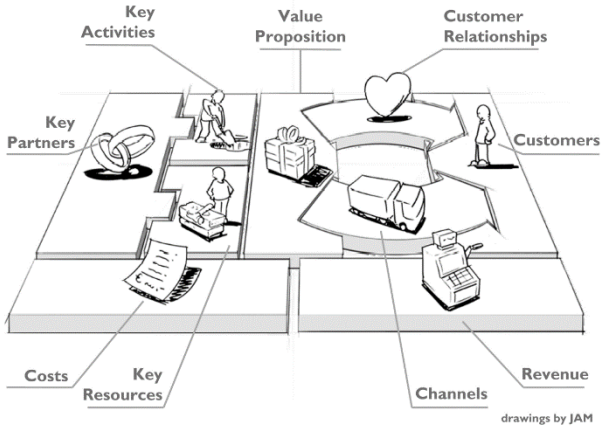
VTT TECHNICAL RESEARCH CENTRE OF FINLAND LTD



Virtual Upscaling WP5 Results and Status 2017

Annual VU webinar

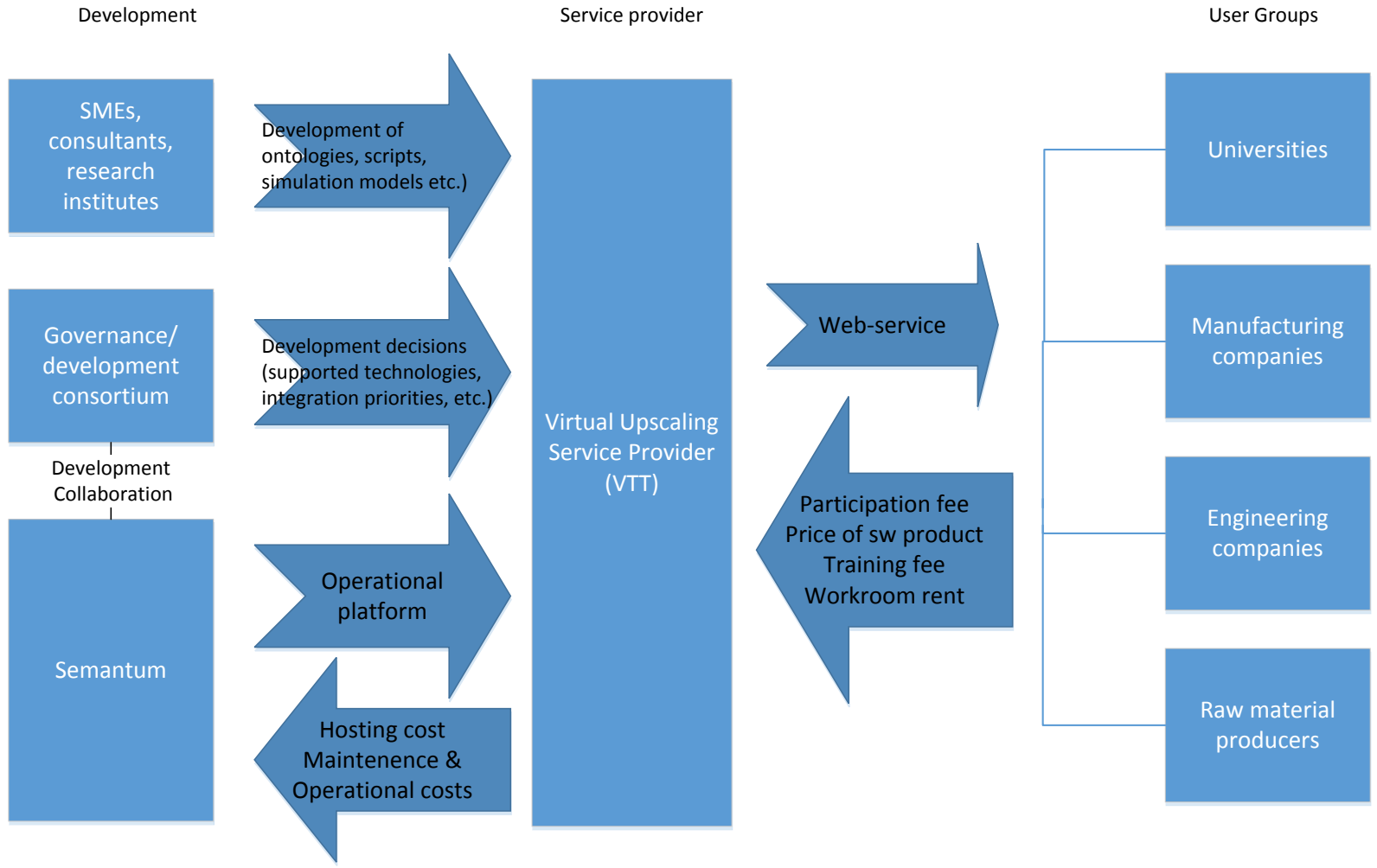
Wednesday 20th December, 2017

Ismo Ruohomäki & Jukka Hemilä

Basis for VU business study: markets

	Market #1	Market #2	Market #3
Market name	Environmental footprint computation (Value Chain LCA)	Integrated Computational Material Engineering (Materials databases, materials modeling)	Business Process simulation
Market description	1. Organizations that need Environmental information / data about their operations. (any sized companies) Manufacturing industry (any sized companies) 2. Organizations who offer LCA computation (either smaller dedicated firms or larger consultant companies with LCA specialized teams)	1. Manufacturing industry (any sized companies) Engineering companies 2. Organizations who offer materials modeling (either smaller dedicated firms or larger consultant companies with LCA specialized teams)	1. Organizations that need engage in data-driven decision-making to plan and optimize their operations. (any sized companies) Manufacturing industry (any sized companies) 2. Organizations who offer system level business planning / optimization expertise (either smaller dedicated firms or larger consultant companies using the platform as a means of communication and dissemination of business planning results or operator training. For example, consultant company providing mid-management level training for supply chain operations).
Potential benefits	Companies do not operate or plan their operations in concert with another. Value Chain LCA tools and protocols enable the network level optimization of various footprints in addition to the company level optimization. At the same time the sensitive data of the networked companies is protected.	Multi-developer environment, when modelling and model errors can be corrected by many users -> better quality for models and modelling results. The existing tools have not been planned to give multi-user holistic view on materials design.	Partners and users can create business and environmental models, as well modelling and training together: multi-objective optimization.
Market interest	Companies and organizations in the value chain who need to present and justify environmental issues of their operations for marketing-, image-, ethical-, legal- or other reasons. Both firms producing life cycle analysis as part of their sales and life cycle analysts have expressed interest in operating via the platform.	3D printing and additive manufacturing operators need to better understand how the micro-structure information and printing process parameters affect the properties of the products. At the moment most companies operate in trial and error mode as regards the control of their printing process, which is both slow and expensive.	System dynamic models available and they can be used for gamified teaching and design purposes in studying and designing circulation economy aspects.
Market requirements	Software as a Service Multi-users Holistic view Support 24/7	Software as a Service Multi-users	Software as a Service Multi-users

Modelling Factory Value chain



(Source: Feasibility study)

Business Model for VU operator

- Business Model for all stakeholders needed -> F2F workshops held in September 2017

VTT's Modelling factory Business Model Canvas

KP	KA	VP	CR	CS
Governance / Development Consortium Semantum (platform technology developer)	Maintain and operate Communication Platform KR Modelling and simulation Group	Communication Platform for Designers and Decision makers Environmental footprint computation Product /Material Property Optimization Global Product/business Design Optimization	Helpdesk Social Media Content Production Customer visits Webinars Training material CH Web service	Universities Manufacturing Companies Engineering companies Raw Material Producers

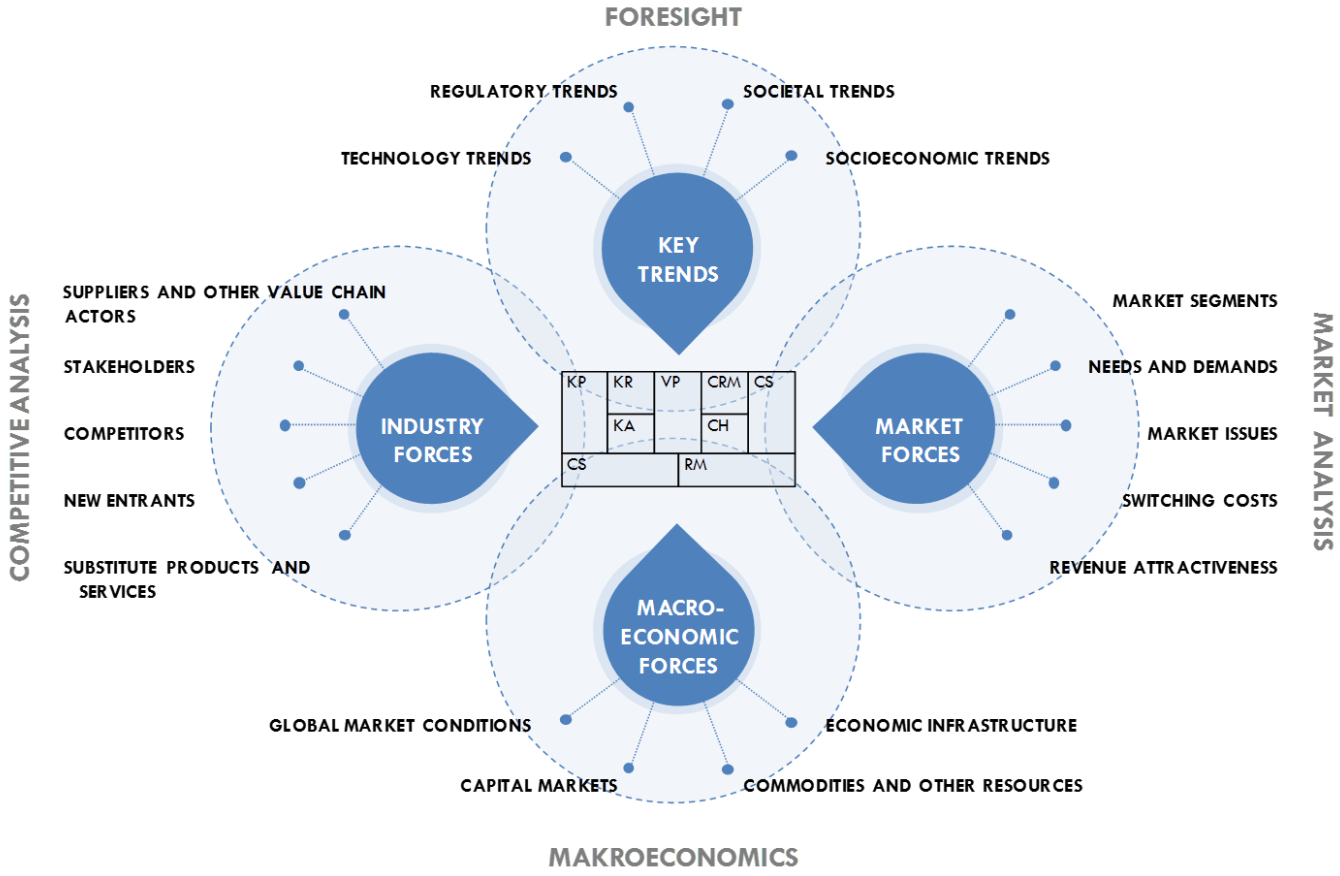
C$	RS
Hosting service fee Maintenance and operational costs (e.g. simulation model development and integration work)	Governance Consortium Participation fee Direct sales of sw products via platform webstore Training fee Platform workroom rent

KP = Key Partners
KA = Key Activities
KR = Key resources
C$ = Cost structure
VP = Value Proposition
CR = Customer relationships
CH = Channels
CS= Customer Segments
RS = Revenue Streams

(Source: Feasibility study)

Environmental Map

- What is each partner role in the ecosystem?
- Main issues related to business case?



Lähde: Muokattu, Osterwalder et al. 2009

Business Ecosystem

Businesses are not built, and do not operate in vacuum. Business models are linked to other BMs

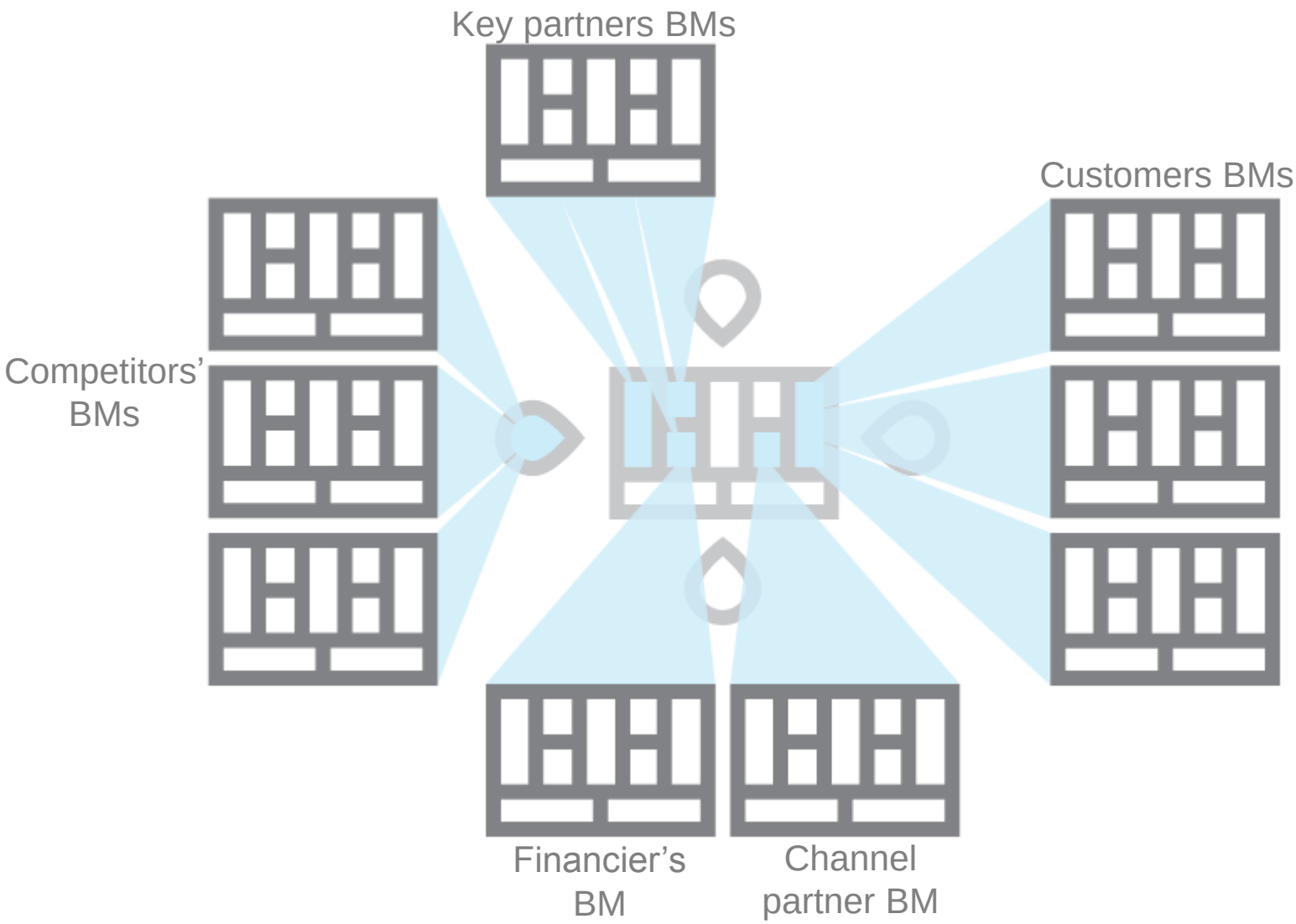


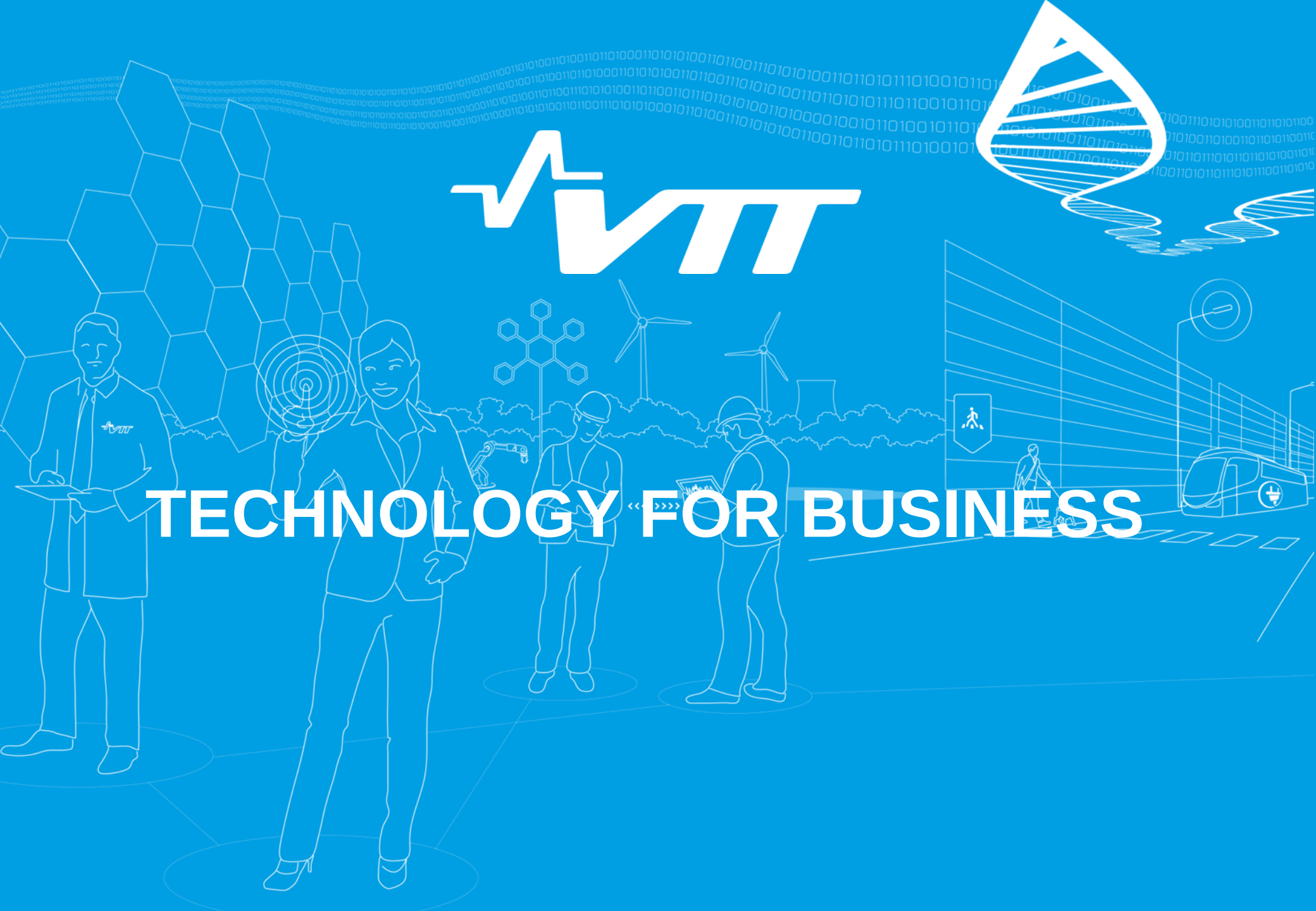
Image: http://blog.strategyzer.com/posts/2015/3/30/mapping-your-business-model-network

Status of the WP5

- T5.1 ”Business case study” goes through case studies: how users’ and decision makers’ activities are related to platform and how platform creates value for them
- D5.1.1 Business case description and ecosystem analyses (M3): published on 1st November, 2017
- Business model & Value Proposition workshops done F2F with main partners during September 2017
- Business models to be included in D5.1.2 Analysis of Future services, business opportunities and business models
- Resource changes:
  - Ms. Päivi Jaring left VTT at Nov 2017
  - Mr. Ismo Ruohomäki joined VU in Aug 2017
  - Mr. Jukka Hemilä continues with VU

Next steps in WP5

- More deeper analysis needed:
  - ICT Platform Hosting Business Model (Semantum role & BM)
  - Modelling Factory Trusted Service Operator Business Model (Platform operator role & BM)
- Business model validation round in December -> feedback and new content from each partner
- Publishing “D5.1.2 Analysis of Future services, business opportunities and business models” by the end of 2017 (M4)
- Comprehensive BM validation will be done during 2018
  - D5.1.3 Final report on Modelling Factory Business Ecosystem (M6)
- Task 5.2 ”Implementation plan” to be started in January 2018
  - D5.2.1 Business implementation plan for the use cases (M5)
  - D5.2.2 Virtual Upscale ecosystem: business case for platform operator (M6)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