

# Thirty years on, the Fundamental Principles of Official Statistics remain the shared foundation of an informed society

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**Abstract.** Arising from a need to create and communicate a common mission for official statistics in a period of radical change in the UNECE region and the world, the Fundamental Principles continue to represent the best of international cooperation 30 years on. This paper was prepared as part of a UNECE-coordinated effort to mark the 30th anniversary of the development and adoption of the Principles in the UNECE region. Beginning with an exploration of how and why the Principles were created in the region, the roles they played and the reasons that they came to be adopted as a global standard, we proceed to offer simple explanations in everyday language to help those outside the field of official statistics to understand what each Principle means and why it matters. We conclude with reflections on the changing role and continued importance of the Principles for the future.

**Keywords:** Fundamental Principles of Official Statistics, United Nations, Conference of European Statisticians, international cooperation

## 1. Shared foundations

### 1.1. Origins of the principles

The Fundamental Principles of Official Statistics were conceived during, and as a direct consequence of, a period of dramatic social and economic transformation. As centrally-planned economies transitioned to market economies of independent states from 1989 into the early 1990s, the producers of official statistics in these countries reached a shared realization that they needed a new unifying framework to guide them.

In ‘The Fundamental Principles of Official Statistics: the Breakthrough of a New Era’, (see [1], Chapter 5), Jean-Louis Bodin examines the intellectual origins of the idea of a set of common principles for official

statistics. As is clear from his analysis, the Fundamental Principles did not simply appear out of thin air when the Berlin Wall came down: there were plenty of precursors. The idea of statistics (as a profession broadly construed, not limited to official statistics) being governed by ethical principles and explicitly-stated good practices was not new. For example, the American Statistical Association, followed by the International Statistical Institute, adopted codes of practice and ethics in 1979 and 1985, respectively. It can well be assumed that even prior to these formalized statements, statisticians had long-standing and common understandings, however informal or implicit, about the necessity of adhering to basic tenets of scientific soundness, fairness, protection of information, and so on; both for moral reasons and for the sake of accuracy of the resulting statistics. For example, Walczak [2] shows that confidentiality of data collected for statistical purposes has long been protected in law, with an article of Poland’s first Act on administrative statistics of 1919 being specifically devoted to the protection of individual data.

As Bodin goes on to explain, some countries then began to recognize that the specificities of official statis-

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tics called for separate codes for them, as distinct from the profession of statistics overall. The unique features of official statistics – such as their public funding, their role as providers of information to many stakeholders including private citizens, and their broad remit in terms of topics covered – meant that the ethics and good practices to be followed were not necessarily adequately covered by the more general professional codes. To Bodin's rationale could be added the fact that official statistics, irrespective of the type of economy, have a distinct role from academic statistics in that they are meant to describe (and be used by others to influence) the state of a country. This creates an intrinsic tension, perhaps even a 'temptation' for interference, as well as a huge responsibility to get the numbers right. Hence, codes of practice designed to apply across the board to statistics in general did not adequately tackle all the areas in which ethics might be particularly fragile and in need of explicit statement.

But why, then, was it the statisticians in the economies in transition, specifically, that stimulated the formulation of the Fundamental Principles? Why not the countries in which official statistics had already for decades been construed as a public good, fulfilling citizens' democratic right to be informed about the state of their countries' economy and society?

The answer lies, first of all, in the need for a road map, a beacon to guide the countries' statistical offices during a time of immense change. Their role in centrally-planned economies was essentially one of 'bookkeeping', as Bodin explains [1, p. 64]. This was radically different from their new role as providers of public information in market economies, in which the information they provided was used not merely to check that economic outcomes were in line with centralized plans, but rather to inform the development and adjustment of plans and policies. In light of this radically altered role, the statistical offices collectively identified a need for a framework to guide them through the transformation. In contrast, in the Western European countries there was no sudden change requiring a new outlook but rather a very gradual evolution of the role of official statistics as a public good throughout the latter half of the 20th Century – and hence no pressing need for a new framework.

Second, the statistical offices in the countries of the former Eastern Bloc also recognized that in their new context, the trust of the public as respondents as providers of information was essential for them to be able to produce the statistics required of them. A set of clear and easily-communicated principles, therefore,

would not only act as an internal guide for them to conduct their work, but also as an external tool to enable them to convince citizens that they were worthy of such trust.

The third trigger for developing the Principles was the need for collective action and a public display of solidarity among the statistical offices of countries facing similar challenges. This collaborative, unifying spirit was, and remains today, at the heart of the Fundamental Principles. A sense that both goals and methods were shared was instrumental in giving official statisticians the institutional confidence to step into their 'new shoes'.

### 1.2. *Adoption of the Principles by UNECE*

A striking feature of the Principles is the way that they have resonated so convincingly across the globe since 1992, embraced by countries on every continent and with every kind of historical, political and cultural heritage, and with wide variation in their approaches to collecting, publishing and using national statistics for decision-making. Although their formulation was brought about by the very specific set of circumstances facing countries of Central and Eastern Europe in the early 1990s, the value of this clear, succinct and universal list rapidly became clear to other countries. Hence by the time the Principles reached the Conference of European Statisticians (CES) at its 39th session in 1991, they were presented as principles applicable to the entire region, not only a subset of countries; and when adopted by the United Nations Economic Commission for Europe (UNECE) in 1992, they were taken on wholesale as a Resolution for all UNECE member States.

The power of this region-wide, formal political adoption cannot be overstated. There are several factors that make it so significant.

First, there is a qualitative difference between simply sharing values implicitly, and having them formally stated and agreed. Their status changes from guidelines to rules. And for official statistics this is especially important. It doesn't just mean that official statisticians must follow these rules, but – perhaps even more importantly – that *everyone knows they must follow these rules*. If faced with any kind of external pressure, attempted political influence, or inappropriate demands, those who uphold the formalized rules can lean on them and use them to justify their refusal to comply. Where ethics and best practices are only guides, informal or implicit, it is harder to stand up to pressure especially when it comes from a higher authority.

Second, related to this, the strength of the political-level adoption by UNECE rather than stopping only at the more technical level of CES gives added gravitas to the Principles. In later years as the Principles ‘climbed the ranks’, this gravitas multiplied: in 1994, the United Nations Statistical Commission adopted the Principles at the global level; the Economic and Social Council (ECOSOC) endorsed them in 2013; and in January 2014, they were unanimously adopted by the General Assembly: a unanimity that speaks to the universal agreement that these Principles were clear and universal enough to merit a General Assembly Resolution [3] It is one thing for statisticians to tell each other, and the world, that they uphold certain ethical and scientific practices. It is quite another for all the world’s governments to recognize and endorse the idea that their official statistics producers are and must be independent and empowered. The preamble to the General Assembly Resolution by which the Principles were adopted [8], addressing governments rather than ‘only’ statistics producers, stresses that “in order to be effective, the fundamental values and principles that govern statistical work have to be guaranteed by legal and institutional frameworks and be respected at all political levels and by all stakeholders in national statistical systems”. Having the name of the United Nations and the strength of such a clearly-stated Resolution behind the Principles gives them a power that could not be brought to bear in any other way.

Third, the UNECE-wide adoption in 1992 gave a further boost to the sense of international solidarity across the region. Perhaps even more so because this was a product born of the Eastern countries which was subsequently adopted by those in the West. This has happened again on more than one occasion since. CES products initially designed as tools for a subset of countries, such as the Generic Law on Official Statistics [4], have turned out to be relevant and popular region-wide and therefore endorsed by all CES members. Just as the power of collective action among the countries that devised the Principles gave them added impetus, so the collective nature of their adoption across the whole region strengthened that impetus. Speaking with one voice, rooted in the shared ‘script’ of the Fundamental Principles gave, and still gives, official statisticians from all countries a ‘safety in numbers’, a feature of crucial importance to an industry in which there is of course only one statistical system per country. Hence, their ‘peers’ are largely based in other countries.

In this context, it is noteworthy that the tenth and last principle is that of international cooperation. It clearly

did not escape the notice of those drafting the Principles that including such cooperation in the formal statement of the values and practices of their business, would help to guarantee its institutionalization. It is easy to imagine how politicians or diplomats without intimate knowledge of statistical production would willingly endorse a call for high scientific standards in statistics; or for transparency of methods and sources; or protection of confidentiality. The need for these things can hardly be disputed or misunderstood. It is rather harder to imagine convincing them of the crucial importance of international collaboration in statistics, unless – as was the case – it were incorporated into a more wide-ranging set of principles. The drafters of the Principles and the CES members who pressed for their political adoption must have seen this opportunity, unique in the course of history, and wisely seized it while they could.

### 1.3. *Statistics for an informed society*

In the thirty years that have passed since the political adoption of the Principles by UNECE, they have taken on a defining role in the industry of official statistics. The roles they play are varied. Section 2.3 below looks towards the future, but here we reflect briefly on the roles played by the Principles between 1992 and the present day.

- a) Formulated in a context in which the purpose of official statistics was shifting radically, the Principles have played a role in offering definition to that purpose. That is, they not only *described* the purpose of official statistics in a passive way, but through being written down and debated, they have actually *shaped* the definition of what official statistics means. Following their wider adoption in the UNECE region and then the world, this has continued to be true: it was not a one-off event at the time of their formulation but has been a continuous process. As alluded to in Section 1.1, the understanding of official statistics as a public good was, in some parts of the world, slowly beginning to supersede the idea of statistics as merely an administrative tool of government, in the decades prior to the formulation of the Principles. Formalizing this idea in the text of the Principles (e.g. “serving the government, the economy and society” and “to honour citizens’ entitlement to public information”) was both a new and unique *articulation* of this change, and at the same time a *reinforcement* of it, ensuring that it took hold even where it had not done so

already. Where there may have been, or still may be, doubt or unclarity for some about what official statistics means, the Principles have acted to provide a definition and thereby shaped what actually constitutes the role of official statistics. A concrete example of this is their use in statistical legislation. Where the statistical laws of a country are heavily based on the Principles, the very nature of what counts as official statistics and whose needs they are supposed to meet can be said to be directly influenced by the existence of the Principles. Ask an official statistician what official statistics are for today and you will most likely get an answer roughly along the lines of “to provide evidence to inform decisions”. Prompt further – evidence for whom, for what?, and perhaps you will be told “society”, “everybody”, or maybe somewhat more vaguely “users”. This was not always so. In years gone by a more likely answer would probably have been government and politicians, local authorities, perhaps banks and maybe even businesses. The idea that statistics are as much for the benefit of the average citizen as they are for public authorities is relatively recent, and the Principles have undoubtedly played at least some part in concretizing this perspective. As John Pullinger, former National Statistician of the United Kingdom wrote in his preface to a CES publication about the value of official statistics [5], “Good use of evidence can help us fight for justice and enable the powerless to hold the powerful to account”. This sentiment is encapsulated in the very first phrase of the first sentence of the first Principle: “Official statistics provide an indispensable element in the information system of a democratic society . . .”. By putting it front and centre in the text of the Principles, those who drafted them made it inescapable that statistics must be for everyone; that their status as a public good is not an optional extra but an intrinsic feature; that all those who adopted the Principles were, in so doing, adopting this view that an informed society is the ultimate goal.

- b) Just as the Principles were born from the need for a guide to navigate through change, they remain so today. The changes, of course, are very different, but no less significant. Within the field of statistics there are rapid and radical changes in sources, methods and expectations, too wide-ranging to discuss here, but all under high-level discussion in all the major official statistics fora.

And beyond the boundaries of our field, there are social changes taking place that result in new and different demands being placed on official statistics: climate change, political strife, mass migration, a rising tide of misinformation, public mistrust in authority and establishment institutions, and a surge of anti-science, anti-evidence sentiment among some elements of societies. Meeting these changing demands means knowing where to look, where to aim. The Principles offer a touchstone to make sure that official statistics continues to head in the right direction, without having to feel around in the dark.

- c) Just as when they were first conceived, the Principles serve as a tool for uniting people; whole countries, institutions and individual statisticians. Like the mission statement of a company or a non-governmental organization, the Principles act as a manifesto to articulate to themselves and to others what official statisticians stand for and strive for. New staff entering national and international statistical offices are introduced to the Principles to help them understand their position. Chief statisticians use the Principles as a common language to talk to one-another about what they are doing and why. Sharing Principles and their associated values fosters collaboration, a sense of team effort and working towards the common good.
- d) As mentioned earlier in Section 1.2, the Principles offer official statisticians a line of defence, a means of justifying their actions and a protection against any attempt to influence their work inappropriately. This needn't be as nefarious as overt political interference in determining the content and methods of statistics, publishing figures or appointing staff.<sup>2</sup> It could be less obvious, such as public demands for a new survey, indicator or variable; criticisms of the budget or methods of a census; questions about the legality of a survey. The Principles, as well as legislation based on them, provide unambiguous answers to many of these questions, as well as suggesting solutions when such questions result in the need for changes in practice. For example, Principle 1 with its fo-

<sup>2</sup> Although of course such interference certainly has happened and continues to happen, even in countries with supposedly strong protections and professed legally-enshrined adherence to the Fundamental Principles. Cases of politically-motivated suppression, delay or alteration of official statistics, and of heads of statistical offices being removed from office or resigning under pressure, are well-known and, unfortunately, all too common.

cus on relevance and “practical utility” suggests that demands for new kinds of statistics should be listened to and engaged with, while Principle 5 on sources and cost-effectiveness calls for a consideration of the balance between competing demands and payoffs before deciding whether this new demand can realistically be met.

- e) Finally, but crucially, the Principles have come to play a role as a key component in official statistics’ communications and public relations arsenal. They serve as a tool to explain the nature and purpose of official statistics in simple terms to those outside the field (or, indeed, to those inside who have had less call than others to reflect on them on a daily basis!). People working in the field of official statistics may be asked, either out of genuine curiosity or out of criticism, to explain and defend what they do. They may be asked to say what exactly is meant by the ‘official’ part of the term official statistics, and to say what’s different about official statistics and other kinds of statistics and data. They may need to explain the connection between statistical offices and governments. They may be called upon to defend certain features of official statistics which perhaps strike people as cumbersome, inefficient or counterproductive, such as time lags between collection and release, or the burden of completing surveys and censuses. In all such cases, the Principles provide a readily available and succinct source from which to craft responses and explanations. As will be discussed in the following section, however, this final role of the Principles is one that can and should be better harnessed.

## 2. Thirty years of the Fundamental Principles

As the ‘birthplace’ of the Principles, UNECE and CES decided to mark the milestone of 30 years since their adoption, benefitting from the opportunity to draw further attention to them among internal and external audiences, and to reflect on the roles they play and on their continued relevance.

### 2.1. *Marking the 30th anniversary*

CES called upon the Secretariat at UNECE to undertake a communications campaign, which was conducted from January to June 2022 (for details of the activities and participants, see [6]). A large number of

CES member countries and international organizations participated in a wide range of ways, from producing videos and images for social media to organizing webinars and online discussions, from infographics and animations to news articles and blogs. The social media hashtag #FPOS30 had been used in at least 180 original posts on Twitter by the time of writing this article, with re-posts and ‘likes’ spreading the message to many thousands across the globe. Original posts from UNECE statistics’ own account were seen by 104,000 people between the start of the campaign at the time of writing (1 June 2022) – more than double the number for the same period in 2021.

### 2.2. *Bringing the Principles to life*

One of the goals of the anniversary campaign has been to ‘translate’ the Principles – both linguistically and in terms of their content. Although they are a succinct and clear list, and indeed this succinctness is a major aspect of their value, their terseness could be said to come at the expense of explanation or expansion. Thus it is not always obvious to ‘outsiders’, or indeed even to insiders, what each of the Principles actually implies in everyday terms. Nor is it always fully understood why each of them matters, or should matter. Terms and phrases such as “bilateral and multilateral” and “natural or legal persons” give precision to the text of the Principles, but the price of achieving that precision is limiting clarity to the everyday reader.

In 2015 the United Nations Statistics Division published implementation guidelines [7], precisely with the intention of providing the kind of explanation and expansion into concrete actions that could help producers of official statistics to make more practical use of the Principles. They offer both detailed explanations of what is meant by each Principle, and comprehensive lists of examples of actual activities or products of statistical offices that embody each of the Principles: bodies for statistical regulation tasked with public correction of misuse; quality management frameworks; public webpages containing metadata and glossaries; tools for improving statistical literacy and stakeholder engagement; laws on protection of confidentiality . . . the list goes on. These detailed guidelines, however, are obviously designed for an internal audience, as a tool for statistical offices.

There has been precious little attempt to translate the Principles into a language understandable by those outside the field. And yet official statistics producers are immensely aware of the need for doing so. The

work leading to the 2018 CES publication on Promoting, Measuring and Communicating the Value of Official Statistics [5] demonstrated clearly that national statistical offices and in particular their leaders see the Principles not only as their guiding framework but as the key to communicating the value of their work to others. If this is the case, then the Principles needs to really be ‘communicable’.

A central activity in the 2022 UNECE campaign has therefore been to prepare short texts in everyday language explaining what each Principle means and why it matters. These text are not intended to detail the means by which the Principles are enacted, but rather to enlighten those unfamiliar with the Principles as to why they are important. These texts are reproduced in this section as well as on the UNECE website<sup>3</sup> and microsite<sup>4</sup> and publication (where they will in due course also be available in French, Russian and Spanish). The official statistics community is encouraged to reuse these texts, for example as a ‘hook’ for then sharing information about the behaviours and actions they take to fulfil them

*Principle 1: Relevance, impartiality and equal access*

*“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. To this end, official statistics that meet the test of practical utility are to be compiled and made available on an impartial basis by official statistical agencies to honour citizens’ entitlement to public information [8]”.*

So much is enshrined in just a few words!

The producers of official statistics must strive to serve society with the information people need and want. Only if statistics meet the test of practical utility can they be considered relevant. Utility can be frustrated by many barriers – figures that come too late to be useful, are published in lengthy books or hard-to-read graphs, are hard to locate on websites, or that lack the necessary explanations to help users know what they mean.

Ensuring relevance entails reaching out to current and potential users to find out about their needs: on what topics do they need statistics? in which formats? when do they need them? Needs change over time, so NSOs maintain constant contact with stakeholders. When the Covid-19 pandemic struck, NSOs consulted widely to

find out about and respond to rapidly changing demands for data. NSOs conduct user surveys and track usage of their products to keep tabs on their continued relevance.

Remaining impartial and safeguarding equal access are at the heart of official statistics. It is essential for statistical offices to be independent from governments, and free from political influence. Without these protections, citizens might be hesitant about participating in surveys or allowing their data to be used. If they perceive statistics to be linked to a government in whom their trust is limited, this might also undermine their trust in the figures. Official statistics respond to the needs of all types of users, not only those in authority; the data needs of the general public are just as legitimate as the data needs of governments, banks and businesses. This applies both to the choice of what statistics to produce, and the timing of release of statistics. No-one gets privileged access to figures, and no-one can tell the NSO to withhold them from public access.

Impartial official statistics don’t only help to build trust in the NSOs themselves – they contribute to a wider social goal of fostering transparency and accountability, building an open relationship between society and states. If we can trust that NSOs are telling us the whole, real story, for example, about progress towards the SDGs – even in cases where that real story demonstrates poor progress or unsuccessful policies – we are better equipped to hold our policymakers to account.

*Principle 2. Professional standards and ethics*

*“To retain trust in official statistics, the statistical agencies need to decide according to strictly professional considerations, including scientific principles and professional ethics, on the methods and procedures for the collection, processing, storage and presentation of statistical data [8]”.*

The work of official statistics is not just collecting data and crunching numbers. There is a whole chain of processes, from deciding what statistics are needed, hiring staff, designing surveys and identifying data sources, through gathering and processing data, to publishing and explaining the statistics.

Every link in this chain involves making decisions from among a range of options. In official statistics, these choices must be driven purely by professional motivations – never by political ones. While accountability to the taxpayer and value for money are also key considerations (as will be seen in Principle 3), this does not mean that cheapest is necessarily best. Scientific excellence, above all else, determines the methods official statisticians select to conduct their work. This

<sup>3</sup><https://unece.org/FPOS30>.

<sup>4</sup><https://w3.unece.org/fpos30/>.

includes statistical methods as well as those from the fields to which the statistics relate, such as economics, demography, and climate science, as well as ICT tools and modern communication techniques. Indeed, in fulfilling this principle, official statisticians strive not only to *follow* the best available scientific methods, but to work tirelessly to *develop* these methods.

As in any profession, applying professional ethics at every level from the individual staff members to the organization as a whole is essential to maintain the good reputation of the industry. Nowhere is this more true than for official statistics, where safeguarding this good image is crucial for maintaining public trust – which is essential both in order for respondents to continue providing the data needed for statistics, and in order that statistics are believed and used to their full potential.

#### *Principle 3. Accountability and transparency*

*“To facilitate a correct interpretation of the data, the statistical agencies are to present information according to scientific standards on the sources, methods and procedures of the statistics [8]”.*

Good governance in any organization calls for accountability and transparency. These words are so widely used that we might not even pay them much attention. But they are absolutely crucial for official statistics. Why?

Unless the processes and products of official statistics are totally transparent, they risk being useless – or worse, dangerous. Without knowledge of how they were made, people could accidentally or deliberately misinterpret them. To be able to interpret and apply statistics correctly, users need to know some key facts about them, called metadata – how were they gathered? When? Among what group of people? What were they asked? How were the raw data processed into the published statistics? As well as guiding correct interpretation, transparency fosters trust which, as we saw in Principle 2, is essential for statistics to be believable and useful. Producers of statistics want users to trust their numbers, but they don't expect this to be blind trust – they know that they must earn it.

Statistics is often called the science of probability. Official statistics must therefore also be transparent about the probability attached to the figures they publish. How big and representative were the samples, and how confident can we be in the estimates? By publishing confidence intervals and quality assessments along with details of the methods used, producers of official statistics enable users to select appropriate statistics for their purposes and provide them with information on how to use and interpret them.

Being accountable to society goes far beyond publishing metadata. It entails being transparent and efficient in how public money is spent; ensuring a high level of professional capability among staff so that correct statistical methods are followed; and communicating with the public about the timing of statistical releases, revisions and correction of errors, and plans to start new statistical products or to change or discontinue existing ones.

#### *Principle 4. Prevention of misuse*

*“The statistical agencies are entitled to comment on erroneous interpretation and misuse of statistics [8]”.*

Statistics don't have a great reputation in popular culture. Mark Twain famously popularized the saying that the three kinds of falsehoods are “lies, damned lies, and statistics”. Against this common perception, the field of official statistics has its work cut out to build and maintain trust, making clear that far from lies, statistics offer the best and fairest insights into truth about our world and its people.

Doing this entails publicly correcting errors in the use and interpretation of statistics, whether deliberate or accidental. There are many kinds of errors, some of which are very common among journalists, politicians and others whose words hold much sway in public discourse. Figures might be chosen selectively, or ‘cherry-picked’, with those that illustrate the speaker's point being emphasized while those that contradict it are set aside. Statistics designed to apply to a specific population group might be over-generalized and interpreted as applying to a whole population. Estimates surrounded by confidence intervals might be misinterpreted as absolutely precise figures. A short-term trend might be falsely extrapolated into the long term. All of these errors have been seen repeatedly in the past two years as statistics related to the Covid-19 pandemic suddenly entered daily conversation, with mainstream media and governments making use of statistics far more than they were used to doing before.

Principle 4 protects the right of statistical agencies to speak up when they see errors being made. This means that even when statistics are deliberately or accidentally misused by someone in a powerful position in government, official statisticians can set them straight without fear of reprisal.

In the eyes of many NSOs this principle is not merely a right, but also a duty. And for many, preventing misuse means not only reacting to actual misuse but being proactive to minimize potential future misuse. Hence, supporting the development of statistical literacy be-

comes an important tool in the NSO's toolkit to tackle misuse. This is done through targeted training courses, offering statistical teaching support in schools and universities, partnering with or seconding experts to work with journalists, and producing guides and manuals for using, understanding and presenting statistics.

*Principle 5. Sources of official statistics*

*“Data for statistical purposes may be drawn from all types of sources, be they statistical surveys or administrative records. Statistical agencies are to choose the source with regard to quality, timeliness, costs and the burden on respondents [8]”.*

Our world is awash with data: raw data about ourselves, the things we do, the places we go, our homes and the environment around us, our health, what we buy, the businesses in our towns and cities . . .

All of these data have the potential to be turned into meaningful statistics, but the costs, benefits and risks of doing so are different in each case; as are the methods needed to turn raw data into useful statistical information, the amount of time that transformation would take, how much involvement is needed from members of society and from statisticians; and how accurate and reliable the resulting statistics would be.

Principle 5 calls on statistical agencies to weigh up all of these different considerations when they decide what would be the best data source for any given kind of statistics. For example, it might be much quicker and cheaper to use data from one source, but less reliable or representative than data from elsewhere.

Gathering information from people in a survey might offer the benefits of greater detail and insight into their opinions, but ask too many questions and eventually people will tire of being asked to complete surveys, and might give incomplete or inaccurate answers.

On the flip side, when statistical agencies produce statistics from existing data sources such as tax records, electoral registers or supermarket scanners – which can be much faster and cheaper than conducting in-person surveys and censuses – they have to very carefully manage public perceptions. They must make sure that society knows exactly what they are doing and how, allaying any fears about how data are obtained and processed and any concerns about the quality of the figures.

Guided by this principle, NSOs weigh up the pros and cons of every potential data source. This is a constant process because, while continuity of statistics is one important factor, the best source today might not remain the best source forever, or for all kinds of statistics. NSOs are always moving with the times to se-

lect the right data for the job, harnessing the richness of newly-emerging sources and technologies to ensure they always strike the right balance between value for money, accuracy, timeliness and respondent burden.

*Principle 6. Confidentiality*

*“Individual data collected by statistical agencies for statistical compilation, whether they refer to natural or legal persons, are to be strictly confidential and used exclusively for statistical purposes [8]”.*

A fear that ‘Big Brother is watching us’ pervades 21st century society. We want information about our world, but not at the expense of our privacy and security. We are concerned when we think an organization or government knows a lot about us; our movements, finances, families. So when data are collected for statistics, either directly from respondents or automatically, people need assurances that the data will remain confidential and will not be used inappropriately: that NSOs are not Big Brother.

Such assurances come in the form of confidentiality policies and laws. They cover every aspect from the collection of data to how they are stored, processed and published. They protect the data themselves from accidental or malicious access, release or identification – known technically as confidentiality – and they protect the individuals who provide the data – known as privacy.

‘Microdata’, complete records of all the answers that people give when they complete a survey, are immensely useful to researchers. An aggregate statistic, such as average household income, can be a useful headline figure. But only microdata permit in-depth analysis of how different factors such as location, age, ethnicity or education influence the figures, to help disentangle causes. NSOs have detailed policies about who can access microdata and what they may do with it. Often they can only access it in secure computer rooms in the NSO's premises. Names, dates of birth or other identifying features are replaced with unique numbers to anonymize the data.

Even when anonymized, an individual could be identifiable in data if they belong to a very small group. The more disaggregated the figures – that is, the more different characteristics used to define them – the greater the risk to confidentiality. For example, in the population of a town there might only be one 73-year-old ethnic minority woman with a master's degree. NSOs have rules to determine how big a group must be before they can publish information about its members. Published figures might group together the women aged 70–74 to maintain their confidentiality.



Principle 6 also safeguards proper use of confidential data. While NSOs have access to tax files, border crossing records and census returns, there is no way for data to be used to identify tax evaders or track down undocumented migrants. NSOs follow strict rules, typically laid down in law, to ensure that data can only be used for statistical purposes.

#### *Principle 7. Legislation*

*“The laws, regulations and measures under which the statistical systems operate are to be made public [8]”.*

Statistical offices have among their staff and leaders many great statisticians and other kinds of experts, full of ideas and armed with wide-ranging skills. But this doesn't mean that they are simply left on their own to produce statistics as they wish. On the contrary, as public servants every aspect of their work is governed by comprehensive laws. The plans, budgets and results of their work are subject to detailed scrutiny by elected officials and society at large.

Laws dealing with official statistics cover a huge range of areas: what constitutes 'official statistics', and the relationship between official statistics and government; how the chief statistician is appointed and removed from office; the responsibility for the budget of the entities in the statistical system. Laws also cover some of the more specific technical aspects of statistical production, such as how and when a census is conducted; the ways in which confidentiality is maintained, as we saw when principle 6 was under the spotlight; the rights and duties of the statistical office to access data sources collected by others; and many more.

Statistical legislation is important for two main reasons: to ensure the quality of the statistical work, and to maintain society's trust in the independence and quality of the statistics. For such trust to be earned, the laws governing official statistics have to be not only strong but transparent. The public should be able to find out exactly what the rules are and how they are put into practice. Statistical offices publish or guide people to statistical laws via their websites. They also make available reports on compliance with the laws and annual reports that show how public money has been used. Statisticians in many countries report to public hearings, statistical councils, parliamentary or ministerial committees, to offer regular transparent access to information about how they uphold statistical legislation or to debate content when new statistical laws are developed.

#### *Principle 8. National coordination*

*“Coordination among statistical agencies within*

*countries is essential to achieve consistency and efficiency in the statistical system [8]”.*

A country's official statistics often fall under the responsibility of a range of different bodies, not limited to a single statistical institution. Statistics may be produced by or with the health service, the educational system, the central bank, the justice system, a range of ministries, and so on. On top of this, some countries have one centralized national statistical office, whereas others have offices at the regional or other sub-national level or subject-specific statistical offices. The key to maintaining consistency and credibility, then, is to ensure that all of these producers act in concert to serve the common goals of the national statistical system.

Coordination among these various offices is not only essential to ensure efficiency. It's also a crucial means of earning trust. Discordant figures on a single topic from two different strands of the national statistical system could sow confusion and undermine users' faith in their credibility. And any appearance of duplicated effort – two different offices producing statistics on the same thing, or asking respondents for the same information – could raise questions about inefficient use of public funds. As the promise of integrating data from different sources grows, people will become ever less willing to provide the same information to different bodies if they perceive them to be linked and think that they ought to be talking to each other and sharing information.

However the statistical system is organized, a core feature of a coordinated statistical system is that everything bearing the hallmark of 'official statistics' fulfils all the quality standards and other criteria laid out for them. The chief statistician bears the ultimate responsibility for assuring this coordination and quality. Coordination is achieved through laws, codes of practice, supervisory committees and joint development of workplans and budgets. Depending on the country, all official statistics may be channelled through a central body, or a 'seal of approval' may be provided to statistics that meet the required standards.

#### *Principle 9. Use of international standards*

*“The use by statistical agencies in each country of international concepts, classifications and methods promotes the consistency and efficiency of statistical systems at all official levels [8]”.*

When people use statistics to investigate a problem or support a hypothesis, they often want to make comparisons. They may examine changes over time, look at different parts of a country, or compare figures from different countries. To be sure that they are not com-

paring apples with oranges, they need to be confident that the different figures they compare are measuring the same thing in the same way.

For example, if we want to know which part of the country has the highest level of youth unemployment, we need to be sure that the statistics for each different area count people in the same condition as being employed or unemployed. And we can't compare a figure for 15–18 year-olds in one region with a figure for 16–25 year-olds in another.

The most efficient way to ensure fair comparisons is to establish standards, so that users don't have to look up the precise details every time they use statistics. There are standards for *concepts* (what does 'poverty' mean?); for *definitions* (which people do we count as 'living in a country'?); and for *methods* (how do we derive a final GDP figure from raw data?).

While any country could develop its own standards, it's much more useful for end users – and efficient for those who produce them – if those standards can be made and shared across all countries. When we hear reports in the news about inflation and economic growth in different countries, for instance, we can safely assume that all of the figures use the same standards which have long been established internationally. And countries don't have to spend lots of time and money figuring out how to define and calculate things for which standards already exist.

When producers of statistics use international standards, the task of ensuring transparency (principle 3) is made much easier, as they can point users to the standards, mitigating any risk of doubts about their approach. Without published international standards, statistical producers could be accused – rightly or wrongly – of manipulating their methods to produce favourable statistics, or simply of making accidental errors by not carefully developing concepts, definitions and methods. In the same vein, a commitment to international standards protects official statistics producers from deliberate or inadvertent outside influence. It might 'look better' if an indicator were calculated in a certain way, but a policy of strict adherence to internationally-agreed standards means that official statisticians can hold steadfastly to their principles and steer clear of such influence

#### *Principle 10. International cooperation*

*"Bilateral and multilateral cooperation in statistics contributes to the improvement of systems of official statistics in all countries [8]"*.

"Many hands make light work", so the saying goes. And working together doesn't just mean that things get

done more quickly and cost-effectively; it can result in unique impacts that are greater than the sum of their parts.

The very existence of the United Nations is anchored in the conviction expressed in the Charter of the United Nations that we can "unite our strength" and "combine our efforts" to achieve goals beyond the capabilities of individual countries.

International cooperation in official statistics takes many forms. Countries work together to share what they've learned as they develop new ways to produce and publish statistics. With just one statistical system in each country, international exchange is crucial for statistical offices to learn, share and stay on top of their game. The hundreds of working groups convened by UNECE's Conference of European Statisticians, the UN Statistics Division, Eurostat, OECD, regional statistical bodies in the UN and elsewhere, help countries to share what they experience and develop so others can benefit from it. This sharing happens in every aspect of statistics, from organizational management to how surveys are run, how statistics are calculated from raw data, and how results are published. Facilitated by international organizations such as UNECE, countries share everything from the code for their data editing software to the text of their statistical laws, and from the design of their census questionnaires to the job descriptions for hiring new staff.

International cooperation is not just about individual countries sharing their experiences. It's also about working together to design and agree on things collectively: often cutting-edge new ideas which need the benefit of many points of view to make them work. As principle 9 showed, shared international standards are uniquely valuable. International groups working together can develop them based on the diverse views and priorities, so that the agreements they reach and the tools they develop are valuable for all.

International organizations and individual countries help one-another bilaterally too, by giving training to reinforce the skills and knowledge of staff in NSOs; by undertaking study visits; and by conducting independent external assessments of each other's work.

International statistics bodies such as the Conference of European Statisticians and its global counterpart, the United Nations Statistical Commission, have formal processes for selecting topics to work on; establishing groups of experts to conduct the work; and endorsing the results. This formality isn't just for show. Having been selected, consulted, revised and only finally endorsed when there is unanimous agreement, everything

produced by these bodies enjoys a special status underpinned by the United Nations.

A rising tide of misinformation and disinformation can only be met by a united front of strong, independent, principle-bound providers of evidence. The Fundamental Principles themselves are the clearest illustration of the power of the collective – they arose as a result of countries working together. The passion they continue to spark among statisticians everywhere, witnessed during this 30th anniversary campaign, is testament to the continued truth that in statistics as in all things, nations are stronger together.

### 2.3. *A shared celebration of shared foundations*

The anniversary campaign has had a resounding impact, indicated not only by the number of people outside the community that it has reached, but also by the enthusiasm with which it has been embraced by those taking part. As Section 1.3 made clear, one of the many roles of the Principles is their unifying effect on the international community of official statisticians. Bringing countries together in a collective celebration has not merely been an exercise in joint self-congratulation, but has offered a means of amplifying this team spirit and commitment to shared values.

Countries were invited, not obliged, to take part. Those that volunteered to lead mini-campaigns on the Principles, or otherwise engaged with the campaign through their social and traditional media channels, have done so because they saw value for themselves in doing so. Their eagerness and the efforts to which they went, many of them engaging high-profile contributors and committing significant time and resources, are testament to their belief that the Principles merit this kind of effort and continue to be deserving of their attention and celebration.

## 3. **Building on the foundations? Fundamental Principles for the future**

Significant milestones, such as this 30th anniversary, often prompt reflection, triggering analysis of the past and contemplation of the future. In fact, for the Fundamental Principles this kind of reflection has been gathering pace for some years already prior to the anniversary, with 2022 offering a moment to look at what all of it tells us.

International initiatives and platforms – including this

journal<sup>5</sup> – have periodically posed challenging questions about the continued place of the Principles. Are they still relevant? Do they need to be updated, revised, augmented, even superseded? The 69th plenary session of CES included a seminar on closely related questions, building on an earlier ‘sprint’ session, both examining what constitute the ‘core values’ of official statistics and whether these are adequately captured in the Principles themselves (see papers 17, 28–30 and 32–33 available at [9]). This discussion prompted further work to identify these ‘core values’, endorsed by CES at its 70th plenary session in 2022 (see papers available at [10]).

In parallel, ongoing and recently completed initiatives both under CES and elsewhere have explored partially related questions of the value that data and statistics bring to society, and whether and how this value can be assessed in order to both prove and improve it (initiatives include CES work on measuring the value of official statistics, also endorsed at the 2022 CES plenary session [10], and Open Data Watch’s work on Data Value Chains [11] and its ‘Value of Data Inventory’ [12], among others).

Each of these strands of work has found that the Fundamental Principles are just that – fundamental. They have offered a foundation on which these other initiatives are built, rather than resulting in or necessitating any change to the foundation itself. Twenty-first century official statistics, as an industry, is very different from its 1992 precursor, but the pillars on which it stands have not altered.

The core values of official statistics identified by a CES Task Team and endorsed by CES in 2022, for example, are intricately linked to the Principles and explicitly mapped to them, not given as an alternative to them or a new version of them. The Task Team argues, indeed, that it is these values, which have “always been implicitly present in the background” [10], that guided the development of the Principles to begin with. Those involved in this work have proposed to move further by identifying behaviours through which these values are enacted or ‘lived’, perhaps rather akin to the way that the UNSD implementation guidelines offers practical examples for how statistical offices can fulfil the Principles.

The CES work on assessing the value of official statistics, similarly, does not detract from the centrality of the Fundamental Principles. The CES-endorsed re-

<sup>5</sup>In the form of numerous articles as well as the IAOS discussion forum, <https://officialstatistics.com/news-blog/un-fundamental-principles-official-statistics-suitable-and-current-self-regulatory>.

port is, it must be noted, at pains to stress that simple adherence to a set of principles is not, by itself, what creates value in the view of the one doing the valuing. Nor therefore should quantitative or qualitative indicators of fulfilment of a set of principles be misconstrued as indicators of value. Nevertheless, the work recognizes that for many members of society, the knowledge that official statistics have been produced in accordance with the Principles is certainly one contributor to the overall value of the statistics in their eyes.

It seems, then, that while these philosophical endeavours to examine the role and nature and value of official statistics, its defining features and the values of its practitioners continue to proliferate and generate heated debate, the continued relevance of the Principles themselves is not in doubt.

The roles of the Principles identified in Section 1.3 remain as valid today as ever. Indeed, some of them are taking on new importance, such as the communicative role. Several recent global events have brought the topic of mis- and disinformation to the fore. The onset of the Covid-19 pandemic suddenly threw statistics into the spotlight in an unprecedented way, and official statisticians found themselves wearing many hats – at one and the same time correcting rampant misinterpretation of figures, countering wilful misuse of statistics, guiding policymakers and the public to understand graphs with moving averages and confidence intervals, explaining why data from different sources did not always match, clarifying the reasons for time lags... At that time more than ever the ability to draw on the Principles as a way of explaining the business of official statistics was indispensable for many in the industry, from technical experts to press spokespeople and chief statisticians. This year, as an ‘information war’ of sorts rages in parallel to an on-the-ground one, the Fundamental Principles once again offer a device for official statistics to argue their case for trust.

The need for this trust of course a valid goal in and of itself. But it is also an instrumental means for getting the work of official statistics done. Notwithstanding the ever-growing shift towards administrative and alternative data sources, the core business of official statistics still depends on people being willing to provide information. That information is the lifeblood of the industry.

If in conventional or ‘traditional’ statistics this has meant respondents filling out surveys, now it increasingly means private data-holders agreeing to provide their data; it means both political decision-makers and the general public buying in to legislation allowing sta-

tistical offices access to new sources, rather than mistrusting statistical offices in the expectation that their data will be used against them or will end up in the wrong hands. It means society granting statistical producers the ‘social licence’ to make use of modern and efficient means of producing statistics, with the confidence that this licence will not be abused.

Gaining such trust is a complex operation, with many facets. Visibly providing added value through relevant, needed statistics and statistical products and services; being seen to live by strong ethics and values, both as institutions and as individuals; publicly demonstrating the highest standards of scientific skill, cutting edge technology and cost-efficient use of resources; in short, enacting all ten of the Fundamental Principles, and doing so in a very visible way.

Hence, the Fundamental Principles continue to hold a central place as a tool for communicating what official statisticians do and why. Furthermore, they continue to unite countries in their collective effort to navigate through new challenges for official statistics, such as this growing need for ‘buy-in’ in order to get their work done; and they continue to inspire and guide statisticians themselves.

The Executive Secretary of UNECE, Olga Algayrová, launching the CES’ 30th anniversary campaign in early 2022, wrote “I call on all countries to respect the Principles and to enable and support official statistics producers to adhere to them” [13]. It is worth remembering that as a General Assembly-endorsed standard, the Principles have been agreed to by every country. The United Nations name lends a certain solemnity and power to the Principles, as explained in Section 1.2, but it is the countries themselves – the nations, united – that can wield that power and turn it into action. As another 30 years and more unfold, let us hope that countries do indeed unite to empower official statistics to fulfil their Fundamental Principles.

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