

# Interview Olav Ljones<sup>1</sup>

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Mr. Olav Ljones served as President of the International Association for Official Statistics (IAOS) between 2007 and 2009. He began his career and interest in official statistics at Statistics Norway, after obtaining a Master degree in Economics at the University of Oslo. He started as a Research Fellow and moved through the ranks to serve as the Deputy Director General at Statistics Norway between 2008 and 2015, and between 2015 and 2016, he served as Deputy Director, International Relations before his retirement in 2016.

Olav has been active in several international projects. An important goal for these projects has been to improve the international standards and principles. He recommends processes with active involvement of experts both from International organizations and national statistical offices have been fruitful. If such processes end up with better international comparable statistics it is beneficial for the international activities but it should not be forgotten that international compa-

rability give national official statistics value added. The two major project he comments on during the interview are energy statistics and refugee statistics. In this interview we talked about many of the challenges facing national statistical offices with regard to sustainability, as well as modernization. Further, as you will read in this interview the process of modernization and developing of the strategies and ideas to meet these challenges had already been happening at Statistics Norway before he arrived at Statistics Norway. Although this process is still going on, Olav was active in the preparations that allowed Statistics Norway to conduct the first 100% register-based census in 2011. While he has retired from Statistics Norway, he still keeps involved in the field of official statistics by publishing and participating in various international activities.

This interview was conducted via Skype with Olav Ljones by Katherine Condon on August 3, 2018.

**INTERVIEWER:** *Thank you so much for allowing us to interview you. Let us start at the very beginning and go back to your childhood. What was it like growing up in your country?*

It was a happy experience. My father was a professor at the Norwegian Agriculture University. So, I grew up at the University, which was about 40 kilometers outside the municipal Oslo.

It was in the countryside. It was academic and it was also practical, a lot of skilled talented people from all over Norway came to study or work as university staff with a variety of backgrounds, and from many regions of Norway. So, it gave me a respect for academia combined with rural values and also the value of practical usefulness.

The town where I grew up was one of the few, and it was a rather small municipality. The university campus to some extent dominated the town. We had lots of good friends.

<sup>1</sup>The views and opinions expressed in the conversation are those of the interviewee and do not necessarily reflect the policy or position of the Statistical Journal of the International Association for Official Statistics nor IOS Press.

**INTERVIEWER: What was your education like before university?**

I had the standard Norwegian education, but there may need to be some translation in terms of what is “standard.” Standard progression in education in Norway is to go from primary school, and then afterwards to high school and then college and finally on to the university.

[With regard to my interests and abilities], I think I was not very talented, but rather good in mathematics and had an interest in society. So, I found it quite natural to start studying Economics.

I think that in Norway at that time, Economics was a rather high prestige subject area to study. The Institute in Oslo already had a high reputation at the time when I started in 1965.

At that time, very few students continued on, as there was no national program for a Ph.D. [to follow a Master’s degree like in the United States.

**INTERVIEWER: Looking back to our childhoods, we often find that a particular event or person had an impact on our later years. Did a particular person or event shape you into the person you are today?**

No. No I do not think so. [laughter] Only my parents of course and family, but not anyone else I can identify.

**INTERVIEWER: We can move on to your Master’s Degree in Economics – also from the University of Oslo. Was there a particular individual/professor that inspired you into a particular area of economics?**

At that time, I will mention two professors who I worked with and who were top level. One was Professor [Ragnar] Frisch,<sup>2</sup> who got the first “Nobel prize in Economics” [co-award winner was Dutch economist Jan Tinbergen – for their work developing and applying dynamic models for the analysis of economic processes and awarded in 1969]. [The official name of this prize commonly referred to as the Nobel Prize in Economics is: The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel.]<sup>3</sup>

And 20 years later, a colleague of Mr. Frisch, Professor Trygve Haavelmo<sup>4</sup> got the “Nobel prize in Economics”. So, both of these guys and also some others, made the Institute of Economics have an excellent

reputation [in Economics], both nationally and internationally. In addition, there was a strong link between the top management group in Statistics Norway and the Institute at the University of Oslo. [This relationship] also made it special for what I mentioned in preparing for this interview – the creation of a Research Department at Statistics Norway.

That was where I started my career in Statistics Norway.<sup>5</sup> The Director General Petter Jakob Bjerve.<sup>6</sup> was one of the best students of Frisch and he had aspirations for an academic career but he was convinced to accept the position as Director General in Statistics Norway. Bjerve would only accept the position at Statistics Norway if he could include a Research Department at Statistics Norway. Bjerve had a long career together with the head of the Research Department, Mr. Odd Aukrust. One of their key efforts was to establish a strong position for the National Accounts within official statistics and to include research and development of macro econometric models based on National Accounts in the statistical office.

So, it was, I would say that Statistics Norway was highly respected among the commoners. It was a place where you could work with a strong academic influence and also contribute in the building of important tools for those responsible for economic policy.

Statistics Norway built models that were based on national accounts. They were extensively used in the economic policy debate and assisted Norway’s Parliament. There was a connection between the University Institute and Statistics Norway, as well as the Ministry of Finance’s top civil servants.

That’s what allowed for the implementation of national accounts models into policy decisions. In the years after World War II, this was implemented in the national accounts, and the models were built and used for planning purposes in a market economy – not a Soviet economy, but a market economy. It was the highest ambition and so these three “angles” – sometimes called in Norway the “Iron Triangle” – the University Institute with their talented economists that received two Nobel Prize in Economics; Statistics Norway – the National Accounts element; and then the Ministry of Finance. That was the “Iron Triangle.”

So, Statistics Norway was, and still has, even in the recent debates, a place as one of the three members

<sup>2</sup>For more information, see [https://en.wikipedia.org/wiki/Ragnar\\_Frisch](https://en.wikipedia.org/wiki/Ragnar_Frisch).

<sup>3</sup>For more information see, [https://en.wikipedia.org/wiki/Nobel\\_Memorial\\_Prize\\_in\\_Economic\\_Sciences](https://en.wikipedia.org/wiki/Nobel_Memorial_Prize_in_Economic_Sciences).

<sup>4</sup>For more information see [https://en.wikipedia.org/wiki/Trygve\\_Haavelmo](https://en.wikipedia.org/wiki/Trygve_Haavelmo).

<sup>5</sup>For more information, see <https://www.ssb.no/en/omssb/om-oss/historie>. and [https://en.wikipedia.org/wiki/Statistics\\_Norway](https://en.wikipedia.org/wiki/Statistics_Norway).

<sup>6</sup>For more information see: [https://en.wikipedia.org/wiki/Petter\\_Jakob\\_Bjerve](https://en.wikipedia.org/wiki/Petter_Jakob_Bjerve). Also he wrote about the influence Mr. Frisch – see [https://www.ssb.no/a/histstat/doc/doc\\_199510.pdf](https://www.ssb.no/a/histstat/doc/doc_199510.pdf). MORE HERE.

of an “Iron Triangle”. Of course, the Central Bank is important too. Perhaps, the “Iron Triangle” should be extended to a “Square”. [Laughter]

The first Director General of Statistics Norway in my career was, as mentioned, Petter Jakob Bjerve. He had a lot of influence on me and others. He started his career in Statistics Norway about 1948. I started my career many years later, in 1971, but I worked with him for ten years. He retired in 1981, but his influence on both national and international statistics is worth mentioning. In addition to his contribution to National Accounts and macro econometric models, he was also very dedicated to the more traditional official statistics. During this time, the archive statistical system, or sometimes it is called the register-based statistical system, was developed in Statistics Norway.

I will add the name of another extremely important Director, the head of IT – Mr. Svein Nordbotten. He is still active; he’s close to 90 years old! He left Statistics Norway in about 1972. It was very stimulating to follow the work of Mr. Nordbotten. After he left Statistics Norway, he was a professor in IT and statistical analysis at the University in Bergen (1972–1998). In addition, in the 1980s, he also served as the head of the United Nations Statistics Division (UNSD) (1979–1982).

Thus, to some extent, he is the father of what we call register-based, or the archive statistical system. The idea was that if you need to establish a system for unique ID numbers for all statistical units, and in addition establish a system for storing electronically all the micro information from different sources including from the government sector. Then you can use computers to retrieve and extract data and produce rich and relevant official statistics. Thus, based on this mission, Statistics Norway got the first electronic computer as early as 1958, which for a small country [like Norway] was extremely expensive at that time

There was an interesting process behind it, but it was also important that this computer was also used for handling the input-output analysis and the macro econometric models. If you are doing the input-output analysis, there are some very complex matrix calculations which are close to impossible without the computer, but much “easier” if you have a computer.

So, this was the history. Before that we had a strong national account tradition. My first job was as a research member in a research group, specially dedicated to work with this archive statistical or register-based statistical systems. My first head of unit was Professor Jan M. Hoem, who was later active in different countries. He died last year.

The vision for this research group was, with a high emphasis, on interdisciplinary professionals to harvest from the archive statistical system. One milestone much later in this history is the register-based census in Norway in 2011.

So, that is also when I came to the conclusion that the field of statistics should emphasize the interdisciplinary character.

**INTERVIEWER: Remembering back to when you were completing your education, what did you hope to accomplish and what were your aspirations in your professional life?**

I think I chose to come to Statistics Norway instead of trying to continue at the university because I saw how Statistics Norway worked. That is, it built these models and it was fully dependent on teamwork. It was also important that it was obvious that Statistics Norway had high emphasis on being policy relevant. It combined high professional standards and an academic approach with practical purpose and practical implementation. I found it easy to choose – a career at Statistics Norway.

**INTERVIEWER: You began your professional career as a Research Fellow at Statistics Norway and rose through the ranks to become Deputy Director General, as well as other high-level management positions. What did you see as your greatest satisfaction? Is there any one project while you were at Statistics Norway that you feel you will be able to look back on and say that it was your favorite project? Could you give a little bit of background of the history of statistics in Norway?**

Can I mention more than one example?

**INTERVIEWER: Of course**

I think again [my favorite projects were those that emphasized] teamwork in modernizing some of the tax benefit models that they were operating in the Research Department. This was about 25 years ago, but we developed very user-friendly models for use by both the Ministry of Finance and the political opposition in the Parliament.

And I found that the teamwork was important. We had user-meetings with the Ministry of Finance, that is the government, as well as we included the political opposition in the Parliament. Both had access to the same models and prepared documents for the, let’s say, the financial offices of Parliament.

So, I think that is an example where statistics is serving not only those in the government, but also serv-

ing with the same model structure, the opposition and other groups in society.

I think that is also a reason that I was in the Research Department. That experience has also followed me when I left the Research Department in 1994 to become a Deputy Director, head of Economic Statistics at Statistics Norway.

I will also mention that after working with a simple labor force projection model as a simple appendix to a traditional population projection model we were able to extend this model by the use of a technique for micro simulation. The rich access to data using a dataset extracted from the register archives in Norway was a necessity. We then could estimate the transition probabilities covering, childbirth, family formation, education activities and labor force participation. In the model we included also, health, and disability and mortality. So, this model was very relevant for projections of the size and composition of the labor force. It covers also gender, and the number of children in the family. So, it is a very rich model for projections of the labor force. The model was soon extended to include wages and income and then also taxes paid and pensions received. The model was an intensively used tool for the analysis of ageing of population and pension reforms in Norway.

Today, new and better models are used; but I look back to this process with pleasure. When I see that the results can be used for political debates, I am greatly satisfied.

When I look back to my career from 1994 as head of the Department for Economic Statistics, there are several milestones I look back on with great satisfaction. One is the adaptation of the Norwegian official statistics to EU standards. I will also mention that we further developed environment statistics and included the computation of emission of greenhouse gases in the statistical portfolio. Official statistics is not only to improve output but also to establish routines for efficient data collection. One fascinating example is the use of bar code databases in retail sector to collect in an extremely efficient manner price data for the Consumer Price Index.

I cannot leave my list of success memories without mentioning the system we established for statistics on municipal activities. The municipal sector in Norway has a wide responsibility for welfare in addition to area planning, roads, water and sewage. Traditionally, data was before our project, collected in an uncoordinated manner sector by sector and published in paper publications in an uncoordinated process. To be short, the vision was to collect all data from municipalities

electronically in a coordinated manner and then, based on coordinated tabulations, putting all statistical results on the internet after one month, with revised and improved results after 5 months. The project was started in the late 1990s and has been functioning since 2003. It is still a success story; but, of course, improved and revised and still with some challenges.

**INTERVIEWER:** *Before we turn to other topics, could you give a little bit of background of the history of statistics in Norway?*

Statistics Norway was established in 1876. However, as for the history of statistics in Norway that has a longer history. When we prepared for the UN efforts for a better system for statistics on refugees, we wanted to argue in favor of improved civil registration and vital statistics. We were then invited to a seminar presentation of the history of civil registration and vital statistics in Norway. In this presentation a key table starts with the year 1735. The table has statistics for the number of births, deaths and in- and out-migration, as well as the population. This 300-year old table is still produced and relevant. Data was collected by the church – a task given to them by the King. This table is even older than the history of the traditional census. The first census in Norway was conducted in 1769. From the beginning independency and international cooperation have been important with regard to statistics in Norway.

**INTERVIEWER:** *While you were serving as Research Fellow, you also served as a Secretary in the Ministry for Labor (1979) and later as a political adviser for the minister of Finance (1981). How did that come about? Particularly in light of what you talked about earlier with the “Iron Triangle.” Could you tell us a little more about the types of services and activities you were involved in while in these positions? Is there any one project while you were in either of these positions that you feel you will be able to look back on and say that it was your favorite project?*

Well the first one [Secretary in the Ministry for Labor (1979)] was, in Norway, what one can call a “governmental commission” and they are often established in an ad hoc manner. These commissions discuss empirically and theoretically policy relevant topics. For example, the topic of the commission that I worked for as the secretary, was discussing part-time work and if, in principle, working hours should be more flexible.

For example, if people can buy as much bread as they want, why shouldn't they gain if working hours can be determined in a more flexible way. In reality,

this commission was investigating to see if the labor force should have more rights to choose to work part-time. That was, at that time, the limit of our discussion.

Today, the situation has changed. Then, part-time work was scarce and it was an excess demand from individuals for part-time work. Today, it is the opposite – how do we protect the labor force from only getting a supply of part-time work.

It was Professor Tor Rødseth who chaired this commission. I worked as a labor market economist, or labor market expert for this commission. I was offered this position and I was on un-paid leave from Statistics Norway. I wrote as a professional statistician and the work was non-political and close to the same work as I did at Statistics Norway.

The other example at the Ministry of Finance, that was as a political adviser to the Minister of Finance in 1981. That work was very different from Statistics Norway. I had been a member of a political party – the Labor Party and this membership was not regarded to be in conflict with the political independence for Statistics Norway. It is important to be aware of the risk to mix roles. So, in 1981 I was asked by the Minister of Finance to be his political advisor, and I served in that role for a half a year. After that, there was a parliamentary election and a change of government.

At that time, I did not have a senior position, and, in my mind, there was not in conflict with neutrality as a statistician to go back to official statistics. Let me add, that in the 1960s, and also in 1980s, we could observe incidents where the Director General of Statistics Norway was elected as minister (political position) and could leave Statistics Norway for politics and then afterwards return to Statistics Norway and be politically neutral. I am not sure that this could be accepted today.

**INTERVIEWER:** *Turning to your other activities during this time, you served in various other roles in the international statistics community, particularly in ISI, the UN and ESS(EU)-EFTA. Focusing separately on each one. How did each come about? Could you tell us a little more about the purpose of each of these groups and what particular types of services and activities you were involved in each of your roles with these of them? And is there any one project while you were active in one of these organizations that you feel you will be able to look back on and say that it was your favorite project?*

When it comes to ISI, that is easy. I followed Mr. Svein Longvawho was Director General since 1991 and he also came from the Research Department. I fol-

lowed him from the Research Department, in 1994. He asked me to increase my activities in the international arena because he had been asked if Norway could be more active. So, I applied for ISI membership which was accepted and then I went to several ISI conferences. I became active and I was head of ISI's finance committee for many years. I also then entered IAOS, and was elected Chair or President of IAOS from 2007 to 2009.

[There was a little break here to check the years of Olav's presidency.]

An important part of international activities is the link to European Statistical System and EU. Norway is not a member of EU, but there is an agreement – the EEA agreement – between EU and some EFTA (European Free Trade Association) members<sup>7</sup> (Iceland, Lichtenstein and Norway. The last EFTA country Switzerland has a separate and bilateral agreement. The EEA agreement gives access to EU market and for statistics, it is important that there is access to markets and that all partners in the EEA agreements have comparable official statistical systems. This principle, i.e., that treaty partners have to establish comparable official statistics, is a smart and important principle for official statistics. This vision of the value of comparable official statistics for international market and political cooperation is worth considering as wise general principle.

From 1994 to my retirement, I was active in securing Norway as a member of the European Statistics system. This was not always easy, especially after Norway rejected membership in a referendum. We needed to convince EU officers that Norway should be included in tables and working processes. I look back to this work with pleasure. We have improved our national official statistics and I personally have many good memories and friends.

**INTERVIEWER:** *And now, I have a note here that you wanted to talk a little bit more on the creation of the Oslo group (i.e., Energy statistics), as well as the refugee statistics from the UN expert group]*

Yes. I think that both are important.

**INTERVIEWER:** *Yes, definitely, I know Fritz Scheuren<sup>8</sup> would like to hear more about the refugee statistics, because that's something that he feels passionate about*

<sup>7</sup>For more information, see [https://en.wikipedia.org/wiki/European\\_Free\\_Trade\\_Association](https://en.wikipedia.org/wiki/European_Free_Trade_Association).

<sup>8</sup>Former Editor-in-Chief of SJIAOS.

At the UN Statistical Commission, in 2004, Norway was asked to produce a document on international energy statistics for next year.

I was, at that time, Director for Economic Statistics, that included energy statistics. So, I was responsible for that document and I presented that document to the UN Statistical Commission in 2005.

The UN Statistical Commission decided to create a what is called a “city group” for energy statistics. These “city groups” – are given the name after the first meeting location, that is the first city and for energy statistics – this was Oslo.

City groups have a history that goes back to the 1980s. The first “city group” was the Voorburg group from 1986. Voorburg was where the Netherland statistical office was located at that time. The Voorburg group is still working on service statistics.

The idea behind the construction of city groups is to improve international comparability. In this work, the vision behind the city groups was to involve experts from National Statistical offices – in addition include experts from international organizations.

Energy statistics was a very interesting theme for international cooperation. Energy as a commodity is extremely important to understand for each country, but also internationally. Energy markets, such as for oil, are followed with great interest both politically and economically. Variations in energy prices create shocks in many countries and with very different effects among energy-rich and energy-poor countries. Energy is embedded in various commodities. For example, coal and oil are at the present recognized with dramatic environment and climate effects. The importance of improved official statistics was easy to observe. Some tools, such as energy accounts, energy in National accounts and energy balances, had to be further cultivated. It was a pleasure to cooperate both with national experts and experts from international organisations, such as IEA (International Energy Agency) and UN.

So, this is how it worked. We started; and then we ended up with a publication – the International Recommendations of Energy Statistics, or IRES. This publication gives advice on data, classifications and principles for accounts and balances. The work will contribute to better and more comparable energy statistics and accordingly be relevant for both economic and environmental statistics. The Oslo Group is still active.

It was meaningful for me to chair this work, and organize it. Because, as I have said, in many, many words now, it is an extremely complex important political and

environment subject area, as well as being politically sensitive.

That was the history of energy statistics. I like to contribute to international change and improvements and to see how we could set up systems in countries giving recommendations, that we need data and legal access to data is a necessity. Use of data has to be legally regulated and confidentiality principles are extremely important in energy statistics. Enormous values and profits make the market participants very concerned about market information and confidentiality. At the present, the energy statistical system is very relevant also for climate studies.

To a certain extent, the work on refugee statistics was not similar. This was because the UN High Commissioner for Refugees (UNHCR) invited me and Statistics Norway to assist in putting refugee statistics on the broad international agenda for official statistics, that is on the agenda for the UN Statistical Commission.

The High Commission for Refugees produces a lot of statistics, and as I see, they needed to improve the dialogue and contact with National Statistical offices. It was easy to observe the inconsistencies in international statistics when it came to refugees and asylum seekers.

It was decided in 2014 that in 2015 we should, at Statistical Commission, start to discuss this topic. So, Statistics Norway offered, together with the High Commissioner for Refugees, to produce a document. The set up for this international cooperation was needed and we chose to label the new group an “Expert Group”. This Expert Group would produce a report that was to be adopted by the Commission in 2018.<sup>9</sup> It will be followed up with handbooks and international sets of agreements.

*[Also note that this reports was not only to be on refugees and asylum seekers, but also the so-called “internal displaced person”. That is, individuals who are on the move inside their own country.]*

So again, I will say, that it is extremely relevant to improve the fact-base for this politically sensitive topic. It is said that bad statistics, to some extent, give politicians and public opinion the wrong ideas about the size of the problem and the nature of the problem. But also, it is important for all to see that it is an extremely important topic and that people are on the move. The systems for vital statistics do not function

<sup>9</sup>For more information, see <https://ec.europa.eu/eurostat/web/expert-group-on-refugee-statistics/home>.

well when it comes to covering the movement of all these people. So, that's why I also wrote some notes for the Journal about this topic, which was published last year.<sup>10</sup>

**INTERVIEWER:** *How did your international experiences help you think strategically during your career?*

Again, it is the issue of international comparability in statistics. The importance of good documentation, the fundamental principles, as well as the principles for classification and definitions. This means that the international community has to work hard to establish a set of protocols, classifications, and recommendations that they can be followed by each country. And each country has to be flexible.

**INTERVIEWER:** *Turning to your involvement with IAOS, ultimately serving as President between 2007 and 2009. Some of which you have already alluded to earlier on how you became involved with IAOS. Was there somebody who said, "Ah, you should get involved in ...," or was it something that just, happened organically because you were in-involved with all the other international statistics matters?*

So, I started to go to both ISI and IAOS meetings of course. I think it was when I went to Jordan, Amman. The nomination committee approached me and asked if I would like to become President. I said, "Yes."

**INTERVIEWER:** *How do you see IAOS can have an impact on official statistics?*

I will give strong support to international cooperation for several reasons. To improve comparability and to develop the professional competence – exchange of theories and practice in statistics. IAOS has a rich history. IAOS is for official *statistics*, not for official *statisticians*. It is not very observable that this distinction is clear and implemented. IAOS is basically an organization with individual members, not institutions. To confuse – In ISI there are also ex officio members, that is the Director Generals (DGs) of National Statistical Offices (NSOs).

The full picture of international statistical cooperation is dominated by organizations with nations and National Statistical offices as members. Some examples are UN, EU, and OECD. It is natural that these organizations have more clear and well-defined roles and

tasks and that the work in these organizations are given priority by national offices. Resources are more rich in these international organizations. We should also observe that for small countries, it is relatively resource demanding to participate in all the existing international activities. In this setting it is not obvious to me that IAOS has clearly found its role.

When I think back to my own period, I think that IAOS and ISI should give priority to activities that develop the professional competence and attitude and bring together producers, users, and experts from outside that can stimulate the discussion of what the role and function of official statistics should include what it is to be "independent" and "professional" as an official statistician.

I will also say that I was very happy with the IAOS conference we arranged in 2008. The important topic was the new rich electronic data sources. We did not call it "big data", but we used the wording "smart data". There is a difference between "big data" and "smart data". Some electronic data does not fit into the archive statistical data set, with a clear objective to build data systems for defined statistical populations with statistical units. If we plan the systems for data smartly, "big data" may be transformed into "smart data".

The other success story in my active period with IAOS was that I, along with Brian Pink from Australia, decided to take over the old UN ECE journal and transform it to SJIAOS:

**INTERVIEWER:** *We are coming to the end of our hour interview and don't want to go over time. Is there anything more that you would like to add on official statistics*

There is clearly a need for future official statistics, but there are challenges. Yes, I think it is important to discuss the independence of official statistics, which is very often discussed and there is a lot of thinking. I also want to discuss the fundamental principles – adopted by the UN General Assembly. When it was adopted by UN General Assembly, I was invited to be a member of a seminar panel. My point was, and still is, to underline that this is not only a right to be independent, but it is an obligation – a duty. To be a professional and independent – perhaps putting more emphasis on the word "professional" than "independent." We have to deserve the right to be independent.

It is definitely extremely important to find the scientific approach for producing statistics. Objectivity is important, as well as neutrality and independence. These are all part of the "professional approach".

<sup>10</sup>See <https://content.iospress.com/articles/statistical-journal-of-the-iaos/sji1078?resultNumber=4&totalResults=18&start=0&q=Ljones&resultsPageSize=10&rows=10>.

There are so many complex scientific problems that have to be solved. This is best done in a very good attitude or teamwork. Some say that since the world is changing rapidly it is most important for management of official statistics to adapt to these changes. I understand and respect the importance to adapt to user changes, but I will also remind that we face rather well-known scientific problems in our existing statistical system. For me, it is natural to set up a priority list on how to solve these problems. To give priority to the general and vague principle of change is, in my mind, not a very qualified strategy.

As for whether the field of statistics has changed – yes and no. It is not that all the same things are relevant. National Accounts were established, but it had its problems, always had problems. Solutions have been found solutions to solve these problems, but we are struggling, more and more, to keep the National Accounts at acceptable levels. It is not possible to observe that the user needs move away from better National Accounts.

National Accounts are built on theoretical and maybe abstract concepts – but in principle measurable concepts. Data problems have, in all the history of National Accounts, been a challenge. I have, however, been skeptical to replace National Accounts with statistics on measurement of subjective well-being.

My advice is to give priority to do a better job for what we know. One example where we haven't succeeded is when it comes to sustainability. That's a key concept going forward.

There have been many commissions – we have been struggling for over 25 years – in finding acceptable statistical methods for measuring sustainability. I'm not sure at all if we have solved the scientific problems. Also, as I mentioned in the paper that I wrote for an issue last year, they haven't put sufficient emphasis on how to create international comparative indicators in the recent SDG process.

Let me add that official statistics have been an active user of computing technology and methods. So, it will be in the future. It is with a little surprise that I observe that the IT modernization programs for official statistics in many countries become very costly – perhaps as a result of too high ambitions for full automatization – robotization. The methods used in each statistic has to be precise for the data and concepts. Every step should be transparent and easy to document for users.

***INTERVIEWER: I guess this is a good place to stop our interview. Thank you so much for speaking with us.***