INNOVAATIOALUSTAT KORKEAKOULUJEN TUTKIMUKSESSA JA YRITYSTEN LIIKETOIMINNAN EDISTÄMISESSÄ

RAINE HERMANS, ADJ. PROF., PHD., M.SOC.SC.

DEAN, SCHOOL OF TECHNOLOGY AND INNOVATIONS

UNIVERSITY OF VAASA

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School of Technology and Innovations

▸ Mission (Strategy 2021-2025):

School of Technology and Innovations acts as an enabler for transition in the energy sector.

To this end, the School

▸ launches strategic initiatives on research platforms

▸ launches innovative procurement campaigns (e.g. Virtual Power Plant on Campus)

▸ produces a skilled workforce for the region in relevant education programs (e.g. Smart Energy, Data Architecture).

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Vaasa
NORDIC ENERGY CLUSTER

Comsel System · uponor · CNC KONEISTUS OY · EPV · VNT MANAGEMENT · Invacon · UPCODEWORLD · VASEK · MIRKA

Jukolux · VEO · Citec · Life Is On Schneider Electric · Bodycote

etha wind · ARCTEQ · ÖSTERBERG GROUP · ABB · WESTENERGY · UltraCut · RAVERA

LEINOLAT GROUP · KGN TOOL · VASKILUODON VOIMA · ROAMING · JMC ENGINE

EPC · VM Group Oy Promeco Group Company · InCap · Vaasa·Parks Building Growth · Vaasan Vesi Vasa Vatten · WMA · PRIMO

CNC-TEKNIIKKA · Vaasan Ekolämpö Oy Vasa Ekovärme AB · there. · PLASTWELD

SOP METAL · WÄRTSILÄ · GeoPipe WHCEP · tke · KGN

Crimppi · VAASA · THE SWITCH · KILKANEN

avecon · ESCARMAT · Oy MAPROMEC Ab · VAASAN SÄHKÖ VASA ELEKTRISKA · VESLATEC LASER FOR USE · Ricomix · MERINOVA INNOVATION WITH ENERGY · WE Tech CREATING SAVINGS

VAMP · Fidelix · welas · Wapice · TARKMET

Danfoss · TEKNIQ · RIKTA CABLE SOLUTIONS · ampner ampner.com · ELEKTROMASTER

UWIRA · devatus · STORMOSSEN · COSMOS · Global Fire Solutions · adiabatix advanced insulations · APEX AUTOMATION · LumiTar ARRAY LIGHTING TECHNOLOGY FINLAND

GF Wind your partner in windpower projects · TYÖKALUVALMISTUS NISULA OY · SUOMEN MERITUULI FINLANDS HAVSVIND · Hemming

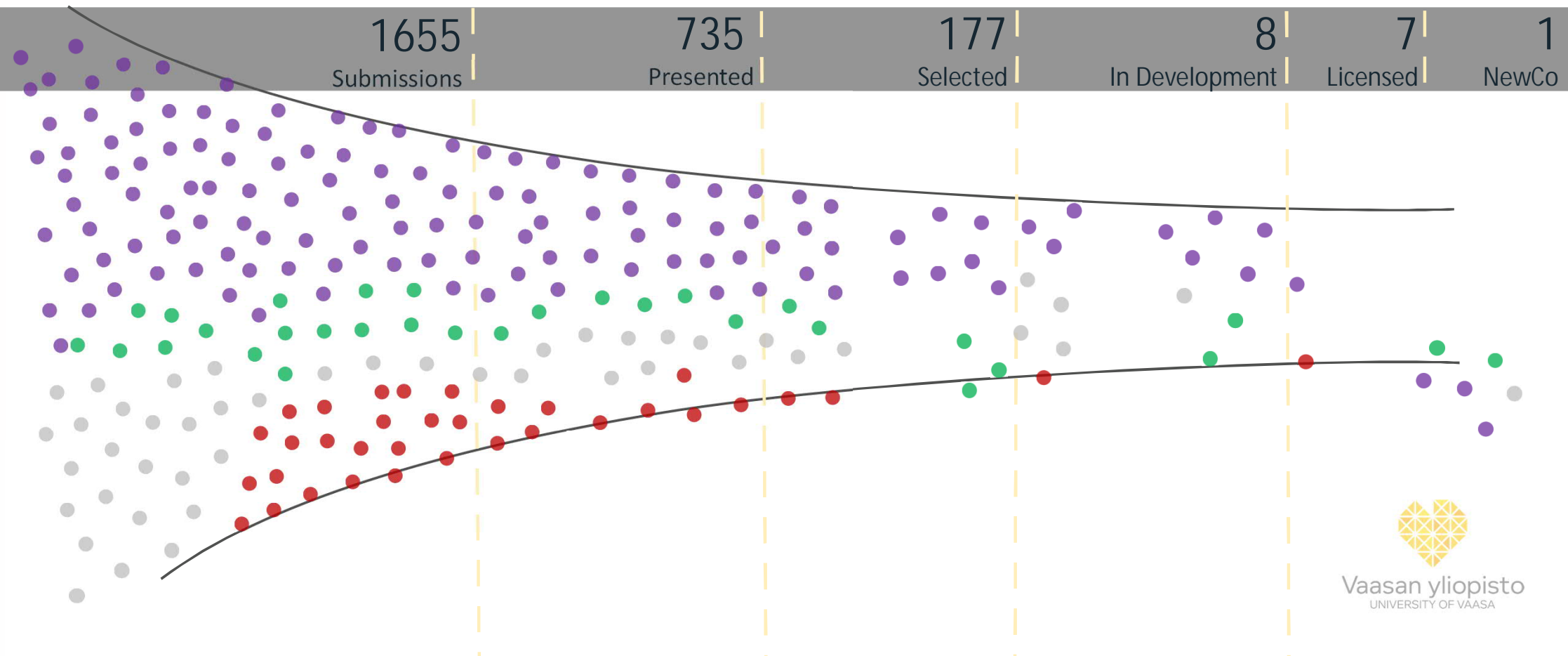| MORE THAN	TOTAL BUSINESS TURNOVER SOME	A STUNNING	HIGHLY TECHNOLOGICAL	SUSTAINABLE
160 BUSINESSES, SEVERAL OF WHICH ARE **GLOBAL MARKET LEADERS IN** THEIR FIELD	EUR **5.0** BILLION ANNUALLY **EXPORT RATE OVER** 80%	**25%** OF FINLAND'S TOTAL EXPORT IN **ENERGY TECHNOLOGY**	**90%** of the Finnish R&D investments in electrical and automation solutions	**2°C** COMMITTED TO PARIS AGREEMENT Most green patents in the Nordics

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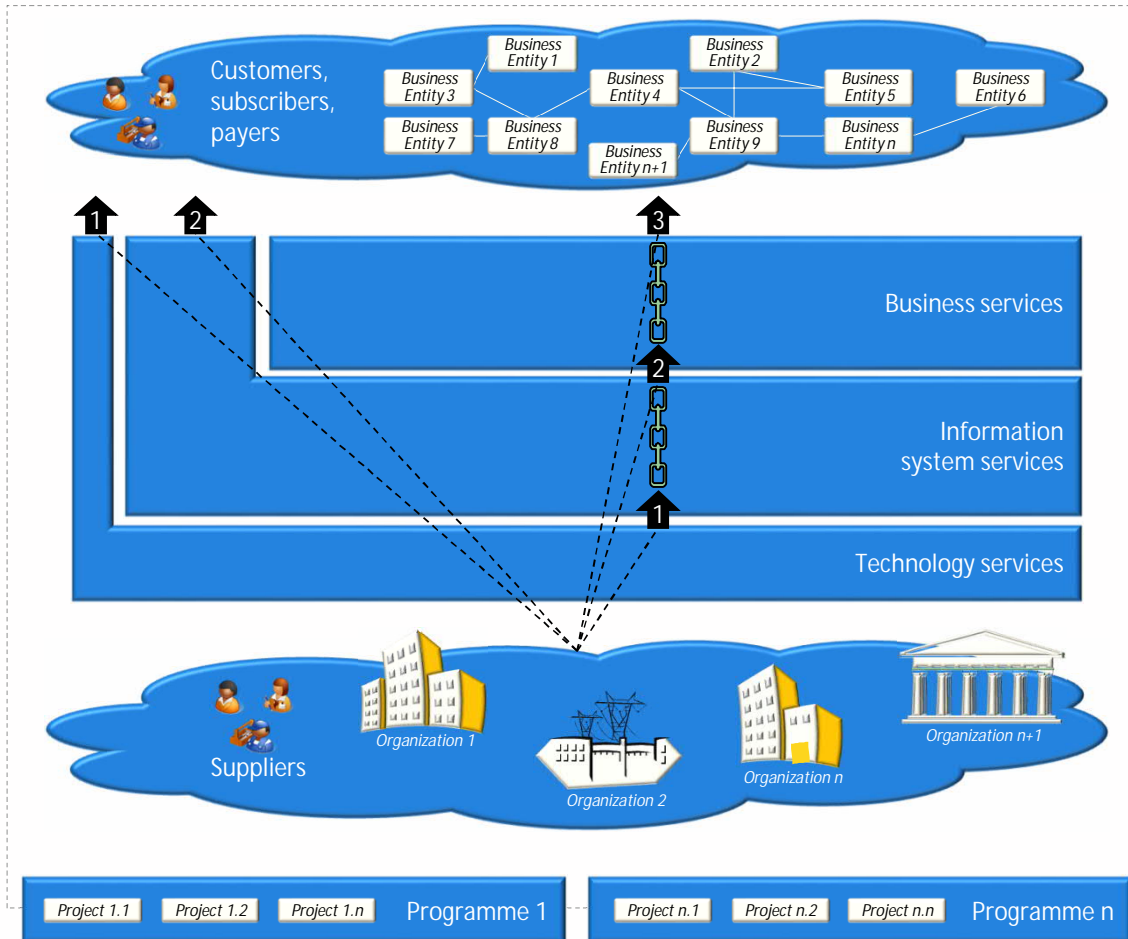UNIVERSITY OF VAASA

University of Vaasa: Schools and Platforms

Innovation program based on global innovation platform of 10,000 innovators

1655	735	177	8	7	1
Submissions	Presented	Selected	In Development	Licensed	NewCo

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Platform – connecting technology, data, and business services

- ✓ [Future] users and their expectations as a starting point.
- ✓ Common understanding about values and concepts (i.e. speaking the same language)
  - ➤ Capability to handle interoperable concepts together.
  - ➤ Forms "Innovation platform" for new business models and services.

- ✓ Business model formulated by various organizations.
  - ➤ Value and service networks formulated by various organizations.
  - ➤ Value and service network related governance models.
  - ➤ Service driven leadership and management practices.

- ✓ Organization related activities (processes, development activities) and resources (personnel, information technology, other technology) behind services.

- ✓ Target-oriented programmes and projects
  - • Targets and objectives based on future user requirements and organizational strategies.
  - • In an individual program/project, the scope of development should be seen on the right context and scale.

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Innolab

▸ A platform that links up theory and practice

▸ Practice-based challenges and phenomena to set research problems

▸ Leading research to address real-world problems

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Pasteur's Quadrant: Basic Research in Service of Specific and Immediate Problems

	Low	High	
Quest for Fundamental Understanding?	Pure Basic Research (Bohr)	Use-inspired Research (Pasteur)	High
		Pure Applied Research (Edison)	Low

Consideration of Use?
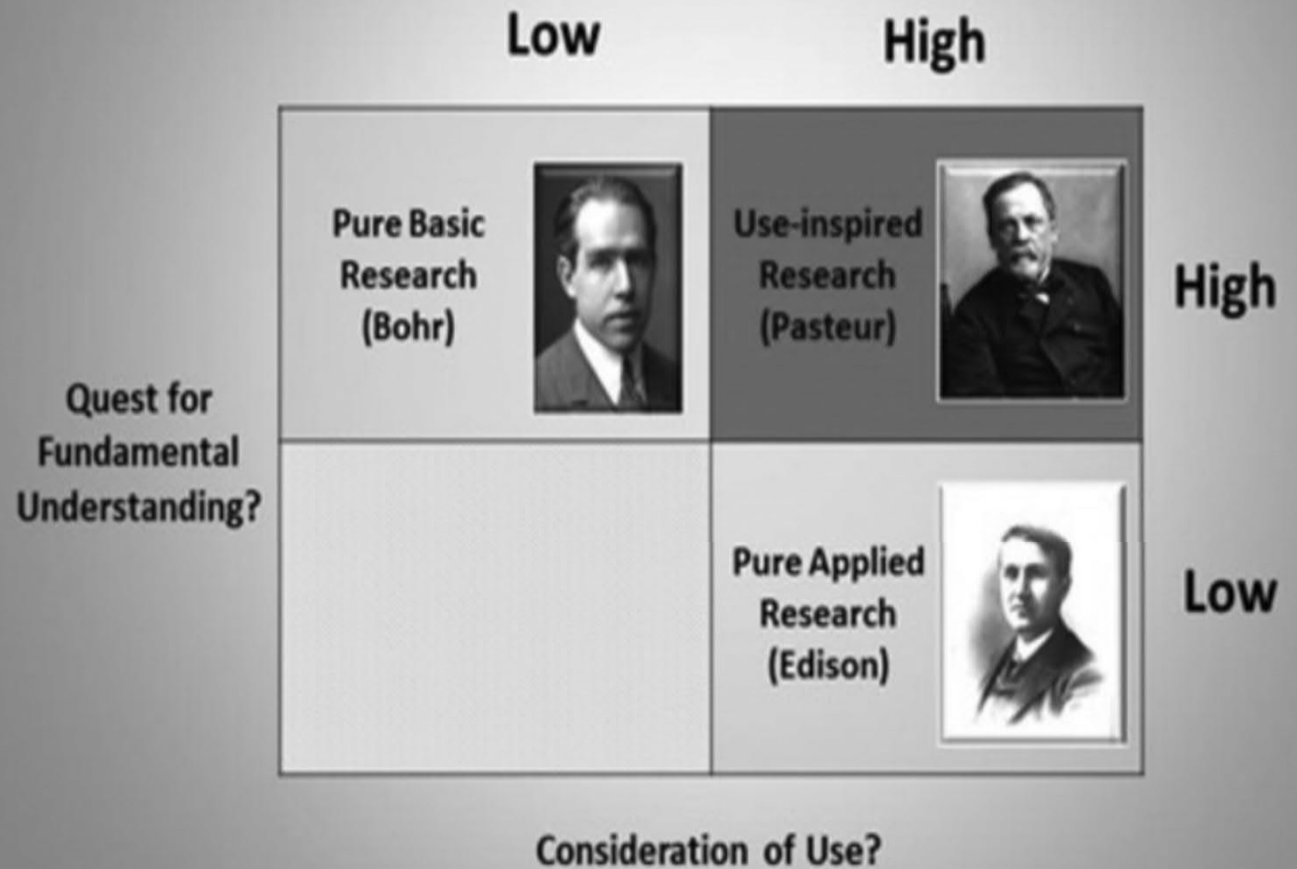
Digital Economy: Pilot Environment for Future User Interface Innovations

Hardware
- 7 computers, 1 high pefromance suitable for AR/VR purpose
- 1 computer for UX testing
- Ms Hololens 2
- Oculus Quest, Oculus Rift S

Software
- Unity & Unreal engine
- Visual Studio 2019
- Adobe XD & software package
- SMI eye tracking software

Augmented Reality
AR & VR Development

User Interface
UI Design & Development

UX UI Design
AR VR

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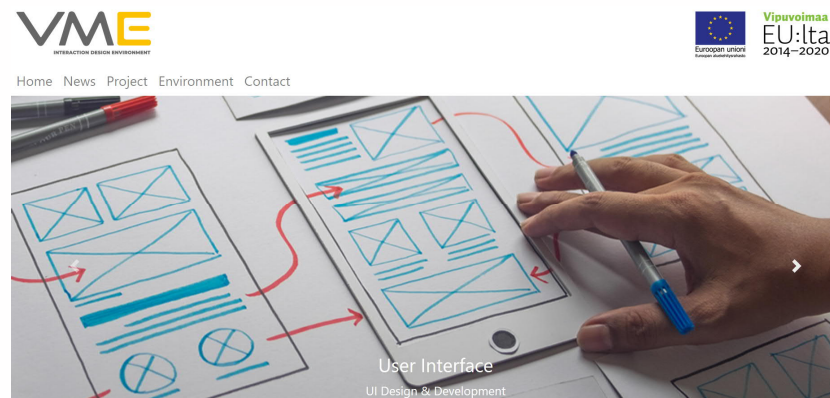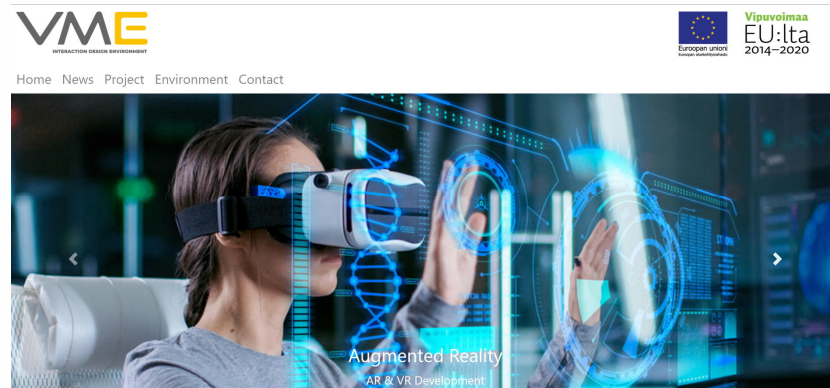
Vaasa Energy Business Innovation Centre (VEBIC) – boosting energy innovations

30+ partner companies and organisations

Annual project volume 2020: 2,9 Meur

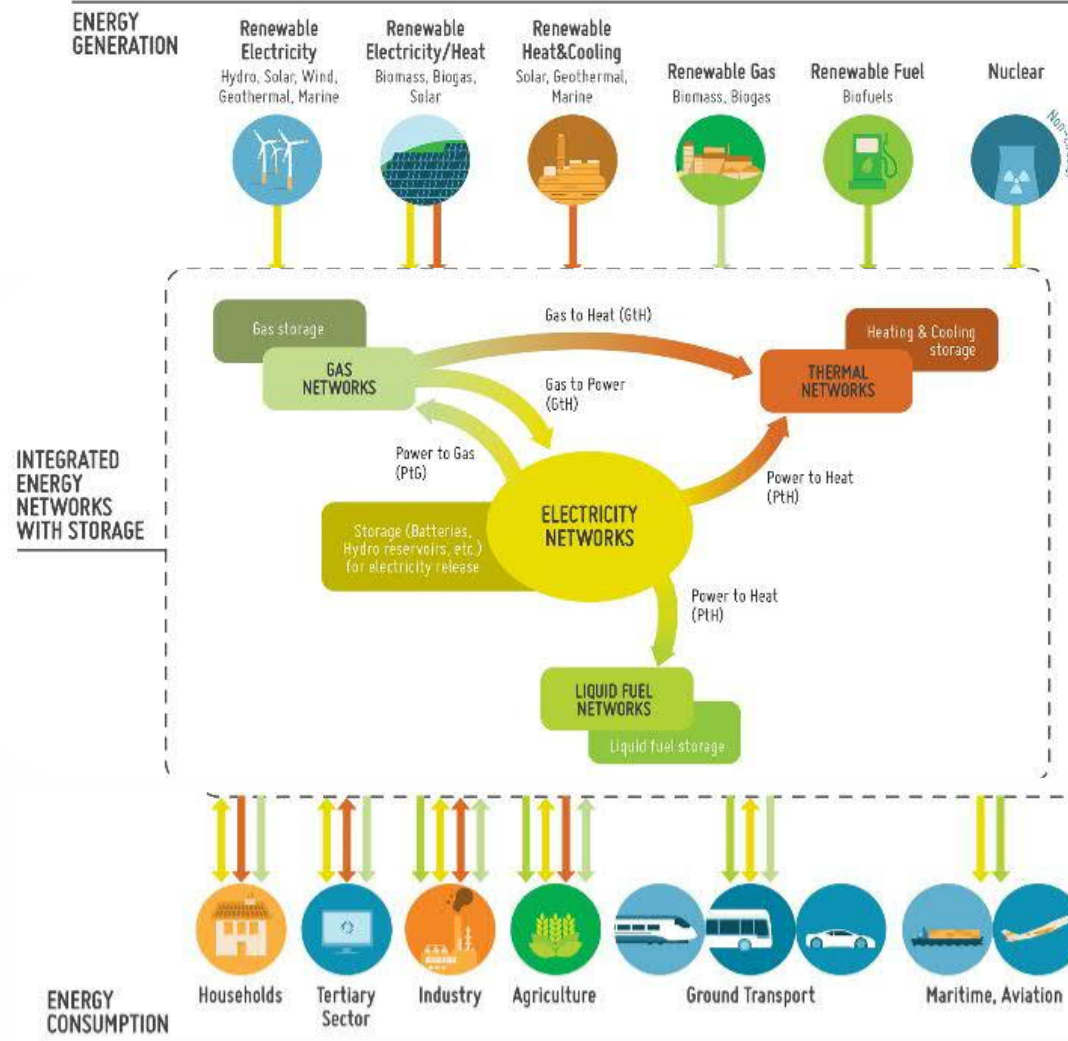Project managers: 5
Senior advisors: 1

Research Groups: 3
Research laboratories: 3 (ICE, Fuel, FREESI)
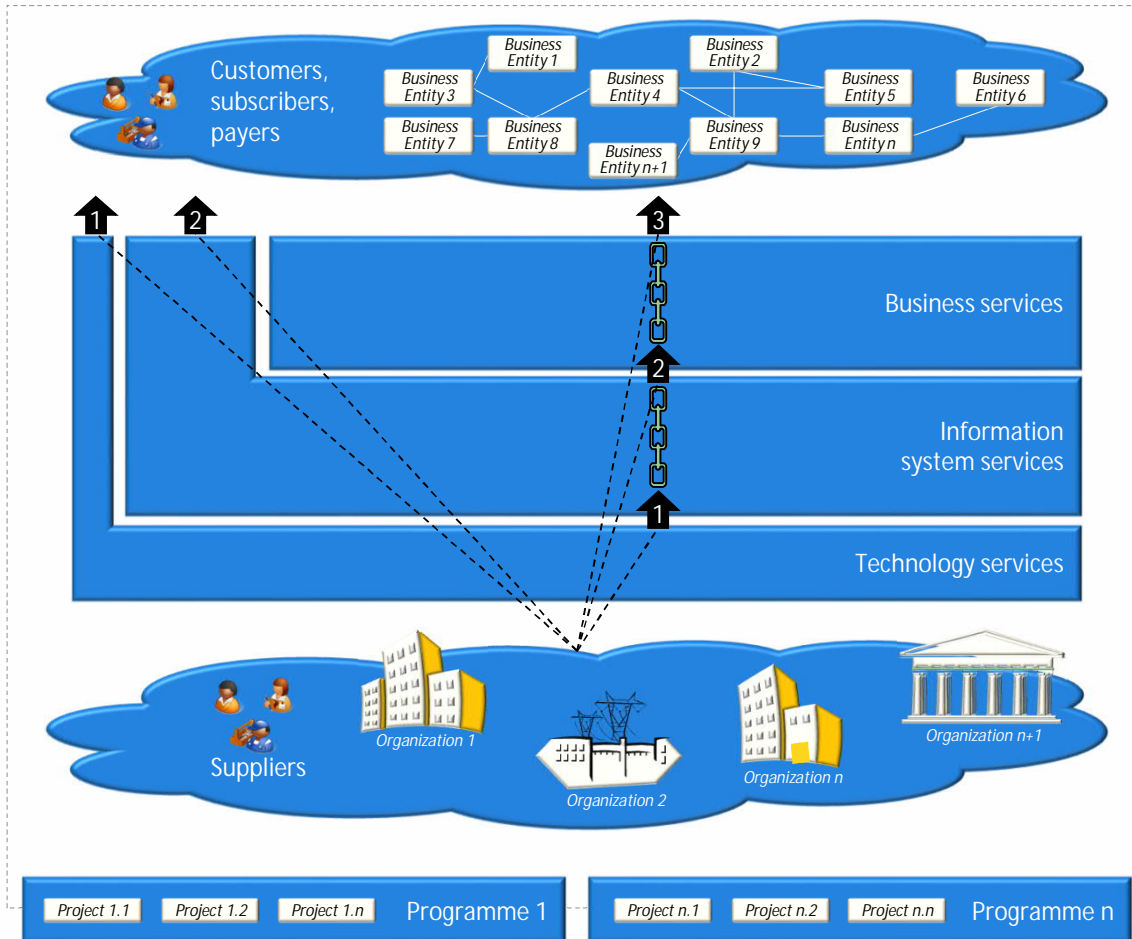
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VEBIC: Strategy in sync with ETIP-SNET network's vision for 2050

The future integrated energy systems with conversion and storage devices

Electricity network is the backbone of the integrated energy system

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Innovatio-alustan julkinen hankinta

Ei teknologiamäärittelyä, vaan tarvemäärittely: Paikallista ja puhdasta energia palveluna Vaasan merikampuksella: dataa digitaaliseen kaksoseen ja reaaliaikaiseen simulointiin

Hiilineutraalia sähkö- ja lämpöenergiaa Merikampukselle!

Merikampus on omavarainen sähkö- ja lämpöenergian suhteen

Hyödyntää tehokkaasti sähkömarkkinoiden joustoa ja hintavaihteluita

Tutkimuskohde - Palvelualusta (rajapinnat, tiedonkäsittely)

Poikkitieteellsen tutkimuksen "laboratorio"

Osa FREESI simulaatiokeskusta

Korkeatasoisia tieteellisiä julkaisuja

Merikampuksen elinkaarikustannusten minimointi / tuotto