

## Rationale of the project

### The framework of hybrid governance

Forms of organizing social activities, institutions and work have always been ubiquitous but never self-explanatory. There is a long-standing discussion on markets, hierarchies, networks and hybrids exploring the richness of social forms of organizing (Powell 1990; Ouchi 1979; Williamson 1985). With respect to pursuing important societal activities, such as improving the level of education, maintaining health and keeping up infrastructure, it is sometimes difficult to disentangle public organizations and activities from private efforts. It has become commonplace to use the concept of hybrids to depict the institutional space between the public and private sectors (Johanson et al. 2015). It is possible to talk about hybrids in the context of markets and hierarchies as well as in the context of public and private forms of action. In this project, hybrid forms of governance refer to institutional settings in which corporations with both public and private owners may operate toward public interest or activity, or where private (for-profit or non-profit) firms increasingly take care of the public service provision. More specifically, the notion of hybridity may cover the following:

- a) *mixed ownership* between public and private actors, e.g. state-owned enterprises (SOEs) pursuing politically driven goals while exploiting business logics and operating on global financial markets (Thynne 2011), or public ownership as a solution to grievances among customer groups (Hansman 1996)
- b) *goal incongruence and competing institutional logics* between the logic of profit-seeking vis-à-vis the logic of effectiveness, providing social impacts on society and citizens, e.g. health care firms using business logics supplementing or replacing the public provision of health care or social enterprises attempting to “do well by doing good” (Kreps & Monin 2011; Reay & Hinings 2009; Pache & Santos 2013; Ebrahim et al. 2014).
- c) *multiplicity of funding arrangements* between the public and private actors, including investors and financiers, e.g. several types of PPP, or PFI arrangements in financing public service delivery (Hodge & Greve 2007)
- d) *public and private forms of financial and social control*, including regulatory control of the markets, professional self-control and customer-driven market control within a single system of service delivery, e.g. multifaceted control and audit systems of organizations operating on professional clan control and customer-driven satisfaction logics (Power 1997; Kelly 2005; Jordana & Levi-Faur 2004)

In practice, hybrid forms of governance may thus assume many forms: e.g. government-owned corporations, public-private partnerships, social enterprises, commissioning, public procurement, purchaser-provider models and contracting out. Hybridity may also concern different levels of social action. There are macro-level hybrids in which both public and private forms of institutional action contribute to systemic outcomes. Consider the R&D system of Finland, which consists of government funding, activities and policies as well as high-tech business corporations, universities and their spin-off companies. There are meso-level hybrids that are not merely an institutional field or industry but also a collection of social and political objectives, business firms, think tanks and lobbying organizations.

Consider new environmental technologies, e.g. the “cleantech” industry or cluster, which include societal goals and public goods of clean air provision as well as technology companies struggling to export their technological innovations and products globally. Micro-level hybrids can be seen as hybrid organizations, e.g. a social enterprise or health care firm employing competing parallel institutional logics or SOEs as organizations the ownership of which is partly public, partly private. Hybrid governance may thus include

organizations and institutional arrangements between organizations but also contractual arrangements and schemes that are designed to contribute to the fulfillment of societal activities and missions. Several developments emphasize such networked government in which the actual service production takes place outside the government in markets, third sector organizations and communities. For the government, it is not only the choice of do-it or buy-it (Williamson 1985) but also a more in-depth question of reforming through markets (Hood & Dixon 2015), collaborative governance (Torfing & Sorensen 2012; Ansell & Gash 2008) and public service co-production (Osborne & Strokosh 2013).

### **Links to previous research tradition**

The previous research tradition demonstrates that hybridity is not an easy concept. Theoretically, it has been considered slippery, as a residual, something you cannot explain (Ménard 2004).

Almost everything becomes hybrid (Philippopoulos-Mihailopoulos 2012) as the conceptualizations are associated with exploring “impure” forms of social organizing. The public value discussion (Moore 1996) emphasizes that both government and private activity create value but that they do so in different manners. In many public activities, the recipients do not have to pay for the service they receive, but equally private for-profit activity creates value that benefits the society as a whole. The resource allocations of government and business activities are indications of the value ordering of society. In other words, the actual resource allocations give insight into the overall strategies of society, and joint public-private activity is a marker for the diffuse nature of the targets themselves. According to Skelcher and Smith (2015), hybrids have been conceptualized in two ways in the public administration literature.

First, they may be treated as a separate third category in forms of organizing public activities (cf. Koppell 2005). In this context, the mandate of an organization has been given by public authority, but there is more autonomy and a more business-like setting for organizational action. Second, hybrids have been treated as combinations of business organizations and public bureaucracies. Discussion of social enterprises, for instance, is an indication of this approach (Ebrahim et al. 2014). There is hardly any scientific consensus regarding the ways in which hybrid organizations ought to be theoretically positioned with regard to other “sectors” of society. Therefore, scientific argumentations may range from the discussions of hybrids as non-existent, ill-perceived forms or “weirdos” of fundamental structures of social organizing (markets and hierarchies) to the studies in which hybrid organizations have become the *modus operandi* as it is impossible to find markets or hierarchies in their pure form in society (Simon 1991; Ménard 2004).

However, the analysis of sectoral characteristics is by no means the only approach to hybrid arrangements. Instead, such an approach tends to treat organizations as a black box without legitimacy-seeking actors, different institutional and political interests and taken-for-granted mechanisms of organizational action. Historically, richness in institutional development stems from multiple institutional mechanisms, such as institutional emergence of new organizational forms as autocatalytic processes of different kinds (Powell & Padgett 2012), competing institutional logics (Paches & Santos 2013), distributed intelligence (Stark 2009) or multiple decision-making rationalities (March 1999; Vakkuri 2010). In order to understand what hybrids actually are, we need to understand them more fully by exploring their behavior, governance structures and organizational frames. There is a need to theorize what hybrids intend to do, how they do it and, particularly, how we can acquire knowledge on how efficiently and effectively they perform in pursuing their goals. As Skelcher and Smith (2015, 444) argue, the category of hybrids should be investigated, not only in the context of the state-market-community triptych but as an institutional space of its own.

### **Intended contribution of the project**

The first rationale of our project starts from this observation: We have observed that, in the current research literature, there is a lack of theoretico-conceptual understanding of the evaluation of value and worth in

hybrid arrangements (Boltanski & Thevenót 2006). According to Stark (2009), current research lacks understanding on the impacts of dissonance, i.e. diverse and ambiguous criteria for performance evaluation. More particularly, the gap lies in understanding the design and uses of the systems of performance evaluation and measurement in hybrid forms of governance (Hodges 2012). On an abstract level, this approach identifies orders of worth that give justification to social action. It points out that economic action is based on a variety of principles in defining value. Thevenót et al. (2000) put forward seven regimes of worth or “common worlds” – market, industrial, civic, domestic, inspired, fame and green – which differ from one another in terms of evaluation modes, form of relevant proof, qualified objects and human beings, as well as time and space formation. On a more practical level, performance metric systems are used to evaluate worth and distinguish good performance from bad performance; they are also used to determine who is to delegate credit or blame for performance (Allen 2012). The previous research has concentrated on institutional forms and organizations in hybrid settings but not so much on the ways in which governments, decision makers, service users and citizens assign value to these arrangements. This accounts for two major problems. First, theories of hybrid governance are inapt to explore one of the most important decision-making rationales of current legitimacy-seeking institutional life (Stark 2009). Second, in the changing landscape of government activities, it is of utmost relevance to understand methods of evaluation and measurement as they drive the institutional legitimacy of societal activities. Therefore, we aim to contribute to the theoretical understanding of hybrid governance and organizations by theorizing new ways of assessing the value of these institutional arrangements.

The second rationale of this project is to contribute to research tradition on performance evaluation and measurement (cf. Lapsley 1988; Bouckaert & Halligan 2008; van Dooren & van de Walle 2011). Quantifications and measurements have permeated the activities of public administration and society at large by providing a conceivably impersonal basis for allocating taxpayers’ resources by introducing new centers of calculation (Miller & Rose 2008) and enhancing reliance on performance numbers as technologies of distance as well as forms of political justification (Porter 1995; Boltanski & Thévenot 2006). Kelvin’s dictum, “When you cannot express it in numbers, your knowledge is of a meagre and unsatisfactory kind” (McCloskey 1984, 323), has come to serve as a persuasive argument for developing evaluation systems in public administration and in collaborative networks between the public and private sectors. Trust in performance numbers has become the zeitgeist for valuing social activities (Porter 1995).

However, the previous performance measurement research, both in the context of private and public organizations, has relied on an entity-based assumption of organizational systems, which has made it complicated to understand service delivery with networks, lateral accountabilities and collaborative governance. The theoretical principles have originated from systems theory with clear-cut boundaries to environment and other organizations and stakeholders (Vakkuri 2004). This assumption does not hold in the contemporary context of public service delivery, where achieving social impacts necessitates distributed intelligence and collaborative forms of governance among public, private and non-profit organizations as well as the end users of public services. It is apparent that from the viewpoint of performance metrics, there is a significant, yet unrealized, potential in theorizing the links between hybrid organizations and their performances (Stark 2009; Hodges 2012; Grossi, Reichard & Vakkuri, forthcoming).

Furthermore, the problem also concerns policy practices of different countries where policy-making lack detailed understanding of hybrid governance and performance measurement solutions therein. Consider the context of Finnish social and health care reform where one key problem is to find proper balance between “public” and “private” forms of service provision, and particularly, to determine the value and impacts of social and health care services to customers and patients of services, as well as to citizens and taxpayers at large (Government bill 324/2014).

In hybrid settings, performance metrics are thus polysemic and subject to contrasting expectations, interests and ambiguities (Vakkuri 2010). First, demonstrating public value through performance metrics is difficult due to the problems of effectiveness measurement. It is easier for public agencies and private firms to prove their efficiencies and procedural optimalities instead of the effects of services on users, citizens and society at large. Second, comparing relative efficiencies in public and private value creation becomes complicated with the absence of unequivocal measures of performance. This problem is widely known, for instance, in attempts to compare true costs and benefits of contracting out public service delivery. Third, according to classical principles of performance measurement (Ijiri 1975), if the object of measurement turns into “hybrid,” the instruments of quantification should be able to trace that hybridity (Stark 2009). Metrics ought to be “hybrid” as well. However, theoretical thinking in current performance measurement systems is far too inflexible for that purpose. In terms of validity and relevance, measurements are at their best with stable measurement objects and institutional environments as well as easily verifiable processes, outputs and outcomes (Golany & Roll 1989). Accordingly, many performance evaluation systems in hard-to-measure environments aim at balancing between contrasting expectations, conceptualizations and measurement practices.

Finally, far too little attention has been given to rationales, forms and outcomes of uses of performance information. Metrics problems have been primarily understood as a design problem (Meyer 2002). It is important to discuss performance metrics not merely as a solution to performance improvement problems—as is the case in many performance measurement studies hitherto (cf. Johnsen et al. 2012)—but also as an instrument for creating new problems and facilitating new long-term institutional change (Vakkuri 2013). To conclude, our second rationale for the project is to contribute to research on performance measurement from the viewpoint of applying and using performance metrics in highly complicated settings, i.e. hybrid activities.

The project extends the previous research of the PI and the research team in several ways. The team has significant research experience on performance evaluation and measurement of public and private institutions (Vakkuri 2003; van Helden, Johnsen & Vakkuri 2008; Vakkuri 2010, 2013; Dixon et al. 2013; Jääskeläinen & Laihonon 2014; Jääskeläinen, Laihonon & Lönnqvist 2013) and on evolving forms of government activities, public organizations and their strategies (Johanson 2009; Laihonon 2012; Sorsa & Johanson 2014; Johanson 2014). The research team has systematically explored hybridity and hybrid governance as well as evaluation and measurement of performance as objects of research. However, this project would be an important contribution for the team to initiate a new research program on performance measurement in hybrid governance in which these two streams of research will be addressed and explored together. Novel theorization of performance measurement systems in hybrid governance would also be an important breakthrough in international research. As the members of the research team are actively engaged with developing this research agenda in international forums, the potential for breakthrough is significant.

## **Objectives and expected results**

### **Objectives of the research**

The general purpose of this project is to study external and internal performance measurement systems in hybrid forms of governance and the ways in which those metric systems influence and shape decision-making rationalities of hybrid institutions. External systems refer to systems of evaluation by which hybrid systems and organizations respond to their external environments, expectations and regulations of government, society and the marketplace. By internal systems, we refer to systems that hybrid organizations have designed for themselves and that hybrids utilize to cope with uncertainty and ambiguity of decision-making with different contrasting institutional logics and rationales.

Assessing the value and worth of hybrid arrangements and organizations through performance metrics involves two theoretical approaches: those of design and those of use (cf. Johnsen et al. 2012). The problem of design refers to conceptualization and measurement of the performance of hybrid arrangements. How should one define the accounts of worth in hybrid settings (Stark 2009; Boltanski & Thevenot 2006), and how should one differentiate high performance from poor performance in hybrid arrangements (Allen 2012)? Furthermore, we can ask how these valuations are actually made in society (Dewey 1939, 51). Performance metrics aim to provide evidence for making choices and making sense in different contexts of institutional action: hybrid organizations, central and local governments, private business organization, charities and other stakeholders. There are different legislations and social and institutional norms of conduct for this purpose. However, the design problem is particularly complicated in hybrid settings. There are no ready-made statistical or bookkeeping codes for “hybrids.” Instead, there is vast collection of data on the finances and other aspects of performance of individual entities and organizations. There are several entities and systems of distributed intelligence (Stark 2009), which in practice collaborate and contribute to common service delivery outcomes but are counted as separate, discrete entities and organizations. The black-and-white distinction of public and private institutional action may make sense for statistical, and book-keeping purposes, but not for the purpose of theorizing the evolving world of hybrid governance. We can set the following hypotheses.

**Hypothesis:** *Due to their inherent theoretico-methodological limitations, performance metric systems are not able to trace, evaluate or indicate performances among hybrid forms of governance (problem of design). Therefore, performance measurement systems are not used, or their use involves several ambiguities in the decision-making practice of hybrid systems, industries and organizations (problem of use).*

We have set three research objectives (RO) for the project, which are related to both the design and use of performance measurement systems. First, there is a need for a descriptive objective of identifying the current state of performance metrics systems in hybrid settings. We will do this by investigating performance metrics systems at three levels of hybridity. First, the project will deal with hybrid systems, which we define as a policy-level network of institutions and actors pursuing societal macro-level goals but with different sets of institutional backgrounds, institutional logics and decision-making rationales. In the project, we will use the R&D system as a case context for this level. Second, we are interested in hybrid industries, a cluster of public and private actors pursuing public goals but within a more specific, institutional field of action (Powell & Padgett 2012). As a case context for this, we will use the “cleantech” industry, in which several actors, including public policy-makers, business firms and multiple associations aim to contribute to the common good of clean air by producing environmentally friendly technologies and solutions to the global marketplace. Finally, we will analyze hybrid organizations pursuing public goals employing parallel institutional logics. The selection of different industries in our study represents the differentiated orderings of worth, by default. As a field of activity, R&D is an image of inspired order of worth in its aim to facilitate creativity and enthusiasm by which involved people are engaged in the development activity. Within the Nordic context, the area of health has been related to the civic order of worth, which is evaluated by the principle of collective welfare and its ability to distribute these services in an equal manner. The cleantech industry signifies the green order of worth by supplying environmentally friendly products, emphasizing sustainability and working for the ecological ecosystem.

These orders of worth are not natural in any sense as they need institutional legitimation and justification. They have to be constantly negotiated, but they are also in the process of change, and they might include contradictory tendencies. In our project, the area of health will include the competitive order of market, which is based more on market competition than on the equality principle. Within R&D, there is an in-built impetus for industrial order of worth, for technical efficiency and a long-term planned future combined with the world of markets, which do not always respect the features of the inspired world. The area of cleantech

is in its institutional infancy as it combines features of the green, market and industrial worlds. These ambiguities exemplify the difficulty of defining the qualified objects within the cleantech industry. Is a low-emission diesel engine part of the green world on the basis of its 5 modification, a part of the market world due to its ability to save cost, or even a part of the industrial world due to its technical efficiency, to name a few possibilities? To conclude, our first objective is as follows:

**RO1:** *Identification and exploration of the state of art in the design of performance measurement systems in different levels of hybrid governance (descriptive objective)*

Contemporary research needs new transformative theoretico-conceptual models to understand performance metrics in hybrid governance. Our second objective is associated with exploring those models. For this purpose, we will use previous theoretical literature to pinpoint limitations in theorizations of performance measurements (cf. Hodges 2012). Furthermore, we will use a computational social science approach (Lazer et al. 2009) to take advantage of digital data in detecting different forms of hybridity. We will use the data not only to build on new sources of data but to develop new ways of locating hybrid activities and organizations from large populations of institutions using our four categories to hybridity: ownership, goal incongruence, funding arrangements and forms of institutional control (cf. Basole et al. 2015; Still et al. 2012). While big data is often seen only as a source of massive amounts of data, the four Vs (i.e., Volume, Velocity, Variety and Veracity) give a more complete viewpoint into its nature, each adding to the challenge of analyzing big data for insights. Due to the size and complexity of big data, the methods that are used to analyze the data tend to be relatively simple. Therefore, the analysis of big data is used to extract correlation rather than causation in the data set. Joint occurrences of events give guidance for social action, although they do not represent causal relationships between events or actors. Rather misleadingly, the quality of “bigness” refers to the completeness of the data, not to the size itself.

Using big data for performance measurement, individual actors and the interactions between them will be scrutinized as problems of ownership, goals, funding and control. Different approaches will then be used to model the system, its structure, dynamics and different kinds of latent patterns. Methods for analyzing the data will include computational network analysis (structure and its evolution) (Huhtamäki et al. 2015), system dynamics modeling, agent-based modeling and different machine learning approaches. To support quantitative data analytics, information visualization and visual analytics will be key in allowing sense-making and storytelling, i.e. in gaining insights on the data and in sharing the findings with others (Russell et al. 2015).

With big data analysis, finding statistically significant associations between individual measurements and indicators is trivial. Instead of statistical significance, we seek for theoretical relevance. Therefore, to be able to use big data and digital sources of data, we iterate between theory and data-driven insights. For us, big data will serve as an innovative bottom-up description of empirical inquiry to demonstrate hybrid activities, and sources of performance measurement problems therein. To allow iteration between theory and data-driven insights, we will apply and develop further the Ostinato model for data-driven visual network analytics (Huhtamäki et al. 2015). Following the model, we will identify sources of existing big data and digital data in general and extract and refine the data for analysis.

With the data from existing records, we will be able to extract the areas in which the occurrence of hybrid arrangements are most common (process, the descriptive aim), the financial allocation of public and private resources give insight into the value ordering of these areas (input) and customer satisfaction enables us to evaluate the success of the activities (output/outcome). The potential sources of data include governmental open data (e.g., European Commission data on Horizon 2020 projects, Tekes project data in the context of innovation ecosystem analysis); European Regional Development Fund data on regional developmental and innovative projects for the program period (2007–2013), held by ministries of employment and the economy (R&D); the MWA (maintenance and promotion of workability barometer, gathered 1998, 2001 and 2014)

held by the Finnish Institute of Occupational Health (health); and Cleantech Finland's annual cleantech survey (2011–2014) combined with market data held by Cleantech Finland. Accordingly, our second research objective is as follows:

**RO2:** *Advancing current theoretical and conceptual framework of performance evaluation of hybrid arrangements*

Understanding the design problem in measuring the performance of hybrids will take us only halfway. It is commonplace to assume that more high-quality measurements would almost automatically result in improvements of performance and rationality (Vakkuri 2010). Problems of performance measurement are assumed to be solved through the design of more sophisticated measurement techniques, accounting standards and indicators. This is not always the case in policy and managerial practice. The solutions to the design problem do not necessarily ensure the intelligent use of performance metrics; this could be due, for instance, to organizational learning capacities, incomplete data systems, multiple political rationalities or complex links of causes and effects in performance. Therefore, it is reasonable to ask the fundamental question of why performance measurement systems are used in hybrid settings.

Alternatively, why are they not utilized? Moreover, it is important to study mechanisms through which uses of performance measurement systems influence decision-making rationalities in hybrid settings. How is performance information used? Furthermore, what is the impact of the use of performance measurement information on decision-making rationales of hybrid institutions? Accordingly, we set the third research objective as follows:

**RO3:** *What are the rationales and ambiguities for using performance measurement information in hybrid institutions? How do uses of performance metrics influence and shape decision-making rationalities in different types of hybrid settings (hybrid systems, industries and organizations)?*

### **Potential for scientific breakthrough**

Novel theorization of performance metrics systems in hybrid governance would be an important breakthrough in international research. As the PI and other members of the research team are actively engaged with developing this research agenda in international forums, we consider the utilization potential to the scientific community significant. Based on previous experience by the research team, it is known that there is an increasing need in institutional practice for the analysis of hybrid systems and organizations and, respectively, for understanding their performance metrics problems. In enhancing the utilization potential of the results to institutional practice, the team will be able to use its connections to hybrid organizations in Finland and abroad. For instance, Professor Johanson is the director of a Tekes-funded project on new forms of value creation in the digital age.

Laihonon has worked e.g. in projects on innovative service metrics (PALJE, Tekes), on service logic for welfare services (Tekes) and on performance dialogue in city organizations (The Finnish Work Environment Fund, TSR). PI has been the director of several research projects funded by different organizations. He currently works as a subproject manager in the BeMInE -consortium funded by the Strategic Research Council regarding new forms of urban policy-making (cf. the PI's CV). There is an important synergy between the SRC project and this research project.

### **Effects and impacts beyond academia**

The project has a significant potential in creating high impacts on society and public policy-making. Finland is undertaking major structural reforms of reorganizing social and health care services and the regional level of government, is in the process of revising R&D systems and higher education, and pursuing new competitive advantages through clean and environmental technologies. However, at the same time policy-making is

struggling with the problems of regulation, strategy making and control of different systems enmeshed with “public” and “private” actors. The question is about conceptualizing the institutional realm of hybrid logics and governance, and about the evaluation of worth in different contexts of hybrid activities. This project contributes to such understanding to a significant extent. The members of the research group have identified the need for more elaborate theorization and conceptualization of hybrid governance in several previous practice-oriented research projects (e.g. by TEKES, EU Cost program). Naturally, societal impacts of the project cannot be seen as limited to the Finnish context only. The problem of performance evaluation of hybrid activities, and its implications to research and policy practice is indeed a global one (cf. Grossi, Reichard & Vakkuri, forthcoming).

### **Publication plan**

The project aims to produce at least three high-quality journal articles per each RO in international refereed journals (JUFO-level 2–3, 10 articles in total). For achieving this goal, the research team will be able to use a wide international network of colleagues with whom the PI and other team members have collaborated.

For instance, the PI is currently one of the guest editors in a special issue of the journal *Public Money & Management* on “Performance measurement in hybrid organizations.” This research project will also produce a research monograph on hybrid forms of governance to be published by Routledge. The PI and Professor Johanson have received a positive response from Routledge (cf. the list of publications). The project aims to produce, altogether, 13 papers for conferences in Finland and abroad. Professors Vakkuri and Johanson have been co-organizers of research workshops on accounting, accountability and hybrid organizations in IRSPM (International Research Society for Public Management) conferences for several years. Additionally, the project will publish five to seven professionally oriented articles for the Finnish audience, where we can utilize the research contexts of the project: R&D, cleantech and health care organizations.

### **Research methods and material, support from the research environment**

#### **Research contexts**

We have three justifications for selecting our empirical contexts.

1. The contexts refer to three different levels of hybridity in society, as we described earlier: hybrid systems (R&D), hybrid industries (cleantech) and hybrid organizations (health care).
2. The contexts provide extremely relevant forums for exploring hybrid governance. It is not easy to refer to an R&D “system” as something that governments, firms or other actors have consciously built (Nelson 1993). Rather, a set of institutional actors aim to contribute to innovative performance, employing their own decision-making rationalities (Powell & Sandholz 2012). This makes it interesting to explore performance metrics systems therein, as they are expected to provide understanding of the value and worth of R&D systems. Our analysis will use data from the Finnish R&D system. The cleantech industry is an emerging institutional field mixing political goals of climate change and clean air with rapid expansion of business activities and institutions producing environmentally friendly technologies. Although the cleantech industry includes more than 2000 business corporations in Finland and employs more than 50,000 people (see [www.exportfinland.fi/ohjelmat/cleantechfinland](http://www.exportfinland.fi/ohjelmat/cleantechfinland)), the industry is a hybrid, a network of traditional industries. As Cooke (2008) puts it, the cleantech industry is a composite of several traditional “industries,” such as energy-related agriculture, air and environment, materials, manufacturing, energy generation and efficiency, recycling and waste treatment, transportation, water and wastewater. Finally, valuation of hybrid activities in health care organizations constitutes a highly



relevant setting for understanding decision-making rationales in which parallel institutional logics and worth-orderings may coincide and co-evolve, sometimes collide (Noordegraaf 2007).

3. We expect valuation problems of these institutional contexts to be representative of some of the most complicated measurement problems in hybrid arrangements. They are associated with impacts of scientific research (R&D), valuing benefits of clean air (cleantech) and providing health impacts to citizens (health care organizations). Problems of design and use are particularly complicated and, thus, scientifically relevant.

## Research methods and material

The project will use multiple research methods and data sets to respond to different research objectives. In general, the project will exploit the following types of data: documentary data, data on accounting and financial statements, statistical data (including “big data”), bibliographical data and interview data. These data sources will be used to answer to different ROs. In terms of research methods, the project will use the following methods and methodological approaches: case analysis, statistical simulations, methods of big data analysis, network analysis, documentary analysis, bibliographical analysis and literature reviews (see Table 1).

**Table 1.** Data sets and methods in responding to research objectives and questions.

| Research objective   | Data sets collected  | Methods of analysis  | ROs are achieved by answering the following questions:   |
|--|--|--|--|
| <u>RO1.</u> Identification and exploration of the state of art in the design of performance measurement systems at different levels of hybrid governance (descriptive objective)   | -Documentary data on three contexts of hybrid governance<br>-Financial statements data on three contexts of hybrid governance<br>-Statistical data on three contexts of hybrid governance<br>-Bibliographical data regarding previous research | - A state of art in performance measurement in selected hybrid contexts will be constructed through documentary analysis, analysis of financial statements and statistical data<br>-Bibliographical methods used to pinpoint limitations of current research | -What is the level of metrics in the selected contexts?<br>-Are the metrics problems similar or different in the contexts?<br>-What may explain the problems of metrics design?<br>-What does this say about performance metrics in hybrid settings?   |
| <u>RO2.</u> Advancing theoretical and conceptual framework of performance evaluation and measurement of hybrid arrangements  | -Big data (social media data, socially constructed data)<br>-Large statistical register data sets<br>-Open data<br>-Bibliographical data<br>-Previous theoretical literature as “data”   | -Semantic computing<br>-Computational network analysis<br>-Visual analytics<br>-Ecosystem analysis<br>-Bibliometrics, scientometrics<br>-Machine learning (system dynamics modeling, agent-based modeling)   | -How can we better theorize performance measurement in hybrid contexts?<br>-How could we simulate performance of collaborative action and networks in hybrid settings?<br>-Should there be different theorizing and different models for different hybrid contexts?<br>How?                  |
| <u>RO3.</u> What are the rationales for, and ambiguities of, using performance measurement information in hybrid institutions? How do uses of performance metrics influence and shape decision-making rationalities in different types of hybrid settings? | -Interview data<br>-Possible survey data<br>-Documentary data, other sources of case data  | -Mechanisms and rationales of uses of performance information are analyzed through case analysis, including interviews of relevant actors and institutions, possible surveys to organizations and actors in R&D systems.                                     | -What kinds of performance measurement systems are used? Why?<br>-What systems remain unused, and why?<br>-Who uses the PM systems?<br>-How do uses of PM systems influence decision-making at different levels of hybrids?<br>-What type of consequences do we see from uses of PM systems? |

## **Data management plan**

Data will be obtained differently in different ROs. For RO1 and RO2, data will be primarily collected through public data sets. For RO1, this means documentary and statistical data, bibliographical data and financial performance data. It is possible that we will need to collect supplementary interview data for a detailed description of performance metrics in hybrid activities. For RO2, special emphasis will be placed on bibliographical data, previous literature and “big data” sets. In RO3, the emphasis will be on interview data and other forms of case data. Uses of big data sets will be closely integrated with theoretical exploration of performance evaluation systems of hybrid governance. Moreover, data in RO3 regarding the utilization of performance information will be used to create a feedback loop to theorizations of performance in hybrid activities. As indicated earlier, design and use of performance information in hybrid systems and organizations are interlinked. In other words, we may find important theoretical problems and limitations in the design of performance metric systems by looking at the rationales and modes of performance information uses in hybrid organizations.

## **The research environment**

The site of the research project is the School of Management in the University of Tampere, Finland. This project is closely linked to the strategic research profile of the school, which is primarily in the area of public-private interaction in service delivery. Moreover, the project PI has served as a board director of a strategic research program on public-private interface at the University of Tampere. The research team is part of the Research Program on Public Administration and Governance. The PI is the director of the research group of public financial management within the PA program. The research group of public financial management explores distinct forms of economic rationalism in the modern public sector. The group emphasizes emerging modes of economic activities in the context of public-private sector interface.

## **Critical points for success**

The project relevance is significant, and the ambition level of the project is high. There are possible risks associated with the RO2, i.e. those of theorizing new modes of performance metrics in hybrid forms of governance and of using big data applications to advance the current body of theoretical knowledge. There may be limitations as to what extent this would be feasible in a four-year project. However, our principles of project “risk management” are based on our long-standing research experience in the field. Furthermore, there may be yet unknown ethical risks involved with the collection of big data sets (cf. the data management plan).

## **Ethical issues**

The project will primarily use publicly available data sets. Anonymity will be guaranteed to the respondents of the interviews in the data collection according to the guidelines of the Finnish Advisory Board on Research Integrity. Ownership of the data belongs to the School of Management at the University of Tampere. Access to this data will be restricted to the project group during the funding period and will be kept confidential. In health care, where there might be ethical considerations related to data collection, the project will focus on publicly available data sets and on interview data of informants. The project will not collect or analyze individual patient data. Moreover, informants will be chosen on a voluntary basis. However, if necessary (e.g., with respect to the collection of big data sets) the project is prepared to request a statement from the ethics committee.

## Schedule

**Table 2.** Project implementation

|   | 9/2017-12/2017  | I/2018-12/2018  | I/2019-12/2019   | I/2020-12/2020  | I/2021-8/2021   |
|---|---|---|--|---|---|
| <b>Research objectives (RO I–3)</b>                       | Identification of the state of art (RO1); Advancing theoretical and conceptual framework of performance evaluation of hybrid arrangements (RO2)                       | Identification of the state of art (RO1); Advancing theoretical and conceptual framework of performance evaluation of hybrid arrangements (RO2); Rationales for using performance information in hybrid institutions (RO3)  | Identification of the state of art (RO1); Advancing theoretical and conceptual framework of performance evaluation of hybrid arrangements (RO2); Rationales for using performance information in hybrid institutions (RO3) | Advancing theoretical and conceptual framework of performance evaluation of hybrid arrangements (RO2); Rationales for using performance information in hybrid institutions (RO3)                                      | Advancing theoretical and conceptual framework of performance evaluation of hybrid arrangements (RO2); Rationales for using performance information in hybrid institutions (RO3)  |
| <b>Proceedings of the project, important milestones</b>   | Implementation of the state of the art in process (RO1); Some tentative theorizations created (RO2); Collection of big data sets in process, data sets defined (RO1); | Descriptive objective completed, state of the art explored (RO1); Tentative theorizations created (RO2); Collection of big data sets completed (RO1); Research visits to partner universities completed; Visiting Professor in the School of Management; International workshop organized | Theorizations using big data sets extended (RO2); Interview data collected (RO3); Case analysis regarding uses of performance information completed (RO3); Research visits to partner universities completed               | Theorization of uses of performance metrics in hybrid settings completed (RO3); Tentative links between design and uses of performance metrics explored (RO2, RO3); Research visit to partner universities completed; | Comprehensive synthesis of performance evaluation systems in three hybrid contexts completed (RO1); Theoretical models on performance measurements systems in hybrid settings completed (RO2); Models of uses of performance metrics in hybrid contexts created (RO3); International workshop organized |
| <b>Expected outputs, forum for publishing the results</b> | 1 A-level international journal article; 1 international conference paper; 1 article in Finnish academic and professional journals                                    | 2 A-level international journal article; 2 articles in Finnish academic and professional journals; 3 international and Finnish conference papers  | 2 A-level international journal articles; 1 doctoral thesis; 1 article in Finnish academic and professional journals; 3 international and Finnish conference papers  | 3 A-level international journal articles; 1 book for an international academic publisher; 1 doctoral thesis; 3 international and Finnish conference papers; 1 article in Finnish academic and professional journals   | 3 A-level international journal articles; 3 international and Finnish conference papers; 2 articles in Finnish academic and professional journals   |

## Research team and collaborative partners

The research team has a comprehensive experience on performance evaluation, measurement and management of different institutions (especially Laihonon, and PI), on changing forms of government activities, public organizations and their strategies (especially Professor Johanson, and Elias Pekkola) and on methodologies of network simulation and analysis (particularly Jukka Huhtamäki and Professor Johanson). PI and the team have systematically explored hybridity and hybrid governance as well as the evaluation and measurement of performance in public and private organizations. This project would provide a significant advancement of this research agenda by combining these two streams of research into a novel research program on performance measurement for hybrid governance. The project will benefit from a broad international network of research scholars. These networks are highly relevant in terms of creating new theoretical models. Moreover, the network will be used to test our research results. Finally, the research team will extend collaboration with the network in writing papers, and compiling special issues and edited volumes. This project is indeed important for such collaboration.

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