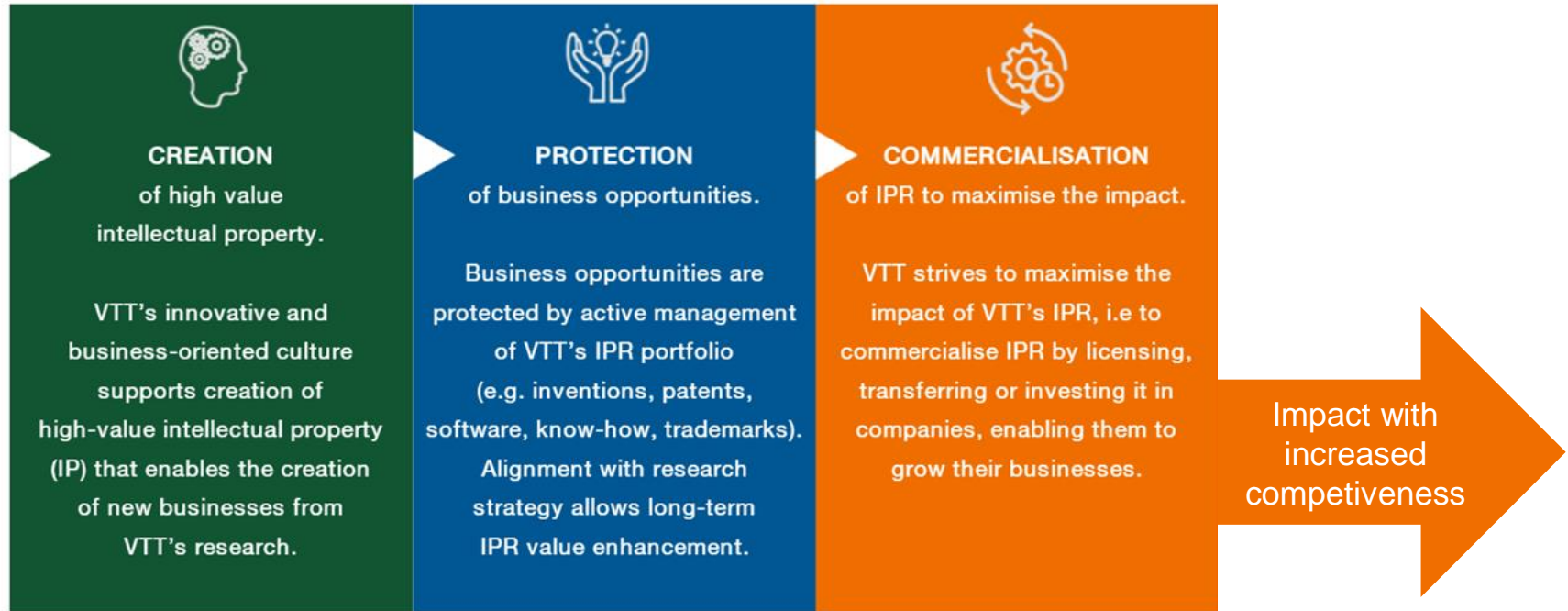


We enable the development of a high-performing and sustainable digital society



IPR Challenge and Culture Change

VTT level IPR Strategy



IPR Excellence starts through all VTTers

Module 1: Introduction to IPR Learning Modules

Module 2: IPR Driving License – Highly Recommended for ALL VTTers

Module 3: IPR Plan in Projects – Highly Recommended for all VTT PMs and IP Strategy builders

Module 4: From Invention to Patenting Decision – Highly Recommended for INVENTORS

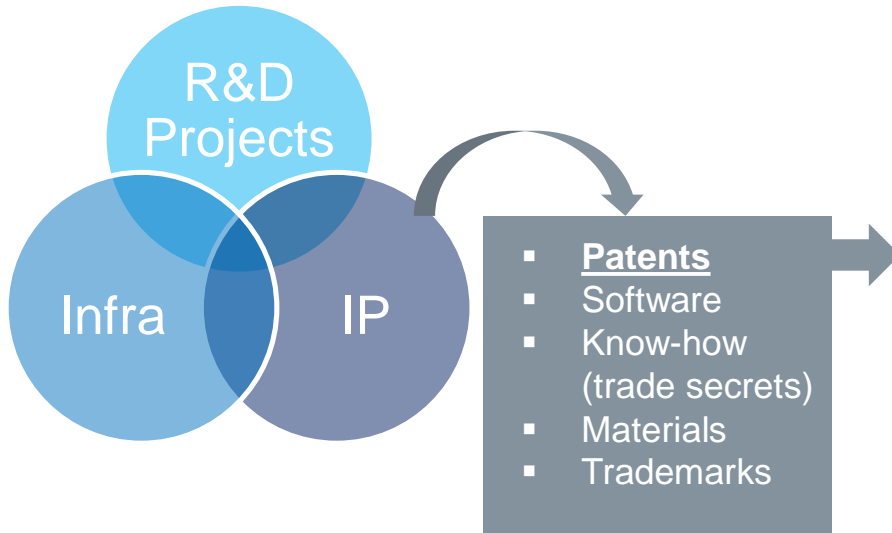
Module 5: Guidelines for VTT Patent Teams – Highly Recommended for PATENT TEAM MEMBERS

Module 6: IPR Commercialisation – Highly Recommended for ALL within COMMERCIAL OPERATIONS and BUSINESS DEVELOPMENT

Module 7: Strategy & IPR Committees – Highly Recommended for IPR COMMITTEE MEMBERS

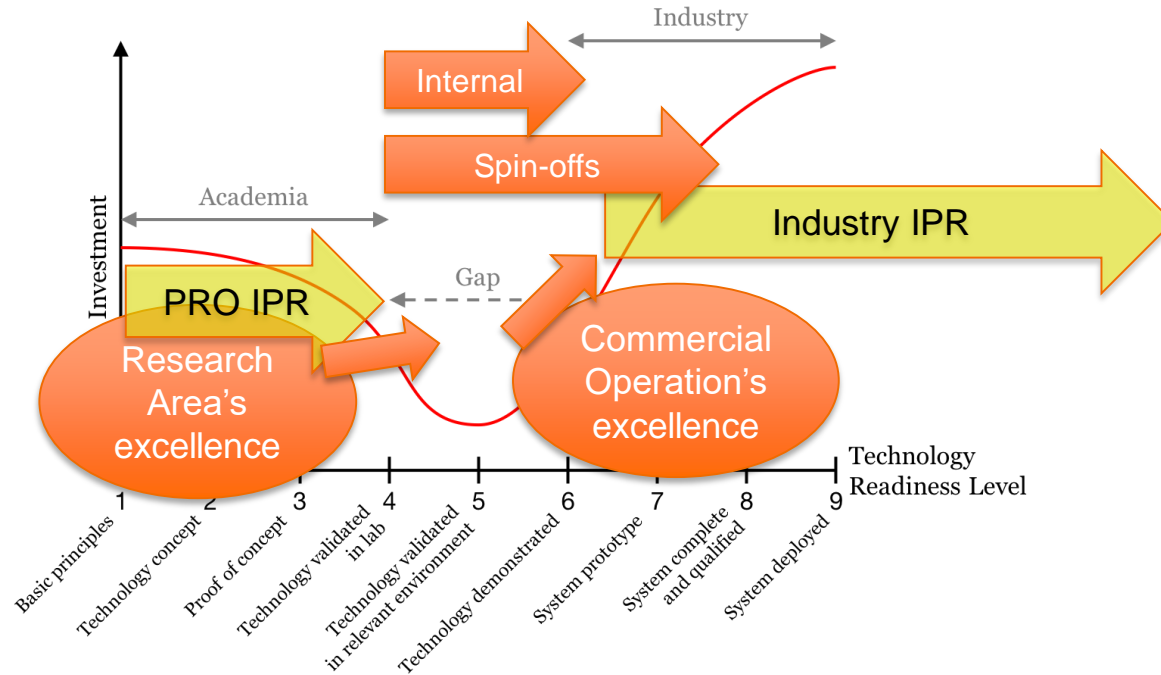
IPR Excellence in using Greip – Highly Recommended for ALL VTTers (NEW!)

VTT Products & IP Plans



Key Points Added & Noted	Motivation & Use
Priority Date	Time scale for prevention rights of the IP (+ ~ 20 years)
Value Proposition in layman's terms	To understand the value and field of the IP
TRL, IRL & IPRL Ranks	Indication of the maturity of the invention
Use Cases & Applications	Who is it for? What is it for?
Leads, Customers, Partners	Indicative direction to commercialization
Links to other IP	To see if this complements other IP
Comments	Inventors' comments, other information noted/available

Challenge Gap for PROs & Universities



VTT Commercialization Example Cases

Silicon photonics R&D revolutionises health & well-being wearables

Photonic integrated circuits (PICs) minimise the cost, power consumption and size of health & well-being wearables. **Rockley's** R&D and pilot production partnership with VTT resulted in mass-produced standard sensors that have a significantly bigger market potential than traditional PIC-based products. In the future, Rockley's new sensors could enable the non-invasive measurement of blood sugar, blood pressure, blood alcohol content and lactate.



Versatile and affordable health & well-being wearables for consumers



Wearable sensors could become the largest market for integrated photonics



Thick silicon waveguides enable accurate, small and energy efficient sensors

“No other organisation has the expertise VTT has accumulated in micrometre-scale silicon waveguides.”

Andrew Rickman
CEO
Rockley Photonics

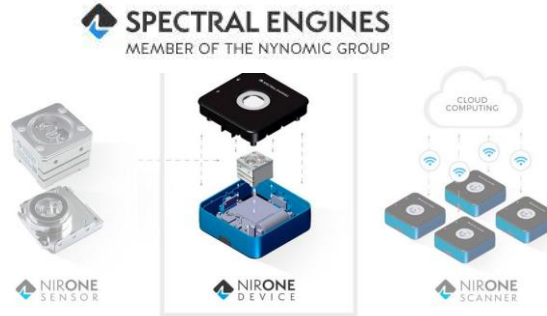


Three Spin-out Examples from VTT



Founded: 2011

TactoTek® is the leader in Injection Molded Structural Electronics (IMSE™) technology. IMSE solutions integrate and encapsulate printed electronics and standard electronic components within durable 3D injection-molded plastics.



Founded: 2014 (VTT exit: 2018, acquired by Nynomic AG)

Infrared spectrometers are already in widespread use, thanks to their great accuracy and flexibility compared to chemical detectors. To date, their main drawback has been price and size, but this new generation of Spectral Engines® spectrometers changes that, with a volume and price roughly 1/10th that of traditional NIR spectrometers.

Minima

Your PROCESSOR, *our technology* –
together we can BREAK RECORDS!

Lauri Koskinen, Chief Technology Officer / Tuomas Hollman, Chief Executive Officer

Founded: 2016 (VTT exit: 2022, acquired by Bosch)

Minima transforms your processor into a minimum-energy-point design. Technology will enable near future fantasies such as in-body medical devices and energy harvesting.

Originated as collaboration between VTT, Aalto University and University of Turku

Impact through Licensing

Roles and tasks in IPR Sales



Preparation

1. Non-binding Term Sheet

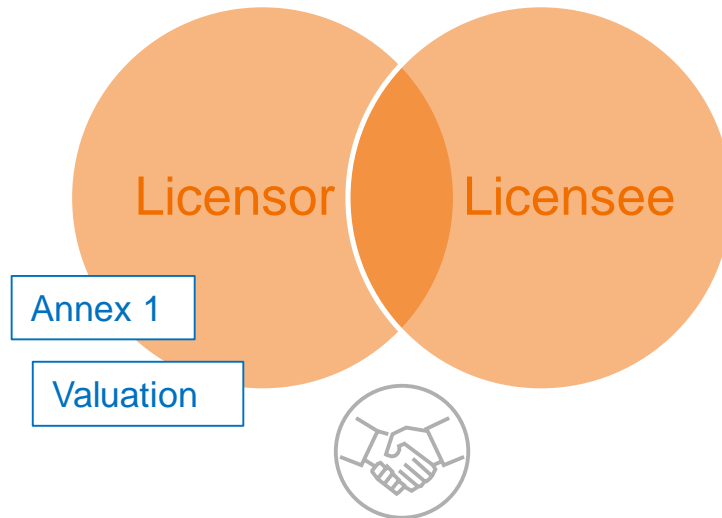


Liability and warranties
Patent prosecution and
defending rights

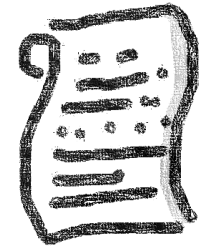
Rights to be granted;
content and time

Application area
and/or Product

Price



Most typical agreements:
Option agreement with non-
exclusive license or direct
non-exclusive



2. License Agreement

Annex 1 for the Term Sheet



- Annex 1 is needed to present licensable package to the customer as well as for the valuation of IP
- Generation of Annex 1 is often the most challenging phase of licensing internally

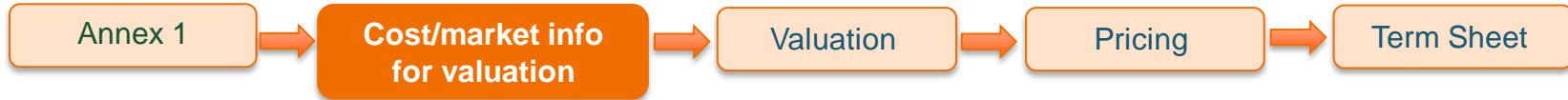
Data Needed for Valuation 1/2



For cost based valuation we need to know:

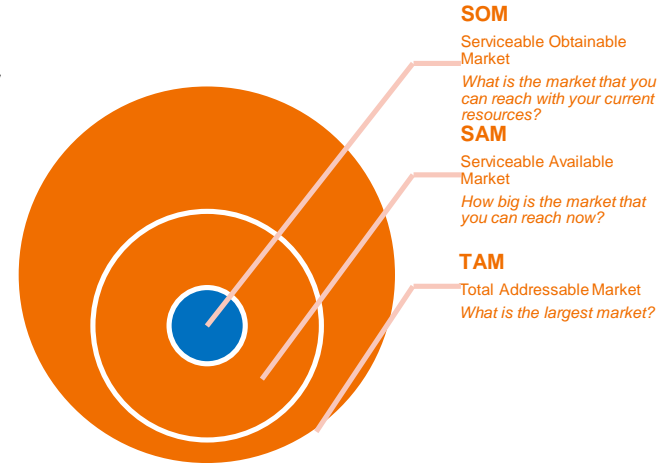
1. List of all VTT or jointly funded projects where licensed technology has been developed (no matter which application)
2. Overall project budgets for VTT including public funding (EU, BF).
3. Time when individual budgets have been used (e.g. Project 1: 2015-2017)
4. Portion of jointly funded project budget used to develop licensed technology (e.g. 10%, 30%, 50%, 100%)

Data Needed for Valuation 2/2



For the market based valuation we need to know:

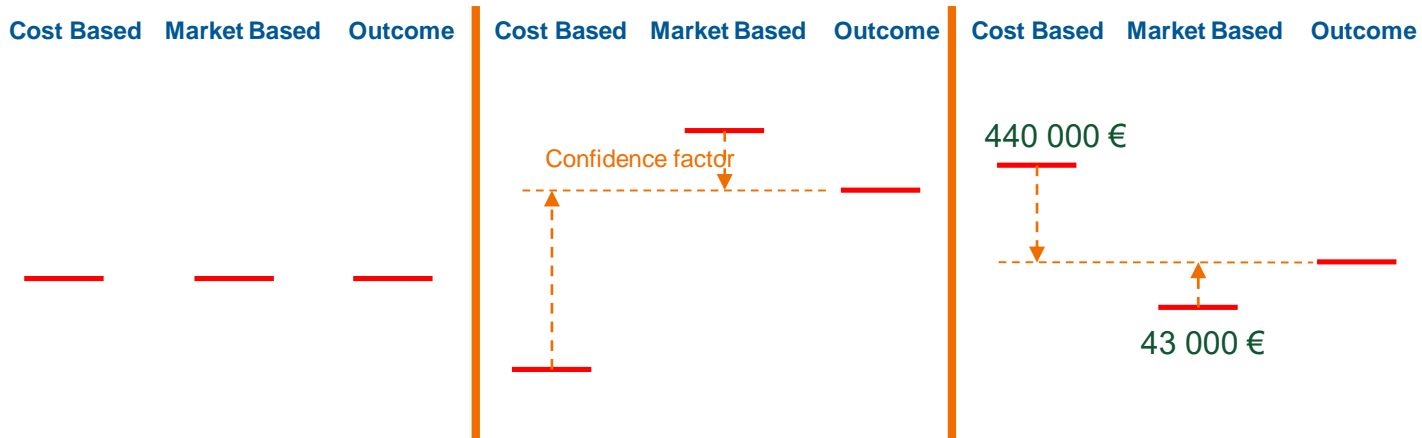
1. Servicable Available Market (SAM) of licensable technology for predefined Field of Application
2. Market size development (CAGR, 7 years)
3. Licensees capability to take certain portion of market share (SOM) (e.g. 20% from SAM) and its potential development (7 years)
4. Portion of market volume licensed technology will take or portion it will improve market share of licensee or portion it will improve profitability of product or any combination of foregoing or all together
5. Profitability of business for licensed technology in the field of application: Net profit margin or EBIT or Gross margin



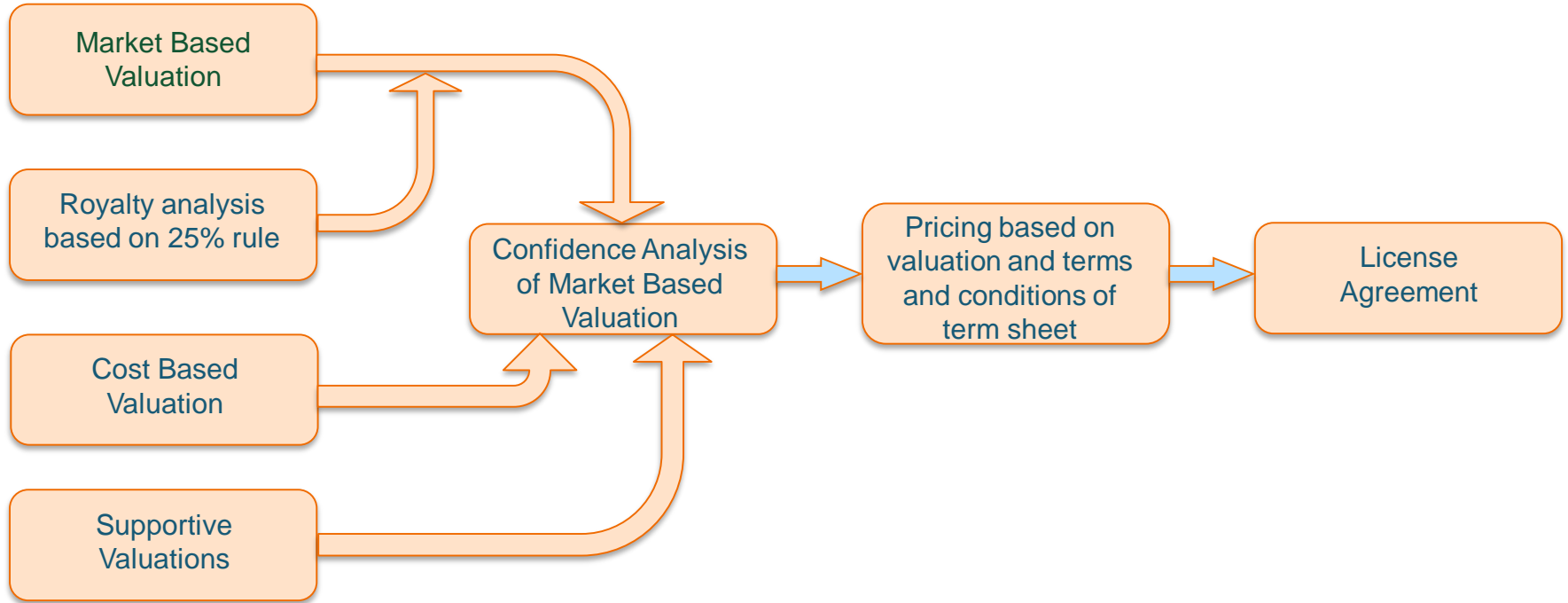
Cost and Market Based Valuation Methods



- Principle of Cost Based Valuation: What it would cost as an investment for some business entity to pass over the IP under consideration.
- Market based valuation methods reflect the market size of technology as well as capability of Licensee to have certain market share.
- VTT prefers always market based valuation and VTT's confidence towards market based valuation defines how much it's appreciated compared to cost based valuation.



IPR Valuation at VTT



Example of Variables in Term Sheet that Impact to Pricing not to Valuation



- Valuation
- Payment time
- Improvements
- Sublicensing rights
- Geographical coverage
- Royalty stacking
- Signing “upfront” fee
- Milestone payments
- Minimum royalty /Annual fee
- Government-Imposed Royalty Ceiling
- Volume discounts
- Most favoured licensee
- Option to license
- Patent challenging
- Patent prosecution cost
- Limited liability of the third party infringement
- Combination sales
- Royalty cap
- Buy-out
- Know-how

**Thank you – Questions,
Comments?**

bey⁰nd

the obvious

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