CHAPTER ONE

A WORLD OF INDICATORS: THE MAKING OF GOVERNMENTAL KNOWLEDGE THROUGH QUANTIFICATION

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INTRODUCTION

Why another contribution to metrology?

There is something new about the use of quantitative knowledge for governing social life in the twenty-first century.[1] In the words of Alain Desrosières in this volume, 'the recent extension of the use of [such] indicators by New Public Management raises new questions and introduces a discontinuity in the longstanding traditional usage of statistics by governments, which dates back to the eighteenth century'.

From the United Nations' efforts to improve the statistical capacity of resource-poor countries to local school districts' penchant for measuring children's achievements in order to evaluate teachers, governance increasingly requires numerical data. Quantitative evidence is seen as essential for developing reasonable policy at local, national and international levels. The promise of evidence-based policy-making is that it is not only more objective and less prone to misuse, but also more transparent, more democratic, and more open to public debate than decisions taken by politicians and business leaders with reference to qualitative forms of knowing. Yet, the creation of these systems is rarely

[1] This volume goes back to a workshop held in October 2011 in Halle, Germany, at the Max Planck Institute for Social Anthropology. The conference was titled 'A World of Indicators: Knowledge Technologies of Regulation, Domination, Experimentation and Critique in an Interconnected World' and was organized by Johanna Mugler and Sung-Joon Park of the LOST-Group situated at Halle University and directed by Richard Rottenburg. Most authors of this volume participated at the workshop. Amy Field Craven substantially improved the clarity and accessibility of arguments by editing the chapters in this volume written by authors whose native language is not English.

transparent or public. The rapid development and proliferation of more and more sophisticated measurement and quantification systems pose crucial questions about how knowledge produced by measurement and quantification influences the ways we set the norms we wish to follow, the technologies and instruments we regard as indispensable for organising collective life, and the role numeric representation should play in contemporary world orders (Rottenburg 2000; Espeland and Stevens 2008; Heintz 2010; Merry 2011).

The broad field of numeric representation – here used synonymously with quantification and with measurement as the translation of (assumed) realities into numbers – includes various elementary forms of counting and measuring along with several increasingly sophisticated forms of aggregating numbers. As a study in metrology, this book focuses on the making and use of indicators as one of these forms. The word 'index' is often used for aggregated indicators but also frequently synonymously with 'indicator' and hence refers to the same type of numeric representation. Indicators and indexes used in governance are a particular form of quantification that focuses primarily on finding an answer to policy questions such as: 'Is our intervention making an impact? Is this the impact we want?'. Our book thus explores the implications of the global proliferation of the indicator as a specific technology of numeric knowledge production relevant to governance. It includes theoretical discussions of the nature and historical formation of quantification and the link of indicators to neoliberalism, as well as case studies of processes of commensuration, quantification and indicator creation in the fields of global finance and local microfinance, public health, malaria control, criminal justice, public statistics, climate change, political accountability and access to land. The collection interrogates processes through which numeric data is generated, analysed and shaped into quantitative summary representations of otherwise hidden realities by means of indicators.

Understanding how such numeric knowledge is produced and used is increasingly important, as proliferating technologies of quantification alter modes of knowing in intricate ways that mostly go unobserved. As global interconnections increase, the demand for readily comparable and accessible knowledge escalates. While it remains difficult and problematic to provide adequate knowledge of social, economic, cultural and political variation across the world, simplified, quantitative knowledge promises a solution to the need to know about the world and offers a guide to action under conditions of rapid

globalization and high uncertainty. A corporation that wishes to build a factory in another country, a university that seeks to plant a centre in another country, a retailer that tries to develop a new market, or a non-governmental organization (NGO) that advocates for children's rights, all face the challenge of understanding new social and cultural spaces. Comparative knowledge of all relevant sites is essential yet hard to acquire. Simple, readily comparable quantitative propositions and various forms of aggregated numeric representations facilitate the ability of organizations and individuals to navigate complex and disorienting situations.

Parallel to the increase of global interconnections, a world-wide enforcement of neoliberal forms of governance has been taking place since the 1980s, and more forcefully since the end of the Cold War and the disaggregation of the Soviet empire. This induced an explosion of calculative practices and forms geared towards the control of cost efficiency and the economic viability of accountable units – an operation which, as the chapters of this book show, is less straightforward than it sometimes seems. This proliferation of calculative practices caused an increase in the development and use of quantification, primarily in the form of indicators and rankings that are intended to ensure that the most economical solutions have been chosen and that they are permanently in control, even in spaces where the conventional demand-and-supply mechanism does not work or is not supposed to work. The new importance quantification and mainly indicators gained in the 1980s was part of a radical redefinition of the relations between democracy and market that implied a shift in the definitions of liberty and governance. This process continues to evolve and has gained new momentum since the beginning of the twenty-first century.

However, we still know relatively little about the social processes through which this knowledge is constituted or the kinds of effects it has. Even as it grows in significance with the move toward evidence-based governance, our understanding of the social formation of quantitative knowledge and its contribution to governance is limited. There are clearly practices of falsifying data, of gaming indicators, and of presenting deliberately misleading information through statistics, but these are not the central concern of this book. The goal of this collection is to consider the production of numeric knowledge as such with the assumption that it constitutes a practice that cuts across most domains of social life. What are the particularities, opportunities and constraints of this form of knowledge? How is it limited or enhanced by

the availability of what kinds of data or the use of what kinds of expertise? Are there systemic inequalities and misrecognitions in the production of global quantitative knowledge? The book focuses on how the processes of quantification, even as they seek to generate reliable information, nevertheless encode particular cultural understandings, political interests and ontologies. What to quantify, how to name it, how to make diverse phenomena commensurable, how to aggregate elementary data, and how to present the results to various publics depend on practices and forms of knowing that are embedded in institutions of power and professional education. The production of indicators depends not only on expert opinion or on the relevant epistemic community but also on administrative infrastructures that collect and process data and on the larger institutional setup of which they are part. Successful indicators, i.e. indicators that are widely used and have important impacts, are typically backed by powerful institutionalized organizations (in the sense of Meyer and Rowan 1977) and present knowledge that conforms to prevailing ideas about the world, often based on previously established templates and models of information gathering and presentation. How exactly this is done, and within what institutional frameworks and which structures of power and expertise, are pathways which remain largely unexamined.

Quantification privileges the perspectives of those with infrastructural, financial and professional resources and experience in the production of large-scale numeric knowledge over those who do not have these resources. However, there is also an old and close link between statistics and reform. Statistics are central to industrial capitalist states' efforts to design support structures that counteract and neutralize those market mechanisms that systemically exclude people designated as temporarily or permanently unnecessary in the labour force (Hacking 1990; Desrosières 1998: chapters 5 and 6). Currently, grassroots and advocacy groups and other non-state actors try to employ the high credibility of numeric evidence to promote alternative understandings of dominant institutions (Hetherington 2011; Bruno *et al.* 2014). Indicators have become powerful advocacy tools. They are invaluable for drawing attention to problems such as poverty, disease, low access to infrastructure, violence against women globally or discrimination against racial minorities in court processes. Statistical data is an effective way of making the problems of vulnerable populations visible and in need of redress. Moreover, quantitative data is critically important in exposing corruption and abuse of power. While the making of numeric evidence

still presupposes substantial calculative resources, this knowledge technology increasingly can be harnessed in many ways.

The book examines indicators as a globally circulating knowledge technology that can be used to quantify, compare and rank virtually any complex field of human affairs. However, definitions of what to quantify and which methodological approaches should be used to capture different facets of public life through indicators are far from self-evident. Intense negotiations and contestations occur about these issues, but these seldom appear in public discourse. Instead indicators are typically presented as taken-for-granted facts. Yet, indicators are not neutral representations of the world, but novel epistemic objects of regulation, domination, experimentation and critique. They mainly appear in the domains of law, economics, health-care, education, and throughout state administration.

By following the scientific and political construction of indicators as they propagate and stabilize specific ideas and models of social and economic change, the book examines the production of indicators and the authority they convey. It explores the varieties in scope, sophistication, flexibility, accuracy, costs and payoff in the use of indicators. It examines their logics and assumptions as well as their circulation as a means of organizing and shaping or challenging modern institutions and social life. This includes examining the effects of differences in narrative, visual or numerical presentations of knowledge. This analysis raises questions about the nature of the publics or the organizational audiences that are imagined when different data representation schemes are selected.

Analysing the politics of quantification and particularly the rise of indicators in global governance exposes subtle transformations in contemporary processes of globalization. These transformations reveal important characteristics of the contemporary entanglements of science and politics that affect forms of public life. At the core of this entanglement is an emerging controversy about the kind of evidentiary practices that are accepted as accurate and reliable to inform public reasoning and political decision-making (see Alain Desrosières, Chapter 13). The workings of 'mechanical objectivity' as examined by Theodore Porter (1995) and of 'meta-codes' as analysed by Richard Rottenburg (2009a; orig. 2002) have, during the last fifty years or so, infiltrated many domains of life up to a point where they start to become increasingly controversial. The perhaps most prominent domain where the increasing importance of indicators became contentious and

scandalized is finance and banking after the dramatic crisis of 2008 (see Andrew Farlow, Chapter 9).

SOME CONTEXT FOR QUANTIFICATION

Particularly since the seminal contributions to metrology by Alain Desrosières, Ian Hacking and Theodore Porter (frequently quoted in this introduction), it is generally accepted that capitalist economies, democratic politics and modern societies are inconceivable without numeric representation in the running of affairs. Statistics and accounting have emerged as key forms of knowledge production and technologies of governance of industrialized states; probability theory, random sampling, market ideology and the democratic welfare state have co-evolved around the notion that independent agents choose freely and yet – in aggregate – predictably (see also Krüger, Daston and Heidelberger 1987). Since the 1980s the use of numeric representations has spread into broader social spheres, due mainly to neoliberal reforms and marketization processes such as performance-related funding of public service providers, privatization of public infrastructures, the spread of so-called New Public Management (NPM) and benchmarking. Trends of 'responsibilization' (such as Corporate Social Responsibility), 'projectification', 'NGO-ization', 'certification' and 'multistakeholder governance' (Bruno and Didier 2013) are related phenomena that partly result from neoliberal structural changes of capitalism and to some extent critically react to them. These transformations have vast implications not only for relations between state, economy and civil society, but also for relations between wealthy and poor countries around the globe.

From its beginnings, modernity had an affinity between governance and evidence accessible to the public, as Foucault's work demonstrates (Foucault 1966). This evidence tended to be numeric because of emerging understandings of objectivity and easy accessibility for the public. Questions like where to build a road, a railway, a school, a hospital, a waste disposal site, or how and for what ends to use taxes invited answers based on numeric evidence. Neoliberal governance, as we have known it since the 1980s, maintains this frame, but turns it toward different questions and answers. The creation of numeric evidence has migrated from the realm of government of the state to that of independent agents (corporations, civil society organizations, NGOs, international organizations and social activists). The latter produce their own

quantifications as they compete for resources (in performance-related funding, for example). Thus, numeric evidence becomes linked to the idioms of subsidiarity, self-monitoring, self-auditing and responsibility. Situated within a discourse of increased civic freedom, control has partly become a matter of self-control and was interpreted as a shift away from petrified and unjust old structures of domination that privileged only a few, towards more democracy, freedom to choose, participation and transparency. The relations between democracy, freedom and market were fundamentally redesigned.

Numeric representation in governance, first of all, consists of methodologies to achieve two main political purposes: (1) to simplify complexity in order to come to a conclusion and be able to act collectively or in the name of a collective, and, in doing so, (2) to demonstrate adherence to public responsibility and absence of personal or group bias. Political decisions often imply the distribution of public money and affect access to public services. Therefore they must claim – and if necessary prove – to be rational and just, and must therefore be achieved transparently, based on evidence that, again, must be produced through established procedures and standards, which always imply the use of technical expertise. Political decisions also often refer to future developments which are hard to anticipate, let alone anticipate in sufficient detail, and yet political programmes are evaluated for their competence and responsibility to prevent potential damage. In this context, numeric representation as a form of exploration and data mining, guided by theoretically informed models for how to translate uncertainty into risk, plays a crucial role.

Quantification is fundamentally about creating units that can be counted and described numerically with the aim of putting them in some order. The practice of ordering is useful for predicting developments and for designing interventions based on an appropriate understanding of the inherent logic of this order. This implies the redefinition of existing classifications or the creation of new ones (in terms of ordering things in social space, such as gender-disaggregated labour statistics) and often the redefinition of existing or the creation of new time units (ordering things in time, such as in the application of performance indicators with regard to the phases of a project).

Through measurement the world becomes knowable without distracting details, neatly compartmentalized and ordered, and knowable at a distance. Things that at first appeared incommensurable can be made commensurable. Through numeric representation, one always

loses some aspects of the reality in question but gains others that were invisible before quantification. Numeric representation lends itself to the generation of comparisons and rankings of known phenomena, but also to the re-arrangement of data collected for some other purposes into endless new alternative configurations that enable the detection of previously unseen interconnections. Established forms are mostly simple, unambiguous and easy to understand, or at least they appear to be. In fact, they may be too naively presumed by some publics to be clear and easy to understand. Once quantifications are well established in public debates, they tend to hide the theoretical and normative assumptions inscribed in them and the complexities, messiness and contingencies that went into their making. While this observation can partly be *deduced* from the very nature and purpose of quantification as a mode of doing objectivity and 'thin description', and can partly be *induced* from empirical examinations of what 'counts' as strong evidence in public debates, it is rarely true for those who make indicators or closely work with them (see e.g., Sung-Joon Park, Chapter 8). Some of the more recent quantifications that are becoming established and gaining importance in political debate are indexes of rather complex and vast phenomena, such as the HDI (Human Development Index, UNDP), the HPI (Human Poverty Index, UNDP), RoLI (Rule of Law Index, World Justice Project), or the GII (Gender Inequality Index, UNDP).

One particularly important form of quantification in the neoliberal context is the design of experiments aimed at identifying the factors that affect a certain situation or development. Here, quantification is not about ordering things in social space and time per se, but instead about identifying correlations, such as those discovered through randomized trials in development economics. It aims above all to prove the existence of a correlation statistically and is achieved through projects that test the assumptions upon which they were designed in the first place. Hence, these projects are defined and run as experiments to test an intervention and, at the same time, to collect data on the impact the intervention has. Interventions as controlled experiments for the purpose of generating numeric data start from a known and given state of affairs considered to be problematic, and proceed towards the identification of unknown correlations, as in epidemiology. The HIV/AIDS pandemic, for example, became the prototype for a specific way of measuring. At first only the symptoms were known, but statistical analyses later exposed the correlations. This helped to set medical research on

the causes of the symptoms in the right direction so that the causes could then be identified in the lab. When a potential treatment was identified in the lab, further testing and treatment became synonymous. Finally, a specific protocol, in which the intervention became part of the trial, was accepted as the norm in many fields outside the HIV crisis (Rottenburg 2009b) and currently is part of the attempts to curb the Ebola crisis of 2014 in Sierra Leone, Liberia and Guinea.

In another version of quantification as trial, one starts from knowing the end and to some extent also the causes of a problem, but not the means to achieve the end, such as poverty alleviation. Here large intervention programmes are divided into single projects that are monitored in terms of cost development, effectiveness, unintended consequences, and milestones structured around achievement indicators, all orchestrated by the 'Logical Framework Approach'. The 'MIT Poverty Action Lab' illustrates this approach well.[2] Normally it follows a distinct pattern. At the beginning, there are two statistically equivalent groups. One group receives, for example, a water purification system and the other does not. Certain observed differences can be attributed to the presence or absence of the water purification programme. In other words, experimentality has replaced older forms of modern, melioristic interventions. Statistics is at the heart of this type of procedure.

A crucial difference between large-scale state interventions typically understood to be the hallmark of modernity and newer neoliberal experiments to design evidence-based melioristic interventions is the way they conceive of time. Heroic interventions of modernity, based on the narrative of progress, describe the future as something that can be known and shaped in such a way that it will be an improvement on the present. For most current neoliberal interventions, however, the future is unknown and risky. Accordingly, interventions only envisage the next step beyond what they have done, rather than a long trajectory of improvement.

However, there are other forms of quantification that remained at least partly unaffected by the spread of experimentality and the postmodern caution about the future. Relatively open explorations are often run by centralized, permanent infrastructures established for a particular problem. They collect heterogeneous sets of data, aggregate and correlate them and design new quantifications of diverse

[2] See www.povertyactionlab.org.

complexities in the frame of permanent projects with open questions. The US National Oceanic and Atmospheric Administration is one of many examples; the European Epidemic Intelligence Information System for Sexually Transmitted Infections (EPIS STI) is another one.[3]

Non-experimental, decentralized, non-hierarchical and participative explorations are increasingly facilitated by the rapid development of the Internet and the increasing speed and capacity of computing as a numeric infrastructure. Web 2.0 platforms, often aiming at lay mass participation, generate a new type of information gathering based on quantification through rigid forms of standardization for the purpose of crowdsourcing. The platform 'Geocommons'[4] is one successful example of this new type of measurement, and the 'Extreme Citizen Science Blog'[5] another one. While these new forms of lay expertise in processes of quantification are partly an expression of an increasing scepticism towards the type of institutionalized expertise implied in political decision-making, at the same time, they strongly reinforce the power of measurement and massively contribute to its spread into all sectors of life. They also reinforce the ideology that the market-type aggregations of individual choices to establish the common good and even the general will (in the emphatic sense of Rousseau's *volonté general*) can function as a democratic control mechanism for genuine political forms of decision-making. However, crowdsourcing is not necessarily more accurate or reliable than other, politically controlled forms of measurement and it is not necessarily more participative or even emancipatory. If, for instance, the American application for smartphones called 'Yelp' assists people in finding a restaurant that best corresponds with their location, taste and pocket, this might be a useful extension of a market mechanism. Yet, with another American application called 'Sketch Factor', a new quality of quantification emerges.[6] 'Sketch Factor' aims to offer people in urban spaces information about secure and insecure routes in terms of crime rates and other forms of 'sketchiness' without relying on official statistics generated by the institutions in charge. In most cities 'Sketch Factor' primarily generates the information solely from the users of the app by crowdsourcing. Similar to the logics of rumour, this information brings to life what it pretends to depict and shapes political life as if it was a market space. 'Sketch Factor' does what

[3] See http://ecdc.europa.eu/en/activities/surveillance/sti/Pages/epis_sti.aspx.
[4] See http://geocommons.com. [5] See http://uclexcites.wordpress.com.
[6] See www.sketchfactor.com.