Disruptive technologies and changing institutions (SRC2015)

## University of Jyväskylä /PI Chihiro Watanabe, Research Professor

Platform Value Now: Value capturing in the fast emerging platform ecosystems

#### The Platform Value Now project will focus on understanding the fast emerging platform ecosystems, their value creation dynamics and requirements of the supportive institutional environment. We will analyze ecosystems with systems tools and develop new methods for platform-centric ecosystems management. Data collection is based on active scanning of global technology and platform ecosystems and fast solution oriented case experiments with Finnish corporations and policy planners. The aim of the project is to operationalize the collected understanding into a Platform Profile framework that will enable more efficient method and tool development for ecosystem management.

## 2.       Rationale of the project

Platform firms underpin platform-centric innovation and production ecosystems that connect multiple players, provide an arena for value co-creation, and a governance system to regulate stakeholder participation and interaction. Uber, Airbnb, and Apple are examples of such ecosystems. They set up and facilitate two-sided markets by connecting producers and users. Examples of platform-centric innovation ecosystems are developed especially in the global automobile industry and within consumer electronics industry, the extensive supply network platform such as Sony’s and Canon’s global solutions and or b-to-b service platforms (Salesforce.com).

Studies (Westerman et al., 2014) conducted by MIT have shown that companies, platform owners and users embracing today’s technology platforms outperform their peers. Their work indicates that the companies are 26 percent more profitable than their average industry competitors. They generate 9 percent more revenue with their existing physical capacity and drive more efficiency in their existing products and processes.

According to Gartner, Nokia controlled nearly 50% of the global market for mobile phones in 2009. By 2014, the joint share of the Nokia – Windows mobile phones had dropped to 2% (Forbes 9/11/2014). Apple, on the other hand, controls a much smaller market share than Nokia did in its heyday but enjoys a commanding lead in profits in the mobile industry because it generates revenue not only through its physical product and platform software (iPhone and iOS), but also, receives a share of the follow-on revenue that application developers and telecom carriers earn from end users. This control of the industry architecture allows Apple to extract a higher premium (Adner et al., 2010). Google’s Android grows stronger and is moving beyond smart phones to power cars, home electronics, and wearable accessories. The thriving Amazon ecosystem continues to transform publishing, most recently with the launch of a fan fiction platform. In the hotel industry, Airbnb poses a serious threat to the revenue of established players and is disturbing the housing market, as is Urber disrupting the taxi industry in many countries. Building platform-centric innovation ecosystems and leveraging them for two-sided market dynamic, start-ups are disrupting not only technology sectors, but also, service industries faster than ever before and displacing established industry incumbents.

According to a MIT study (Renagaldo 2014) the 90% of the existing platform based businesses are controlled by companies headquartered in the US. The traditional economic structure of global markets is disrupted.

### Research gap

The phenomenon is relatively new and the existing research has either strong IT orientation (Niederman et al., 1991, Duncan (1995), financial systems (Fan et al., 1999, Burton et al., 2015) or e-commerce (Chatterjee et al, 2002, Gosh and Swaminatha, 2001). Pure systems theory based research is scarce (El Sawy et al., 2010). Ecosystems studies (Autio and Thomas, 2013) perceive an ecosystem as a network of interconnected organizations, connected to a focal firm or a platform that incorporates both production and use side participants. Platforms are shared technological or social architectures that connect several complementary producers and users into a collective simultaneous value co-creation and co-consuming systems (Allee, 2000, Autio et al., 2013, Evans 2011, Muffatto 1999, Thomas et al., 2014).

The impact of platform ecosystems in the national economy is not well studied. The early findings (Watanabe et al., 2015) indicate that the large part of the value of the Internet based solutions cannot be captured by GDP. Such platform based value as is essential in e-learning, knowledge sharing, digital content sharing, social network interaction are not quantifiable in the traditional terms of national accounting. Watanabe et al (op.cit) make this feature visible in their comparisons of Singapore and Finland and their digitalization. The platforms of online exchange does not change the title of the items or information exchanged. The two-way interaction has an intermediary role. This role has led to a substantial change in the way the goods, services and information are being distributed.

### Fast moving research object: Special requirements

The focal system of this research is a platform ecosystem, its interaction with the national economy. Platform ecosystems are emerging and the fast evolving phenomenon sets a special requirement for a research plan. Our research strategy is based on four principles

Principle 1: The research process consists of four layers: *benchmarking and horizon* scanning that collects up-to-date information about the use of 2) *case experiments* that produce both data and piloting environments for 3) *method and tool development* and for 4) *scientific reporting*.

Principle 2: The main theoretical framework we use for describing, diagnosing and coordination tools development is systems theoretical. We use Graph Theory (GT) for description of the structure, typical feedbacks and criticality of different nodes. Complex Adaptive Systems (CAS) theory is used as a framework for analysis of dynamics, interaction (connectivity, intensity), import and export of energy and co-evolution (adaptation) mechanisms in fast changing environment. The national value capturing requires development of novel approaches for national accounting.



Principle 3: The challenge we address is impossible to cover comprehensively in one research project. Our solution is to focus our analysis on multiple, representative examples that provide us with multi-facetted data for generalization needed for scientific reporting. The research project is based on 20 fast and 4 longitudinal inductive case experiments in challenging real-life context. During this process, we support solution finding in platform related questions for case partner decision makers.

The research team has studied the challenges of the networked economy from various perspectives: digitalization/platforms in national economy and institutional frameworks (Watanabe, Neittaanmäki, Athay, Tou), decision support analysis, network risks (Salo,), decision analysis and systemic risks (Salo, Koivisto), horizon scanning of fast changing environment (Koivisto, Rejesky) [[1]](#footnote-1) uncertainty, resilience and growth (Ilmola, Athay, Watanabe), fast business concepts and innovation (Tujunen, Autio) and institutional environments for platform ecosystems (Autio, Rejesky, Tou). The multi-perspective, cross-discipline team is a necessity for the study of the fast emerging nature of the development of the phenomenon (Pettigrew et al., 2001).

## 3. Societal relevance

Platform ecosystems development is global, but it offers to Finland one way to benefit from our digital capabilities and ITC competence. The active participation to this development requires fast initiatives both from corporations and policy makers. The prerequisite is a comprehensive understanding of the phenomenon. The set of research questions we will address:

A. What are the implications and potential benefits to Finland of the new technology enabled transitions to platform economics?

A1. What are the typical features of the current leading global platform ecosystem architectures, transformation dynamics and their impact on national economies?

A2. What are platform ecosystem options from a national perspective within different user and technology scenarios?

A3. How can the existing digital technology and knowledge capacity be taken into use so that the results will contribute to the GDP?

A4. How should the impacts of the advancement of digital technology, particularly of the dramatic advancement of the Internet and platform ecosystems on the un-captured GDP be measured?

B. What kinds of changes would the successful initiation and implementation of emerging platform based ecosystems require from operations and procedures within the business value networks and the Finish national economy and society?

B1. Which are the hindrances to a fast implementation of platform ecosystems in the Finnish institutional (widely speaking) environment?

B2. What kinds of changes are needed in the business models, strategic planning procedures, resilient business strategies, investment and risk management, operations management, innovation and added value distribution of the platform network?

C. How could authorities and government institutions support the transition in a smooth and controlled process so that Finland has as good as possible capabilities for the exploitation of transitions?

C1. What is the new development trajectory that un-captured GDP manifests itself?

C2. What are the potential resilient government strategies and policies that meet both the current economic constraints and establish an efficient support for fast exploitation of the platform technology transition?

The research project is based on the close, fast interaction loops with policy planners (Ministry of Economy and Employment and Ministry of Transportation) key developing agents of the industry (Digile) and government (NESA) and companies themselves (SSAB). The project will conduct fast experiments that focus on a special challenge and potential solutions described in details on Section 11. In this way, we hope to contribute throughout the research process to the implementation of the platform ecosystem solutions and development of their institutional environment in Finland.

4.Objectives and expected results

The research aims to produce four type of contribution:

* *Immediate soluti*ons; for the stakeholders for the challenges to be addressed in case experiments.
* *Understanding for decision makers*; the process will provide insights into the platform ecosystems’ role and functions, as well as their enablers and constraints now and in the future in view of the Finnish platform. The PVN project will contribute in a new definition of the nation’s development trajectory in the new un-captured GDP paradigm.
* *Systems methods and tools* for platform ecosystems; the project will develop Platform Profiling method and management tools for platform ecosystem diagnostics, coordination and innovation.
* The scientific contribution is based on
	+ *the Platform Profile* *framework* development that will support solution finding to the pragmatic platform related problems, and provide a theoretical framework that can be applied in the advanced analysis of the phenomenon and
	+ method development for *agile business models, fast strategies* and *risk and resilience management strategies* suitable for rapidly evolving environments
	+ the comprehensive analysis of the potential impact mechanisms of digitalization and the platform economy to the national economy.

### Anticipated methodological achievements

When successful this six year research project will provide both company and government decision makers a way to assess the organization specific or national opportunities, alternative strategies and investment requirements when participating in many-sided platform ecosystems.

The very early results (Watanabe et al., 2015) indicate that we have to define productivity in the internet driven economic systems in a new way and reveal discrepancy between the un-captured GDP and traditional GDP accounting. The new concepts and indices may provide decision makers tools that speed up the transition from industrial logic into era of digital production logic.

We will be studying the fast-changing phenomenon and our contribution will have a potential impact as an accelerator of the platform economy development in Finland. Apart from reporting the scientific outcomes in academic conference presentations and journal articles, we will establish a faster route for dissemination of results. From a systems perspective, our ambition is to speed up the science and decision-making feedback loops so that the knowledge generated even if premature, can be utilized by planners and decision makers very quickly. The fast impact will be achieved by usage of the participatory solution focused experiments as a vehicle (Eisenhardt and Graebner 2007) and the project’s own Platform.

### Critical for success

The research project outlined in this document is based on continuous interaction with decision makers and problem owners. The prerequisite for the successful implementation of the research project outlined in this document is depending on our capability of attracting real problems (their owners). In order to succeed in this, we have to continue throughout the project an active recruitment of Finnish problem owners within the field. For this purpose, we will develop The Transform Now Platform (TNP) for the project’s experiments and data collection on organizations that are interested in the multi-sided platform business. Please find more detailed description in Section 11.

Our approach is systems theoretical. It is essential to note that even if systems theories provide us with a holistic, well structured way to describe, analyze and model platform-centric ecosystems, the approach has its limitations. In order to avoid methodological trap, we will use complementary methodologies.

### Scientific dissemination.

The project team is actively co-authoring books for Springer and we have a preliminary negotiations about the Platform Value Now series. The first of the books will be focusing on Un-captured GDP. In addition to this, the project will launch the research results in an international scientific PVN seminar and invite all the seminar members to our own TNP participants. The project will negotiate about an opportunity to publish the seminar papers as a theme in a number of the relevant journal.

5.       Research approach and data

The methods of choice for the PVN project obey three principles; firstly, ecosystems are studied with systems methods, secondly, empirical inductive case based research design is required due the speed of change of the phenomenon and lack of data and thirdly, our ambition for a holistic understanding of multi-faceted phenomenon requires application of multiple theoretical frameworks complementary to the systems approach.

A Systems approach is used for data collection, analysis and modeling. Empirical case descriptions are conducted with qualitative systems methodology (Checkland, 1999, Flynn, 2015). One methodology applied across case experiments provides us with comparable data that is needed in the Platform Profile development. Qualitative, soft systems methodology has gained a new attention especially in the studies about uncertainty (Ilmola and Casti, 2012). The method has its limitations, it will be complemented by quantitative, mathematical analysis (Chan and Liebowitz, 2006) for optimization according to multiple criteria (Liesio and Salo, 2012, Ilmola and Rovenskaya, 2015).

The business oriented and strategy focused research efforts will be conducted with a systematic case study approach (Yin, 2009) to explicate platform strategies in the context of service operations in the multi-sided businesses. The case study method will be deployed because of its fit to the contexts in which the research problem and research questions are empirically novel and theoretically vague (Eisenhardt, 1989), business models in the platform business arena are highly dynamic and agile, yet the processes and structures that underline these businesses are largely unclear. The setting and the dynamic that the firms have is largely unexplored and original, and therefore case studies allow us to discover and theorize a conceptually vague phenomenon (Eisenhardt, 1989). Our study includes an explanatory analysis based on multiple case comparisons, aiming toward rich data descriptions and the conceptualization of the phenomenon.

In order to explicate crucial challenges in the context of the multi-sided businesses focused research efforts will be conducted with a systematic case study approach (Yin, 2009). The case study method will be deployed because of its fit to the contexts in which the research problem and research questions are empirically novel and theoretically vague (Eisenhardt, 1989), business models in the platform business arena are highly dynamic and agile, yet the processes and structures that underline these businesses are largely unclear. The setting and the dynamic that the firms have is largely unexplored and original, and therefore case studies allow us to discover and theorize a conceptually vague phenomenon (Eisenhardt, 1989). Our study includes an explanatory analysis based on multiple case comparisons, aiming toward rich data descriptions and the conceptualization of the phenomenon.

Empirical analyses are supported and complemented by building and deploying analytical systems models for drivers of change (horizon scanning), decision analytic models (risk management), small systems dynamical models for specific themes such as value sharing, innovation dynamics and resilience. All of these in order to support key decisions in platform development. Largely speaking we are speaking about optimization of the value of participation from all of the platform-centric ecosystem participants’ perspective.

For instance, what is the right balance between the allocation of resources to platform development and the development of specific products if the platform as such may not generate substantial revenues? Even the setting of priorities among specific products is a complex decision, because the development of the products may be constrained by the availability of shared resources, or because there may exist complex synergies or cannibalization effects in the markets. In order to address such aspects, it is necessary to develop appropriate decision analytic and game theoretic models which capture salient uncertainties and the optionalities that are central to platform decisions (see, e.g., Toppila et al., 2011; Vilkkumaa et al., 2014).

The platform-centric ecosystems are fast, the support functions such as planning or innovation should be built on strategic experiments and rapid prototyping and compressed plan-design-build-test cycles, expanding innovation opportunities. Ecosystems will allow entire value chains to be disaggregated and reorganized at national and global levels. This will challenge existing IP regimes, create new niches for start-up firms, and potentially disrupt existing industry models. Innovation ecosystems can be portrayed as organizational fields, or ‘those organizations that, in the aggregate, constitute a recognized area of institutional life: key suppliers, resource and product consumers, regulatory agencies, and other organizations that produce similar services or products’ (DiMaggio & Powell, 1983:148). As a theoretical construct, an innovation ecosystem is analogous to an organizational field in that it has its own institutional actors, logics, and governance structures (Scott, 2007).

The definition of the systems boundaries are essential for the understanding of platform-centric ecosystems and their impact on society and national economy. The focal system should be opened so that the analysis includes country-level infrastructures, policies, and institutions when considering factors that determine a country’s ability to produce and take advantage of fast technology development and platform-centric innovation ecosystems (Acs, Autio and Szerb, 2014). The platforms interaction with institutions is essential for understanding of un-captured GDP (Watanabe et al., 2015) and the role of public policies (Autio and Rannikko, 2015). The optional policies should not only support the current development of platform ecosystems or national economy, but develop resilience that is necessary for future success. For concrete resilient policy options assessment we apply qualitative and quantitative optimization frameworks such as Robust Portfolio Modeling (Liesio and Salo, 2012).

### Data

The research is based on both empirical qualitative case studies and quantitative analysis of the case experiments and global data. The participatory case experiments provide the research team with case-specific data and simultaneously provide us with a piloting environment for tools and methods to be developed in the study. Please see more detailed description in Section 11.

Additional data of past failures of platform ecosystems and existing successful platform ecosystems is collected by interviews and literature study. Horizon scanning information about early technology and platform ecosystem formation will be collected by web mining and expert Delphi methods and processed via crowdsourcing on the TNP. Data for econometric assessment of national impact and comparative global analysis is collected from existing statistical databases. We will have an opportunity to use Big Data methods for one part of the analysis (Section 11. case 7).

Data will be published (within the limits the case specific NDAs) in the TNP.

6.       Ethical issues

The case studies require a case-specific NDA’s from researchers and all the material to be published have to be accepted by the problem owner.

  Research team, collaboration

Platform Transformation Now project team is led by Professor Chihiro Watanabe (University of Jyvaskyla, National University of Singapore and International Institute for Applied Systems Analysis (IIASA). Professor Watanabe on an economist and specialized in ITC sector, institutional innovation. Professor Pekka Neittaanmaki (University of Jyvaskyla) and Associate Professor Yuji Tou the other two members of our economist team. Foresight, horizon scanning and resilience team consists of Professor Raija Koivisto (VTT), Dr. Victor Vurpillat (GXN) and Dr. Leena Ilmola (IIASA). Innovative business model, resilient strategies and risk management are responsibility of Professor Ahti Salo (Aalto University) and Associate Professor Taija Turunen (Aalto School of Business) who are supported by Professor Erkko Autio (Imperial College), Dr. David Rejeski (Wilson Center Washington) and Associate Professor Jose Ramirez-Marquez (Stevens Institute of Technology). Institutional environment of enterprise ecosystems are analyzed by Professor Erkko Autio and Dr. David Rejeski. The systems modeling team are Professor Ahti Salo, Dr. Leena Ilmola and Dr Juhani Stromberg. Project management and platform (PMP) developed is on the responsibility of Brenda Fox.

The core coordination team consists of PI (Chihiro Watanabe), PPM (Brenda Fox) and coordinator NN (Jyvaskylä University). PI’s responsibility in the project is the supervision of scientific quality, project and platform manager PPM is responsible for internal and external interaction and development of the TNP platform ecosystem development and administrative coordinator is responsible for budget follow up, formal reporting procedure and other administrative aspects

All the members of the PVN project team will share the research results twice a year in a two-day workshop. The Platform Profile framework is developed in these workshops. Virtual sessions are arranged once in every quarter.

## 9. Mobility plan

Research team members from US, Japan, England and Austria will be invited to come and work with the Finnish organizations for 3 months during the research period.

## 10.   Key literature or bibliography

Ács, Z. J., Autio, E., & Szerb, L. (2014). National systems of entrepreneurship: Measurement issues and policy implications. *Research Policy*, *43*(3), 476-494.

R. Adner, [R Kapoor](https://scholar.google.com/citations?user=0cx8VDMAAAAJ&hl=en&oi=sra) (2010 [Value creation in innovation ecosystems: how the structure of technological interdependence affects firm performance in new technology generations](http://onlinelibrary.wiley.com/doi/10.1002/smj.821/abstract)

- Strategic management journal, 2010 - Wiley Online Library

Allee, V. (2000). Reconfiguring the value network. *Journal of Business strategy*, *21*(4), 36-39.

Amezcua A., Grimes M., Bradley S., Wiklund J. (2013) Organizational sponsorship and founding environments: A contingency view on the survival of business incubated firms, *Academy of Management Journal* 56(6):1628-1654

Autio, E., Thomas, L., 2013. Innovation Ecosystems: Implications for Innovation Management, in: Dodgson, M., Phillips, N., Gann, D.M. (Eds.), The Oxford Handbook of Innovation Management. Oxford University Press, Oxford: 204-228

Thomas, L.D.W., Autio, E., Gann, D.M., 2014. Architectural Leverage: Putting Platforms in Context. Academy of Management Perspectives 28: 198-219

Bruton, G., Khavul, S., Siegel, D., & Wright, M. (2015). New Financial Alternatives in Seeding Entrepreneurship: Microfinance, Crowdfunding, and Peer‐to‐Peer Innovations. *Entrepreneurship Theory and Practice*, *39*(1), 9-26.

Checkland, P. (1999). Systems thinking, systems practice: includes a 30-year retrospective.

Duncan, N. B. (1995). Capturing flexibility of information technology infrastructure: A study of resource characteristics and their measure. *Journal of Management Information Systems*, 37-57.

Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *Academy of management journal*, *50*(1), 25-32.

Eisenhardt, K. M.(1989). Building theories from case study research. *Academy of Management
Review, 14(4), 532­550.*

Evans D. S. (2011) Platform Economcis: Essays on Multi-Sided Businesses, Competitive Policy International (CPI) Electronic copy available at: http://ssrn.com/abstract=1974020

Fan, M., Stallaert, J., & Whinston, A. B. (1999). The design and development of a financial cybermarket with a bundle trading mechanism. *International Journal of Electronic Commerce*, 5-22.

Flynn, D. N. (2015). Building a Better Model: A Novel Approach for Mapping Organisational and Functional Structure. *Procedia Computer Science*, *44*, 194-203.

Ghosh, A. K., & Swaminatha, T. M. (2001). Software security and privacy risks in mobile e-commerce. *Communications of the ACM*, *44*(2), 51-57.

Glaser, B., & Strauss, A. (1967). The discovery of grounded theory:Strategies for qualitative research. New Jersey: Aldine Transaction.

Ilmola L. and Casti J. (2013) A case study of uncertainty: Seven Shocks and Finland., *International Journal of Innovation and Supply Chain Management* Vol 7, issue 2, December 2013, pages (not known yet, I have not seen the journal)

Ilmola L. and Rovenskaya E. (in print) Three experiments: The exploration of unknown unknowns in foresight, *Technology Forecasting and Social Change*

Koivisto, R., Kulmala, I., and Gotcheva, N. 2015. Weak signals and damage scenarios – systematics to identify weak signals and their sources related to mass transport attacks. Technological Forecasting & Social Change (reviewed).

Könnölä. T, Salo A., Cagnin C., Carabias C and Vilkkumaa E. (2012).

Facing the Future: Scanning, Synthesizing and Sense-Making in Horizon Scanning Science and Public Policy, Vol. 39, No. 2, pp. 222-231

Liesiö, J., & Salo, A. (2012). Scenario-based portfolio selection of investment projects with incomplete probability and utility information. *European Journal of Operational Research*, *217*(1), 162-172.

Muffatto, Moreno. "Introducing a platform strategy in product development." *International journal of production economics* 60 (1999): 145-153.

Niederman, F., Brancheau, J. C., & Wetherbe, J. C. (1991). Information systems management issues for the 1990s. *MIS quarterly*, 475-500.

Pettigrew, A. M., Woodman, R. W., & Cameron, K. S. (2001). Studying organizational change and development: Challenges for future research. *Academy of management journal*, *44*(4), 697-713.

Proches, C. N. G., & Bodhanya, S. (2015). An Application of Soft Systems Methodology in the Sugar Industry. *International Journal of Qualitative Methods*, *14*(1), 1-15.

El Sawy, O. A., Malhotra, A., Park, Y., & Pavlou, P. A. (2010). Research Commentary-Seeking the Configurations of Digital Ecodynamics: It Takes Three to Tango. *Information Systems Research*, *21*(4), 835-848.

Toppila A, Liesiö J. and Salo A. (2011). A Resource Allocation Model for R&D Investments - A Case Study in Telecommunication Standardization In: A. Salo, J. Keisler and A. Morton (eds.), Portfolio Decision

Analysis: Improved Methods for Resource Allocation, Springer, New York.

Watanabe C., Kanno G., and Tou Y. (2012) “Inside the Learning Dynamism Inducing the Resonance between Innovation and High-demand Consumption,” Technological Forecasting and Social Change 79, No. 7, 1293-1311.

Watanabe C., Naveed K., and Neittaanmaki P.(2015) “Dependency on Un-captured GDP as a Source of Resilience Beyond Economic Value in Countries with Advanced ICT Infrastructure: Similarity and Disparities between Finland and Singapore,” Technology in Society 41, No.2 in print.

Watanabe C., Naveed K. and Zhao W.,(2015) “New Paradigm of ICT Productivity: Increasing Role of Un-captured GDP and Growing Anger of Consumers,” Technology in Society 41, No.1, ~~(2015)~~ 21-44.

Watanabe C., Naveed K. and Zhao W.,(2014) “Structural Source of the Trap of ICT Advancement: Lessons from World ICT Top Leaders,” Journal of Technology Management for Growing Economies 5, No. 2, 49-71.

Wessberg, N., Koivisto, R., Koivisto, T., and Poikkimäki, J. 2015. Using corporate foresight to understand future customers and their needs in middle and low end markets of mechanical engineering industry in China. VTT Policy Brief (to be published in May 2015). 4 p.

Westerman, George; Bonnet, Didier; McAfee, Andrew (2014). Leading Digital: Turning Technology into Business Transformation. Harvard Business Review Press.

Yin, R. K. (2009). Case study research: Design and methods. Thousand Oaks:
Sage Publications.

Internet sources:

http://www.forbes.com/sites/greatspeculations/2014/09/11/microsoft-nokia-eye-bigger-share-in-smartphone-industry-with-new-launches-at-year-end/

<https://www.uber.com/cities>

Regalado A. May 20, 2014. <http://www.technologyreview.com/news/527361/the-economics-of-the-internet-of-things/>

## 11. Interaction plan

### 11.1. Interaction principles

The main vehicle for the interaction with stakeholders is solution focused approach, which will address the case organizations problems. The experiments are solution oriented fast case studies, which produce a set of potential solutions to the challenge defined by the stakeholder group (research question) in 2-4 months. The cases that are essential for the thorough understanding of the platform economy and its institutional framework are worth for longitudinal case studies. These cases are analyzed annually throughout the research period. Some of the cases are benchmarks by their nature and they are mainly analysis of the existing international platforms.

### 11.2. Objectives of interaction

The experiments and case studies produce both insight and potential solutions for participants and case data and a method development environment for the scientific work of the project. The investment on the TNP should provide us with a community of interest that would grow up to 1000 members by the end of the research period.

The total number of case experiments we plan to conduct during 6 years will be app. 20, so the recruitment of case partners will be an ongoing activity.

###### 11.2 Target group/stakeholders/partners

Our primary target group consists of national level policy planners, corporate decision makers and planners, Finnish and international research community and those practitioners that are interested in platform-centric ecosystems.

###### 11.3. Means for interaction

Case experiments are the main channel of co-creation and communication. This medium will reach only a limited number of stakeholders, so our own platform experiment TNP will provide us a way to reach a wider community of interest.

At the planning phase we have agreed on the first case experiments listed below:

1. Fact-based systems description of the generic consumer services producing platform ecosystem architectures, to be conducted with Digile. Preliminary objective: to define technical and institutional prerequisites for the fast developing platform ecosystems that serve users The case experiment consists of analysis of the existing models (Google, Amazon) and a past failure model (Nokia). Results are elaborated in a workshop with Digile companies. Workshop process will produce the comprehensive systems description, and analysis of the systems dynamics with several methods
2. New business models and roles of the smart steel-to-engineering products network, to be conducted with SSAB and the engineering companies (Kemppi, Kone Cranes, Ponsse) of the value chain. Preliminary objectives: to describe potential roles of the agents, business models and control systems needed for a new industrial internet based smart value chain. This experiment consists of analysis of the existing Cannon value network, technology scan of the latest Silicon Valley technologies that enable/support industrial internet development, a workshop that describes the ecosystem as systems description and potential roles in it and analysis of the ecosystem with systems and network tools. The 2nd workshop that defines potential business models within the smart value network. The reports of prerequisites and potential models of the specific network are will be presented to the participating companies.
3. Open traffic data ecosystem with the Ministry of Traffic and Communications (LM). Preliminary objectives: To identify potential agents and the profitable modes of operations as a source of export income will be based on the literature study of the case material collected by LM, a workshop that describes the platform ecosystem and lists potential agents of the system and a feasibility study of the potential service concepts.
4. Design Driven Value Chains in the World of Cellulose (DWoC) Reaserch Professor Ali Harlin will provide the PVN project with a case study about Cellulose Fiber Platform. The DWoC team develops explorative prototyping of new materials and structures, and through the creation of concepts for product service systems. The case consists of a workshop that defines a platform ecosystems around new materials: participants of the system, potential interaction patterns and compares these to the automobile industry ecosystems.
5. Cyber security and platform ecosystems with the National Emergency Supply Agency: The typical features of platform-centric ecosystems are analyzed in a workshop together with the cyber-security experts in order to define constraints and potential hindrances from security perspective. The case consists of a series of virtual sessions with global experts and a workshop with Finnish experts.
6. Biology As a Platform Technology**:** an exploration of the role of engineered biology in industrial transformation, with the Woodrow Wilson International Center for Scholars. The emerging field of synthetic biology promises to make biology easier and faster to engineer. The case consists of a searchable, global, geo-spatial inventory of firms with associated firm-based data that will be updated annually (supporting the proactive analysis of cluster formation and networking opportunities, for example). The case studies on key value chain transformations for: high value chemicals, fuels, medicines, and materials. The overarching analyses of IP, regulatory, and other barriers that are affecting value chain growth and optimization are analyzed.
7. Global Automobile Industry database analysis: A Big Data based analysis of transformation patterns in the global automobile industry, with the Stevens Institute of Technology. We will explore the data base that contains information about every car part and sold car from last 15 years in order to identify transformation patterns and related platforms. This experiment consists of four expert workshops and their reporting.

### Longitudinal case experiments agreed upon are:

1. The institutional environment of platform economy – policy development with the Ministry of Employment and the Economy (TEM) Department of Innovation, a team of industrial structure (check the name). Preliminary objective: to produce up-to-date information for policy planning during the research project
* both the horizon scanning layer and case experiments and case studies are producing new insight about institutional prerequisites and enablers during the research period
* an annual workshop with the policy planners responsible for the sector structure policies with the focus relevant both for the current goals of the TEM and findings of the research project. Preliminary themes:
	+ What are the core capabilities for the global competitiveness of a Finnish platform model?
	+ What measures should be taken to build these capabilities and where to find benchmark design and work programs?
	+ What is the optimal interplay and division of tasks between private and public sector in platform construction efforts
1. Research platform experiment Transform Now Platform We experiment platform ecosystem development by building our own research platform ecosystem named as Transform Now Platform. The objective is to attract members in Finnish and international community to discuss, share ideas and contribute on the research described in this plan. We invite interested researchers and practitioners
	* to participate to the sense-making of the horizon scanning data,
	* to join to the new business model development (crowd sourcing)
	* to have an access to the most recent research results.
	* tools for interaction
	* monthly ‘Platform Talks’ that are targeted to end-users, such as the business and public decision makers’ communities.
	* experiment partners will have an access to the case-specific data and reports. The platform will be designed as a multisided information channel for information sharing and collection.
	* the objective is to develop the TNP community from 100 participants of the first year to a social network of 1000 active participants. To activate the participants to use the insight, data and tools project develops.
2. Existing Finnish platform analysis: the project team will interact; share the collected information, share the benchmarks and discuss the current institutional hindrances with one Finnish platform ecosystem, health platform Taltioni for 3 years
	* meeting once/twice a year
	* analysis of the institutional enablers and hindrances with the management of the platform

### Benchmark-studies that are based on interviews and public data analysis are:

Industrial benchmarks:

* The main benchmark will be e2Open (US) that went to public 2014, the VP, Marketing Lorenzo Martinelli will provide us with a detailed historical data about the development of this platform ecosystem.
* Industrie 4.0 (Germany)

Consumer platform benchmarks:

* Amazon, Google, Linked-in

### Platform Talks

Four times of the year, we will arrange a “Ted-talk type” webcast that is open to all interested. The focus of the webcasts will be defined during the research process, but the main predefined elements are recent benchmarks, drivers of platform economy (from the Horizon Scanning Layer) and some reporting of the collected insight. The main marketing mechanism is the platform members and the network of the involved group. Participants of the first year of the research period app. 50, next year 100 … Our target is to reach the sixth year 1000 involved stakeholders. The focus of webcasts

### Crowdsourcing by the TNP members

In order to secure that we establish a true interaction, we will invite members of the TNP (practitioners, decision makers) to co-create added value to the horizon scanning data and for example novel platform ecosystems business models.

The total number of case experiments we plan to conduct is app. 20, so the recruitment of case partners in ongoing activity.

###### 11.4. Responsibilities and implementation

Requirements for case studies are that they solve the problem in question, produce structured data and meet quality requirements. One case serves several WP’s so they cannot be arranged as WP specific exercises. For this purpose the PVN project will have a dedicated team that is led by Dr. Juhani Stromberg and Dr. Leena Ilmola, both of them have long experience as business strategists and consultants.

The Transform Now Platform development will be a responsibility of the project and platform manager (PPM). The PPM will develop, maintain and activate participants of the project platform TNP. A key component of the TVP is to be a foundation of a researcher and stakeholder ecosystem that enables scholars and academics to collaborate together in Open-Access (OA) academic journals, as well as connecting scholars with other readers, authors and reviewers in a global collaborative environment. The PO structure and tools would provide a platform available for other purposes past the completion of this project. The PPM will be as well responsible for monitoring of the PVN work plans and milestones and apply standardized project management practices with all the partners contributing to the project as well as determine methodologies for repeatable processes.

###### 11.5. Schedule

The case experiments and the development of the TNP are starting immediately after the project funding is granted.

1. What is the specific added value is achieved with this specific consortium collaboration [↑](#footnote-ref-1)