

Chains, Shops and Networks: Official Statistics and the Creation of Public Value

Asle Rolland¹ | *Statistics Norway, Oslo, Norway*

Abstract

The paper concerns official statistics, particularly as produced by the NSIs. Their contribution to the society is considered well captured by the concept of public value. Official statistics create value for the democracy as foundation for evidence-based politics. Democracies and autocracies alike need statistics to govern the public. Unique for the democracy is the need of statistics to govern the governors, for which the independence of the NSI is crucial. Three ways of creating public value are the value chain, the value shop and the value network. The chain is appropriate for the production, the shop for the interpretation and the network for the dissemination of statistics. Automation reduces the need to rely on the value chain as core business model. Thereto automation increases the statistical output, which in turn increases the need of shop and network activities. Replacing the chain with the shop as core model will elevate the NSIs from commodity producers to a processing industry.

Keywords

Public value, value creation, public interest, professional independence, official statistics, national statistical institutes

JEL code

M10

INTRODUCTION

The topic of this paper is the contribution of official statistics to the welfare of the society. It is an ends-means paper with the end captured by the concept of public value and the means captured by the concepts of chains, shops and networks. Although in Europe the concept of official statistics usually refers to the statistical output of any state agency (SOU, 2012, p. 83) the concern of this paper is the main supplier of official statistics, the National Statistical Institute (NSI) or Office (NSO).

It is widely acknowledged that the NSIs are facing challenges. A panel discussion held at the 2013 Hong Kong World Statistical Conference addressed no less than nine of them (Penneck, 2014). The Bureau of the Conference of European Statisticians had then already, in 2010, set up a High-Level Group (HLG) for the Modernization of Statistical Production and Services. Particularly alarming is the pressure on the NSIs to satisfy increasing statistical demands within decreasing budgets (Smith, 2014). It implies that if they fail to improve their products and/or cut their costs sufficiently the NSIs will open a gap between demand and supply, to be filled by their currently marginal competitors. Widening the gap means sunrise for the competitors and sunset for the NSIs.

¹ The opinions expressed in this paper are those of the author and not necessarily those of Statistics Norway. E-mail: asle.rolland@gmail.no, phone: (+47)45004937.

The aim of this paper is to forestall such a development. It is based on the notion that competition should be met as an incentive to excel, in the innovative entrepreneurship spirit of William Baumol (1968; 2010), and not as a threat to be met with barriers to entry, as in the five forces model of Michael Porter (1980; 2008). It is thus written in the same spirit as the vision of the HLG. It acknowledges that “statistical organisations no longer have a monopoly on the means to inform society” in their field. “Others are starting to create outputs in competition with ours”, and “we risk losing relevance”. The NSIs “could react defensively” to this, and try to prevent market entry “by legislation etc.” Instead, the HLG proposes “to actively pursue a course in which we use our strengths and resources” to provide the service that “give our stakeholders a clear perspective on what is happening in the world today”.

1 PUBLIC VALUE

1.1 Value creation

The assertion of this paper is that the purpose of official statistics – and hence the objective of the NSI – is to produce public value in the sense introduced by the Harvard Kennedy School in Mark Moore’s *Creating Public Value: Strategic Management in Government* (1995). There is concurrence between the concepts of Public Value (PV) and that of New Public Management (NPM), as they both concern the transfer of private sector logic to public sector operations. They cover, however, different aspects of that transfer, with the PV referring to the end and the NPM to the means.

The PV’s point of departure was the assertion that just as the goal of private managers is to create private (economic) value, the goal of Government agencies is to create public (social) value. Compared superficially the managers of public non-profit organizations and of private for-profit enterprises appear to face exactly the same challenges. Thus “both private and public sector managers ought to be interested in getting the most out of the bundle of assets entrusted to them by figuring out the best use of the assets, and finding ways to produce their products and services or achieve their desired social results at the lowest possible costs” (Moore and Khagram, 2004, on which also the following summary is based). However, the presumption of similarity does not survive closer inspection. There are crucial differences, which Moore and Khagram group in three categories, (1) sources of revenue, (2) management discretion, and (3) performance measurement.

(1) Private and public organizations earn their revenues in substantially different ways. Private enterprises earn them from selling to customers in the product market. Frequently they need capital to get started, but even access to capital depends on trust in their ability to sell in the product market. Their principal sources of money are thus investors and consumers making individual investment and purchase choices. In contrast, Government agencies obtain both financial capital and operating revenues from the citizens in their role as taxpayers, with their elected representatives making collective choices on their behalf. The managers of Government agencies thus secure their resources not by selling products and services, “but by selling a story of public value creation to elected representatives of the people in legislatures and executive branch positions”, the stories however presumably quite similar to those that managers of commercial enterprises sell to capital market investors in order to create private value. For Government agencies this implies that most “revenues come from executive branch recommendations that are then passed as legislative appropriations.”

(2) “Government managers typically have much less discretion to define the purposes of their organizations, and the ways they intend to pursue those purposes.” A major purpose of NPM is incidentally to increase their discretion; thus Haldor Byrkjeflot (2014) identified the issues at stake for Old Public Administration (OPA) and NPM as the following:

- OPA: “How to solve a given fixed assignment in a legally correct way”,
- NPM: “How to create new results in an untraditional way without breaking the rules”.

Nevertheless, Moore and Khagram argue that “government managers are both surrounded and thickly engaged by what we came to call their ‘authorizing environment’”, which “includes the large number and wide variety of people in particular positions who authorize them to take action, or appropriate money for them to use”, as well as “call managers to account for their performance” and reward or punish them by continuing or withdrawing authorizations and money. Compared with private sector firms the public sector authorizers have “substantially more varied interests” that they expect the Government agency to cater for, all of them good purposes but not always possible to cater for simultaneously. Frequently the authorizing environment, in conflict with itself, is the “*only* source of funds” available for the public agency, while private sector enterprises have two sources, investors and customers, all acting independently of each other.

(3) Performance measurement is much more complicated for public agencies than for private enterprises. Above all, “government managers are missing one crucial piece of information that private sector managers have: the magnitude of the revenues earned by the sale of goods and services to willing customers.” In order to compensate for this, “government managers have been forced to construct measures of value other than the revenues earned by sale”, such as the “social outcomes”, which may appear “years after the government has acted”, in places “far removed from the government agency’s current operations”, or they try to measure customer or client satisfaction with their services, which however may not be the goal of the agency’s activities, the goal rather being the achievement of the hard-to-measure social outcomes. Government agencies have therefore “often been forced back on to an unsatisfactory alternative to measuring social outcome and customer satisfaction, “namely, the measurement of their concrete outputs and activities.” Such measures are simple, inexpensive and quick enough “to allow top level managers to hold lower level managers accountable for their level of accomplishment”, but “these assessments cannot ever be taken as reliable measures of the public value of what is produced.”

1.2 The strategic triangle

The answer of Moore and Khagram to that challenge is the strategic triangle. It is assumed that in order to create public value the managers of Government agencies must be capable of providing satisfactory answers to three questions: (1) what is the important public value that the organization seeks to produce, (2) what sources of legitimacy and support authorize the organization’s actions and provide the necessary resources to sustain its efforts to create that value, (3) what investments, innovations and other operational capabilities must be available – and made available by the supporters or the organization itself if they are missing – for the organization to deliver the desired results. Thus “the strategic problem for public managers” is to “imagine and articulate a vision of public value that can command legitimacy and support, and is operationally doable in the domain for which” the manager has “responsibility”. Public value, legitimacy and support, and operational capabilities mutually reinforce each other.

1.3 The public value of official statistics

According to Moore and Khagram what constitutes the public value of official statistics will be “hotly contested”. That is however exactly the point. It will clarify for the NSI what it is “trying to produce”, and what results it “should feel accountable for achieving”. The fact that values are contested makes it no less “important to establish a sense of purposefulness in management”.

The strategy documents of European NSIs invariably open with statements of vision and mission. In 2011 the European Statistical System (ESS) opened the new version of its Code of Practice similarly (ESS, 2011).

“The vision of the European Statistical System. The European Statistical System will be a world leader in statistical information services and the most important information provider for the European Union and its Member States. Based on scientific principles and methods, the European Statistical System will

offer and continuously improve a programme of harmonised European statistics that constitutes an essential basis for democratic processes and progress in society.

The mission of the European Statistical System. We provide the European Union, the world and the public with independent high quality information on the economy and society on European, national and regional levels and make the information available to everyone for decision-making purposes, research and debate.”

The vision and mission offer no demarcation line for the ESS. Inside its scope is everything. Outside is nothing. Apparently the aim of the ESS is to deliver a general interest public service similar to that of public service broadcasting (typically the BBC tells the story that it builds public value; BBC, 2004), albeit restricted to news that can be expressed in numbers. Just like private media outlets create private value for their owners by producing “all the news that’s fit to sell” (Hamilton, 2004) the ESS intends to create public value for its owner, the public, by producing all the statistics it needs for decision-making, research and debate.

The practical task of the ESS, currently to conduct the European statistical programme for 2013–2017, tells a different story. Its objective 1 is to “provide statistical information, in a timely manner, to support the development, monitoring and evaluation of the policies of the Union”. Its priority 1 is to “ensure statistical initiatives underpinning the development, implementation and monitoring of current Union policies” and to “provide statistical support for important requirements resulting from new Union policy initiatives”. Its added value 1 is “ensuring that European statistics are focused on the information needed to design, implement, monitor and evaluate Union policies.” It also “contributes to the effective use of resources” by “serving the needs of the wide range of users [...] in a cost-effective manner without unnecessary duplication of effort”, but that is in addition to its primary objective (EU, 2013).

Official statistics are public goods in the sense detected by Paul Samuelson (1954), that is, non-excludable and non-rival in consumption. The statistics produced by the ESS are intended to serve the European Union, but being non-rival in consumption their consumption by the EU does not reduce their availability for everyone else’s consumption. The EU could make them excludable by restricting access, which would turn them into private goods, but prefers to deliver them as public goods in that sense too. They are thus made available by courtesy of the EU, which however obtains two advantages thereof: (1) the EU will rarely be taken by surprise, as decision-making, research and debate will be based on its own statistics; (2) by re-using EU statistics a “wide range of users” will add value to them, and most of that value will also be available for everyone’s consumption, including the EU.

As the primary objective of the European statistical programme is to serve the governing bodies of the European Union, the public – everyone else – is served as a residual category. The order of priority is the same in the United Nations fundamental principles of official statistics. Principle 1 opens with the assertion that “official statistics provide an indispensable element in the information system of a democratic society, serving the Government, the economy and the public with data about the economic, demographic, social and environmental situation.” It ends with official statistics “that meet the test of practical utility” are made publicly available not because of their utility for the public, but “to honour citizens’ entitlement to public information.” Publication serves the open society of Karl Popper (1945). The statistics serve the Government.

The European statistical programme limits the scope of official statistics at European level. Inside the scope are statistics that concern the governing bodies of the European Union, the European Parliament and the Council. At national level the European programme limits the scope to statistics that concern the governing bodies of the State. However, even without the European programme the primary objective will be that of serving the Government. In this respect the vision and mission of the ESS as well as the fundamental principles of the UN merely state the existing empirical facts. Typically the Norwegian statistics act defines official statistics as follows: “Official statistics are statistics which are made available

to the public by Statistics Norway or another State agency” (SSB, 1989). The definition makes the statistics act a communications act. It identifies the senders (State agencies), the messages (statistics), and the receivers (the public). The definition does not prevent State agencies from serving general interest purposes, but it does make it likely that they will make publicly available the statistics they need to carry out their duties. Inside the scope will be statistics on their own performance, on the part of the public that they serve, and on the natural environment affected by that service. Outside the scope will be statistics on everything else.

Furthermore, the vision of the ESS and the fundamental principles of the UN link official statistics to the democracy. Official statistics are said to be essential for democratic processes (ESS) and indispensable for a democratic society (UN). However, serving the government is not sufficient to serve the democracy. Autocratic governments too are served by statistics; in fact the need for statistics must be a lot greater in autocracies with planned economy than in democracies with market economy. Thus another condition must be applied to statistics serving the government to serve the democracy: the government must be democratic. It is then the type of government that decides the democratic quality of the statistics, and not the statistics that decides the democratic quality of the government. If the government is democratic its official statistics are democratic too. If the government is autocratic its official statistics are autocratic too.

Making statistics publicly available provides the public with a means to control the government. Hence it adds a democratic feature even to the autocracy. Conversely, suppressing statistics that are embarrassing to the government adds an autocratic feature even to the democracy. Publicity as control is necessary for the democracy, but it is not sufficient.

In democracies and autocracies alike the State needs statistics to govern the public. What is unique for the democracy is the need of the public for statistics to govern the State. Hence the difference between a democratic and an autocratic service is the existence of official statistics serving the public. This is what makes official statistics democratic.

For the European statistical programme the public value of official statistics is that of providing evidence for evidence-based policymaking. Statistics “are no longer merely one source of information for policy-making purposes, but are now at the very heart of the decision-making processes. Evidence-based decision-making requires statistics that meet high-quality criteria linked to the specific purposes they are serving” (EU, 2013).

1.4 Independence

Most state agencies are likely to produce the statistics they need for their governance of the public (the society). They may produce it themselves, or commission the NSI to produce it for them. The NSI is however invariably a professionally independent institution. It is so according to the European “statistical law” (EU, 2009), as well as national statistical laws, e.g. the Norwegian statistics act. It is so according to the United Nations. The purpose of public institution’s professional independence is to secure that it caters for the public interest. Ever since Kenneth Arrow published his impossibility theorem in 1951 it has been acknowledged that the public interest does not exist. But public interests exist. Some of them can be captured by the same statistics. Government and opposition, politicians and bureaucrats, representatives and voters may need knowledge of the same variables, despite having opposing interests related to the observed values. Other interest differences require separate statistics. Agenda-setting the statistical needs of one interest group will then be at the cost of another group with equally legitimate interests.

The value of independence must be to ensure that all stakeholders in a given policy area are properly represented in the statistical evidence underlying the decisions. This implies that the independent statistics producer must act paternalistically on behalf of interests that are not in position to order the statistics they need, typically because they are not organized. The State is the institution that is authorized to make orders on behalf of the unorganized public, but the State may have self-interests that deviate

from those of the public it serves. This is the problem of principal-agent theory, on which representative government is based. The democracy's solution is the repeated character of elections. Publicity is necessary for control, but in addition it must be possible to oust from office incumbents who do not deliver.

The role of the independent statistics producer is thus similar to that of an independent journalist. Neither of them can rely on the public demand for information. The public cannot express in advance what news it requires today. The producer must assume what will be in the public interest to uncover and cover, and let supply precede the demand. This is well captured by the HLG, which writes:

“Common wisdom states that you need to research the market for what it needs and then produce what is needed. That is not the way the automobile was born, or the ‘smart phone’. The fact is that these artefacts were not needed at all; market research would not have revealed them as opportunities. What happened is that the presence of enabling technology and innovative thinking created a product that was at first only of any importance in the eyes of the innovators and their funders. They struggled considerably in early incarnations before the general public caught on.”

Like journalistic news, statistical news must be credence goods, to be consumed by the public on faith. The news must contain what the producer thinks the public needs to know, with the implication that if the assumption is correct, the public becomes aware of its needs and wants, which in statistics will be unknown not least because so are the statistical means to express them. Hence the producers must have thorough and sophisticated knowledge of the society as it functions today and is likely to function tomorrow. The independent statistics producer must have the “ability to look at, identify, label, organize and understand the interrelationships between ideas, objects or events” (Forbes and Brown, 2012).

In order to cater for the statistical interests of all stakeholders it is not sufficient that the independent statistics producer enjoys negative freedom. It must also enjoy positive freedom, that is, freedom to act paternalistically on behalf of those unable to cater for their own interests. Its independence must encompass the two concepts of liberty (Berlin, 1969), freedom from interference and freedom to interfere. The positive (Republican) concept of liberty is clearly most controversial of the two, as it has a potential of abuse that hardly is present in the negative (Liberal) concept. Rather than acting benevolently the independent institution may use its positive freedom to cater for its own self-interest. The NSIs are themselves public bureaucracies, and as noted in the budget-maximizing model of public choice economist William Niskanen (1971): Bureaucrats are “not entirely motivated by the general welfare or the interests of the state”, but also by “salary, perquisites of the office, public reputation, power, patronage, output of the bureau”. When successful they have “substantially increased the budgets of the bureaus for which they were responsible”. However, the alternative to positive freedom is to serve the organized stakeholders and leave the unorganized public unserved. Frequently that is equal to serving the society's production minorities (be it producers of goods or decisions), and neglecting its consumption majorities.

When granted positive freedom the independent statistics producer is empowered to set a statistical news agenda for its political masters. It enjoys the agenda-setting power of the news media, indeed frequently by using them or being used by them. For the stakeholders agenda-setting marks the difference between being considered and being neglected. They were put on the ladder to the political decisions of their concern. The steps that lead to a favourable outcome they must take themselves.

The European “statistical law” and the European statistical programme are based on producer independence as negative freedom. The statistics producers are guaranteed a professional autonomy similar to that of applied research: it is *research*, that is, to be carried out according to the professional standards of objectivity, neutrality and impartiality, without interference from stakeholders, but it is also *applied*, that is, answering the questions asked by the programme's masters, the European Parliament and the Council. The statistical outcome may contain surprises, but they will all be inside the agenda the masters have set. If the statistics producers in addition were enjoying positive freedom, the agenda itself would contain surprises.

2 CHAINS, SHOPS AND NETWORKS

The term “public value” has been criticized for overlapping terms such as “public goods”, “public interest” or “public benefit”. Intent to sort this out, John Alford and Janine O’Flynn (2009) argue it differs from these for three reasons: (1) it includes but is not limited to public goods, (2) it includes not only outputs but also outcomes, and (3) it encompasses what serves as merit goods for those enjoying it. The fourth conceptual advantage can be added: the terms draw attention to different topics. Public value draws attention to the topic of value creation, and hence to the different ways of creating value. Incidentally the values in question for the statistical agencies are economical as well as social, whilst many other State agencies limit their outcomes to the latter, which seems more overlapping with terms like public interest or public benefit.

The European statistics Code of Practice leaves the impression that value creation is not an issue for the ESS. The Code contains however a chapter entitled Statistical Processes. It consists of four principles introduced as follows: “European and other international standards, guidelines and good practices are fully observed in the processes used by the statistical authorities to organise, collect, process and disseminate European Statistics.” The process outlined in the four principles is the value chain. The United Nations General Statistical Business Process Model (GSBPM), used by more than 50 statistical organizations worldwide (UNECE, 2013) is based on value chain logic. Following Porter the statistical agencies have no reason to look for alternatives either. In his influential bestseller *Competitive Advantage* (1985) Porter argues that the value-creation logic of the chain is valid for all industries.

The distinction between long-linked, intensive, and mediating organizational technologies detected by James Thompson (1967) suggests however that the chain is but one of three value creation configurations. Charles Stabell and Øystein Fjeldstad (1998) labelled them the value chain, the value shop and the value network. They differ not only in organizational technology, but also in value creation logic. The authors argue that firms rarely are pure instances of one primary technology and value creation logic. Therefore value chain analysis should be replaced with value configuration analysis embracing all three categories of value creation. For the NSIs the chain is appropriate for the production, the shop for the interpretation and the network for the dissemination of official statistics.

2.1 The value chain

Chains create value by transforming inputs into products. The primary technology is long-linked. Important for value creation is the adaptation of supply to demand. In order to secure stable production and optimal capacity utilization, the demand must be predictable and the production standardized. Porter identified five generic primary activity categories of the value chain: Inbound logistics, operations, outbound logistics, marketing and sales, and service. An ideal-typical example is assembly line manufacturing, immortalized by Charlie Chaplin in *Modern Times* (1936). The assembly line is designed to mass produce standard products at a low cost per unit by exploiting cost economies of scale. The chain is the value creation form of the factory.

The vision of the HLG is to meet the increasing challenge from competition by turning the NSIs into figures factories. “The production of statistics should be based on common and standardized processes, transforming raw data into statistical products according to generic and commonly accepted information concepts”. The HLG views “this as the industrialisation and standardisation of statistics production”, by which “each statistical organization” is turned into “a factory of statistical information. Together they form the ‘official statistics industry’. Like any established industry, the production of official statistics should have its own industrial standards”. Priority is given to cost reduction, which is considered necessary as a means to release resources needed to rejuvenate the product set. “The increased cost effectiveness represented by the modernisation of statistics should be realised by dividing the whole process in four phases:” (a) product design, (b) process design, (c) production: “the statistical process should be

executed by machines, with as little human intervention as possible, and with short turnaround times (close to real time should be possible) to minimise operational costs”, and (d) analysis: “statistical subject-matter specialists should use outputs and intermediate results to publish articles and do research with advanced tools and as little human intervention as possible”.

The value chain is ideal for the mass production of identical products (“one size fits all”). It keeps the production costs low, which makes the products available to many. It ensures that quality is defined as a property of the product itself, and measured objectively and statically as conformance to producer specifications (Walsh, 1991). Hence it ensures that the proper method for quality control is the peer review, whereby the ability to satisfy the requirements of other statistics producers is measured. The users too have a voice in the ESS Code of Practice, as the indicators of its principle 11 on relevance are the following: “Processes are in place to consult users, monitor the relevance and utility of existing statistics in meeting their needs, and consider their emerging needs and priorities”; “priority needs are being met and reflected in the work programme”, and “user satisfaction is monitored on a regular basis and is systematically followed up”. The ESS knows however independently of the users what standards the statistical output must conform to: relevance, accuracy and reliability, timeliness and punctuality, coherence and comparability, and accessibility and clarity. Peer review is sufficient to ascertain whether “processes are in place to consult users”, and an affirmative answer sufficient to ascertain that the NSI delivers quality.

The value chain simplifies the management of the statistical agency. It enables the managers to employ transactional leadership, based on use of rewards and punishment to make the employees achieve the production targets set for the factory. It gives priority to control, immortalized by Karl Marx and Friedrich Engels in *The Communist Manifesto* (1848):

“Modern industry has converted the little workshop of the patriarchal master into the great factory of the industrial capitalist. Masses of labourers, crowded into the factory, are organized like soldiers. As privates of the industrial army they are placed under the command of a perfect hierarchy of officers and sergeants. Not only are they slaves of the bourgeois class, and of the bourgeois State; they are daily and hourly enslaved by the machine, by the overlooker, and, above all, by the individual bourgeois manufacturer himself”

The value chain keeps the costs of labour down. The HLG: “It is all about reducing the cost of the production process. Cost is defined as human labour, materials and duplication of efforts.” Again *The Communist Manifesto*:

“The less the skill and exertion of strength implied in manual labour, in other words, the more modern industry becomes developed, the more is the labour of men superseded by that of women. Differences of age and sex have no longer any distinctive social validity for the working class. All are instruments of labour, more or less expensive to use, according to their age and sex.”

However, industrialization is only one part of the HLG’s vision. The other part is automation. The production of statistics is not to be executed by ever cheaper labour, but by machines. Contrary to the expectations of Marx and Engels the production staff will be reduced to a small number of well-paid experts to monitor the process and make repairs when necessary. The potential for this is likely to vary. Some statistical areas will probably continue being heavily dependent on expert judgments and human creativity for the production. However, if downsizing has irrevocable priority the inevitable solution is to liquidate statistics that are not suitable for automation.

It follows by logic that the virtues of mass production, standardized products at low price, are obtained by sacrificing individual customer needs. Immortal is Henry Ford’s remark about the Model T: “Any customer can have a car painted any colour that he wants so long as it is black.” Apparently the strategy of the HLG is to sell mass produced statistics to a consumer market forced by financial constraints to give low price priority over high utility.

However, official statistics are seldom retail commodities. Typically they are purchased by Governments and paid over the State Budget. Additional purchases are made industry associations rather than by individuals. The producers of official statistics are in the wholesale business. Their customers can afford paying for tailor-made quality.

In addition there is the risk involved in mass producing for an unpredictable demand. Currently that risk is so great that the HLG dares not set targets for the future, cp. its strategy:

“The SWOT analysis, allows the creation of a clear strategy, with a number of key actions to support the implementation of the HLG vision. A complicating factor is that future developments are uncertain because of the accelerating rate of change. This makes concrete long-term goals a near impossibility.”

The risk is that the industry of official statistics makes heavy investments in production plants and the development of internationally standardized mass products that are no longer in demand when the industry is ready to start delivering.

Clearly there is a market for industrial mass production of statistics. For instance, the continuous audience measurement systems for broadcasting satisfy all the criteria listed in the vision of the HLG. They are standardized; executed by machines, deliver results close to real time, and so forth. They presuppose however that all stakeholders have expert knowledge of theory and methods, and are so familiar with the results that they hardly need to analyse them, but understand immediately what action they require. At the micro level they may not even have time to analyse them before new results demand their attention.

2.2 The value shop

Shops create value by solving customer problems. The shop is virtually the negation of the chain. While the chain relies on long-linked technology the shop relies on intensive technology. While the chain is organized to create value by delivering a standardized product the shop is organized to deliver a customized product, the solution to the problem. Customers may share problems, and the shop may detect problems its customers are unaware of, but its primary activities are nevertheless problem-finding and acquisition, problem-solving, choice, execution and evaluation. The shop is the value creation form of the academic professions.

The quality concept of the value shop differs also from that of the value chain, as it is not focused on the product itself, but on the relationship of user and product. The concept is not objective and static as in the chain, but subjective and dynamic. Its emphasis is “the extent to which the product is fit for the purpose for which it is intended” (Walsh, 1991). Unlike quality as “conformance to specifications”, which can be ascertained independently of and prior to purchase of the product, its fitness for its purpose cannot be ascertained independently of experience. Thus producer and consumer run greater risk: if the producer allows the consumer to experience the product prior to purchase the producer runs the risk of having solved the consumer’s problem for free. If the consumer must purchase the product prior to experience the consumer runs the risk of buying a pig in a poke. It follows that the method to measure the quality of the shop’s products cannot be peer reviews. Quality must be measured subjectively in terms of customer satisfaction and institutional reputation, which of course also is crucial for the recruitment of new customers. To this may be added objective measures e.g. of impact in terms of citations in journals and (political) documents.

Principle 1 of the ESS Code of Practice, professional independence, requires that the heads of the NSIs and of Eurostat “are of the highest professional calibre”. The value shop requires that all employees of the NSIs “are of the highest professional calibre”. Whilst the ideal employee of the value chain is an obedient labourer, the ideal employee of the value shop is a creative collaborator.

Amongst the NSIs (or NSOs) aware of that are Statistics New Zealand. In the already quoted article Sharleen Forbes and Denise Brown (2012) tell that “managers in Statistics New Zealand have consistently identified *conceptual thinking* as one of the skill gaps in their staff whenever they have been consulted about

staff training needs. Other desired attributes include intellectual rigour, critical thinking and a solution orientation". Fundamental is the "ability to look at, identify, label, organise and understand the interrelationships between ideas, objects or events". Conceptual thinking in an NSO (or NSI) is "considered to be an ability to take ideas that often emanate from political and policy discussion and translate them into objects (variables) measurable in the real world". To this ability must be added the importance of "good subject-matter knowledge". Forbes and Brown maintain that "NSOs need to recruit and place stronger conceptual thinkers into more conceptually demanding roles, and ensure that teams have a blend of skills", but argue also that "conceptual thinking can be learned", and outline "a possible training course for developing conceptual frameworks".

The value shop makes it more demanding to manage the statistical agency. It requires managers who are capable of transformational leadership, often referred to as the four I's: Idealized influence, inspirational motivation, individualized consideration and intellectual stimulation. The purpose of leadership is to release the creativity of the employees, who are empowered to make their own judgments and priorities. The task of the leader is to ensure that their interests coincide with those of the agency. The leader transforms two types of employee needs into service for the agency: their individual needs for freedom and self-assertion, and their collective needs to experience the work as meaningful and themselves as important for the organization.

The value shop is the answer to the main challenge detected by the HLG: the need to energize innovation and rejuvenate the product set. The HLG writes:

"We need to establish a culture for change. Among our most important assets are our human resources. That is where we keep our knowledge and our culture. In most organizations there is a good supply of forward-thinking people. The challenge is to unlock this potential. We should encourage an entrepreneurial attitude and look for ways to change the culture in our organizations where necessary."

The HLG also states that "innovation must be a management driven part of our core business". It is the responsibility of the leaders to "drive our workforce out of its comfort zone and try new ways of producing statistics". Managing organizational change is said to require the presence of four prerequisites: (a) willingness to change; "there must be enough trust and support for the strategy, vision and the leadership"; (b) ability to change, "leadership is again a critical factor" but the organization must have "on board" enough people with the right skills; (c) readiness for change, "because timing affects the level of support from the people that are involved", and (d) speed of change, a choice must be made "between evolution and revolution", and will "to some extent" be driven "by the increasing rate of change in the outside world".

The HLG may be interpreted to envisage change to be led top-down by the transactional boss, whose primary objective however is to keep things the same. It is transformational leadership that is leadership for change. Transformational leaders motivate and inspire their collaborators to innovation. Thereby the agency's capacity to innovate is enhanced, as there are more collaborators than leaders, and so is the willingness to change, as the collaborators will feel ownership of the innovations they promote. Top-down and bottom-up initiatives will merge into what serves the statistical agency best.

In the value shop work is carried out individually or in teams. Value chains are in contrast operated as virtual assembly lines. Each task presupposes the prior task and adds value to it. Automation reduces however the organizational difference between the shop and the chain. The experts who monitor the chain's automatic production process and make repairs may also work individually or in teams.

The value shop and the value chain have reciprocal statistical needs. The value shop needs statistics to solve customer problems. By stating "there is nothing as practical as a good theory" Kurt Lewin (1943) did not mean to make empirical evidence redundant. He referred to the fundamental value of theory for the investigation of practical problems. The value shop does not produce statistics. That is done in the value chain. The shop is using what the chain is producing. The value chain, on the other hand, does not solve customer problems. The value chain produces statistics. Without interpretation it produces masses of

figures for the cemetery of numbers, known as the Statistical Database or the StatBank. The value shop produces interpretations. “Causes trump statistics” Daniel Kahneman ascertained in *Thinking, Fast and Slow* (2012). “Statistical results with a causal interpretation have a stronger effect on our thinking than non-causal information”. And beliefs trump causes. “Even compelling causal statistics will not change long-held beliefs or beliefs rooted in experience”. This hierarchy, with descriptive statistics at the bottom, shows what evidence-based politics is up against.

2.3 The value network

Networks create value by linking customers together. The network relies therefore on mediating technology. A typical example is the telecom company. The company is not a value network but a provider of a networking service. For the customer, the value of the network depends on the other customers connected. The value therefore increases with the network’s expansion. The primary activities are network promotion and contract management, service provisioning and infrastructure operation. Networks are managed as if they were clubs. Their owners get their income from connecting new customers, from connection fees, and from customers communicating.

In an article entitled “Safeguarding trust in statistics and the new statistical voice” Per Nymand-Andersen (2013) of the European Central Bank advocated “a new two-way statistical communication strategy”. Nymand-Andersen argued “there is a growing gap between the current way statistics are stored in databases and the ways in which digital native professional users and citizens access and use statistics.” In order to bridge the gap statistical agencies must break down monopoly thinking and realize that statistics are everywhere, causing a significant risk of information overload and making it increasingly difficult to find the right statistics. The internet is a form of network ideally designed for “many-to-many” communication; hence “collaborative platforms, combined with advances in visualisation and multimedia tools, are the way forward for presenting and communicating statistics across countries and sections of society.” “The use of metadata and the tagging of statistics are increasing, defining the ways in which statistics can be found on the internet”, and imperative for use is that statistics are actually found. “There is competitive advantage to be gained from at least being on the first page of results” found by research engines, and “the best way to ensure a top search ranking is to know how the company’s search function works and join up with organizations which already have a high ranking in the field of statistics”. Particularly effective is to build a community around statistics – a value network in Stabell and Fjeldstad’s terminology. Nymand-Andersen writes: “The OECD has created several social networks focusing on issues such as progress, gender equality and children. In March 2013 these networks boasted over 90 000 unique visitors per month, 3 000 registered users and more than 60 active editors. [...] It should be noted that 90% of these people do not work for the OECD, instead volunteering their time to contribute their knowledge of the subject.”

The OECD has 34 member countries with a total population of 1.26 billion inhabitants. Clearly the members of the three communities are extremely exclusive minorities. Those who do not take part in the communities are however not excluded by anyone but themselves. Nymand-Andersen:

“Research into why users contribute to platforms such as Wikipedia reveals that they are more likely to contribute when (i) they are using the knowledge that they have, (ii) they gain recognition for their contributions and (iii) they feel that they are contributing to a project that serves the greater good, as the sum of all contributions will be something of global significance.”

They contribute to the production of public value.

Networks may connect those who know the society and those who know its statistics. Unlike advisory boards intended to transfer knowledge one-way from the society to its statisticians in order to influence action, networks will transfer it two-ways in order to inspire action. Those who know the society will benefit from better knowledge of the vast amounts of statistics that the NSIs possess, and from better

understanding of its conformance to its specifications. The NSIs will benefit from better knowledge of the vast amounts of problems that need to be solved, and from better understanding of the statistics' fitness for their purposes.

CONCLUSION

A property of the value chain is its ability to make itself redundant as production model. This will happen to the extent the HLG succeeds in convincing the NSIs about the advantages of automated industrial production. Electronic utilization of electronic sources de-humanizes the whole process from data collection to statistical output. The GSBPM becomes obsolete.

An automated statistics industry will mass produce figures for a market where there is already an abundance of numbers and a deficit of attention. The users will increasingly need brokers to find and interpret the figures that are best fit for their purposes. The news media serve as brokers for the general public. Professional users rely on consulting firms. The public sector is a major consumer of consulting. The rule of thumb says that a consultant costs three times the wage of the position being covered.

The NSI is a State agency. The main professional user of official statistics is frequently another State agency. If the user institution lacks competence and capacity to find and interpret the figures that are best fit for its purposes, and the NSI merely provides figures, the user agency is forced to engage a consultancy as its broker. Rather than going straight from one State agency to the other official statistics will then have to make a detour into the private sector before it arrives at the target. That detour triples the costs of using official statistics for evidence-based politics. Not to mention the loss of democratic control. The consultancy is not accountable to the democracy but to its own profit-seeking shareholders.

It is therefore imperative, for the public purse and for the democracy, that the NSIs assume responsibility for the task of statistics brokerage, and gradually replace the value chain with the value shop as their main value configuration model. Thereby the NSIs will be elevated from commodity producers to processing factories. Their statistics will not be merely accurate but also appropriate for the society's purposes. A surrounding network of users will build statistical literacy, for the benefit of the users, who obtain competitive advantage from their more advanced knowledge, and for the benefit of the NSIs, which obtains more and increasingly more demanding orders. The current downward spiral, driven by budget constraints, is turned upwards. The NSIs will not necessarily live happily forever thereafter, but they will have better control of their own future.

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