

UNCTAD Expert Meeting on Measuring Electronic Commerce as an Instrument for the Development of the Digital Economy

Draft Chairman's summary

Introduction

1. The Expert Meeting on Measuring Electronic Commerce as an Instrument for the Development of the Digital Economy was convened from 8 to 10 September 2003, pursuant to the decision taken by the Commission on Enterprise, Business Facilitation and Development at its seventh session. The meeting was to address the subject of the statistical measurement of the access to, and usage of ICT by enterprises, including e-commerce. The substantive discussions were structured according to the following thematic sessions:

- (a) Measuring the information society;
- (b) Measuring e-business: definitions, indicators, methods, model surveys;
- (c) Measuring the digital economy in developing countries;
- (d) Regional initiatives and international forum;
- (e) International database and core indicators;
- (f) Conclusions and the way forward.

2. Experts were primarily from national statistical offices (NSOs), although a number of participants came from Ministries involved in ICT policy making and from international organizations.

3. The representative from the UN Statistical Division welcomed the initiative to hold this forum and the work carried out by the experts, in particular the inclusion of the developing countries in the discussion on ICT and e-business indicators. He encouraged the experts to continue this work and to develop further conceptual and methodological questions that will advance the work on e-statistics.

4. The experts suggested that the results of this meeting should be reported to the World Summit on the Information Society (WSIS), which will take place in Geneva in December 2003.

E-measurement and ICT policy-making

5. The discussion started by affirming that measuring the information society touched all aspects of economic and social life. Having observed the large and important impact of ICT on society, there was a need to support descriptive analysis of current developments with quantitative data. To start measuring the information society a taxonomy was needed, devising indicators that would track the progress of ICT in a staggered process: first by measuring e-readiness, then the intensity of ICT usage and, finally, its impact and outcome of ICT on business organizations, individuals and the economy as a whole. This was illustrated by the so-called "S curve" on e-measurement established by the OECD.

6. In the mid-nineties, the focus of intensity measurement was placed on measuring e-commerce, which today was understood to be only one element of e-business, the broad application of ICT to business processes and commerce. In the years that followed data was developed in several developed countries progressively increasing in scope and detail. Analytical interpretation was a necessary follow-up and an important issue was to compare the perceived benefits with the inhibitors and barriers to ICT uptake as an input for policy deliberations.

7. The discussion indicated that the value of national data increased when it became comparable across borders. Policymakers need to be able to benchmark their performance with that of their main trade partners and competitors. Improving international comparability also had a positive effect on the return on investment of local resources used to develop e-measurement capacities, systems and infrastructures. International efforts to coordinate and harmonise the data collection and analysis related to the information economy were first initiated in the framework of the OECD. In this regard, an example of the importance of the comparability of data was the analysis of the contribution of ICT contribution to GDP growth in the

United States compared to its impact on the economies of other OECD countries, and how statistical methodologies could partially account for apparent differences in the impact on productivity of the adoption of ICT by enterprises.

8. While in several countries the initial purpose of measuring e-commerce was to understand the scale of the phenomenon, the longer term analytical value was the information gained about the effects of ICT on productivity, business organization, growth, prices and welfare. A first conclusion of work carried out so far in a number of developed countries indicates that e-business is a fast-growing phenomenon although a smaller one than it was expected to be when e-measurement was first undertaken. In some countries surveys point to the predominance of large enterprises using legacy systems rather than open Internet based systems. At the same time the number of “marginal” Internet traders was still large albeit declining. High entry and exit levels also characterized e-markets. Several surveys showed that productivity rises were higher in enterprises buying or procuring goods online than in those selling online. Surveys also seemed to indicate that the economic effects of ICT are highly sector-specific.

9. An important motivation for developing and increasing the complexity and scope for e-measurement in a number of countries was the demand for data from Governments, policy and research organizations and international forums. Such demand was the manifestation of mounting awareness of the social and economic relevance of ICT and of the existence of clear and well-devised ICT development strategy. However, in many developing countries policy makers are not yet fully aware of the developments and benefits related to ICT. It was therefore suggested that UNCTAD includes the need for developing ICT indicators in its work on national e-strategies.

10. The discussion noted that the policy and measurement frameworks should be mutually interdependent and should address the needs of both the business community and the government and citizens in particular when relevant to the issues of security, public data and promoting local content and culture. Achieving this consensus was a first step, to be followed by agreeing on an international set of indicators. While the complexity of these tasks was particularly important for many developing countries, several fundamental e-readiness indicators could be assessed in many developing countries and statistical offices and policymakers would not need to wait for a final agreement or prescription of national and international e-indicators.

11. It was questioned whether the involvement of government statistical offices would prevent the reoccurrence of the misinformation and hype that were seen in the run up to the dotcom bubble and if their involvement would improve forecasting. The discussion that followed affirmed that, while the involvement of national statistical offices could improve the quality of ICT data, forecasting was clearly not a mandate for many of them: their role was to provide quality data to research institutes and policymakers who would then devise forecasts as needed.

Experiences and lessons learned

12. The OECD has developed a working definition of e-commerce, which is now widely used among OECD countries and some developing countries. With the progress made on conceptual and methodological issues, coupled with the experiences collected from the surveys, a rethinking of the definition may be required (e.g. on issues such as whether to include email or e-deliveries). Already, some non-OECD countries are using their own definitions of e-commerce. Therefore, further work on the definition at the international level will be necessary to accommodate countries' and/or users' different environments and practices.

13. While in the past much effort was put on measuring e-commerce, e-business is not yet being measured. Expert stressed that the work on measuring e-commerce needs to be put in the e-business context. Measuring online transactions is not sufficient to capture the full dimension of ICT usage by companies. There was broad agreement on the need to develop indicators and questions on e-business processes, work that has already started in the OECD. Data concerning e-business processes could be very informative about the types of usage of ICT in business, especially in developing countries, where little online commerce takes place. This will have implications for the model questionnaires on e-business developed by the OECD. Several experts referred to the need for more detailed data in order to better understand the role of various e-business activities within enterprises.

14. An important lesson learned by those NSOs that have accumulated a longer experience of collecting ICT statistics was that NSOs should start with a simple set of questions or indicators and then, step-by-step, add questions and more complex indicators to their surveys. The OECD model questionnaire may also be too long and too expensive for implementing in developing countries. Rather than implementing it in full, they should start with a few ICT questions that could be added to existing business surveys. A modular approach adopting those elements of model surveys that were relevant to each stage of the implementation of e-measurement, continuous improvement and learning by doing were seen by experts as the most advisable strategies for NSOs in the earlier stages of e-measurement.

15. A number of questions were raised about the overall success and quality of ICT surveys. One problem that was noted was a classification and definition issue between the many overlapping categories of B2B, B2C, domestic, cross-border and wholesale and retail commerce. Finding a solution required looking at the actual trading economy in a particular country and assessing its particularities. An important problem in some developed countries was the early focus on e-commerce data. This was an important example for developing countries indicating that, while there may not be much e-commerce to measure, the measurement of the information society does not need to hinge on this narrow application of ICT in trade. Surveys would need to focus on those development issues or industries and sectors of particular policy or strategic interest and a broad approach may not be always necessary. Other areas of surveying were indicators related to assessing the multiple dimensions of the digital divide and the ICT capacities of public service providers and administrations.

16. The discussion referred to ISIC and questioned how classification systems would affect the development of e-measurement activities. It was noted that e-commerce was not a particular product or service, while there was some possibility for differentiation at the third or fourth digit level. As classifications were only statistical tools, and because these tend to change infrequently, these should not be impediments to developing e-measurement. At the present it was necessary to measure and compile; the data could be reclassified if and when the development of ISIC made this possible.

17. Another issue was the complexity of surveying and the difficulty of properly assessing the level of familiarity of the respondents with ICT and consequently their capacity to understand and provide the information that was sought from them. It was suggested that a way to maximize response rates and reduce errors by respondents was to establish partnerships with business associations; such partnerships also represent an opportunity to reduce the cost of surveys.

18. It was noted that even existing statistics could provide significant amounts of information via reclassification, regrouping and recalculation. However, there was a need to continuously develop new methods for measuring the usage of the Internet, especially e-commerce among enterprises and consumers. Unlike other economic statistics, e-indicators needed to change in type, and frequency of surveying and assessment, in order to monitor the rapid development and deployment and impact of ICT on society. E-indicators also needed to address a diversity of items of policy interest and each country and Government had to decide which would be locally relevant, depending on their economic profile. Indicators on ICT use by SMEs, the digital divide across gender, income or geography, e-commerce or R&D investment, all could be more relevant in one country than in another.

19. Certain indicators may not be relevant in the future any more (e.g. the question on "do you have Internet access"). Others may come back again (e.g. on fixed telephone lines in households, the number of which could decline in the future as more and more people use mobile phones).

20. The role that traditional measurement instruments can play in the measurement of the information society should not be underestimated. In many cases, indicators for the measurement of ICT infrastructure/usage could be included in existing surveys. Neither should it be underestimated the diverse array of information sources locally available, such as registers, ISP providers, cable TV networks, business associations, and other national surveys.

21. It was important to keep in mind the difference between the response patterns of SMEs and that of larger enterprises. Other factors that influenced the capacity of enterprises to successfully integrate ICT in their operations and therefore to respond adequately to surveys were their relationship with large business groups and the age of the enterprise.

22. It was generally thought that monetary indicators not based on existing bookkeeping values were difficult to get and verify. However, it was deemed possible to formulate survey questions to provide quantitative indicators from qualitative data.

23. The experiences presented by experts from developing countries demonstrated the importance of collecting the basic e-readiness indicators on infrastructure before ICT usage and the impact of ICT investments can be measured. Examples were provided of some such infrastructural indicators, including the number of PCs, Internet users and websites, with a focus on their usage by businesses.

24. Data can be collected from Governments, the private sector as well as the society at large. Carrying out ISP surveys can be useful in both developed and developing countries as they provide data on types of Internet subscriptions, connections, users as well as the amount of Internet traffic transmitted and international bandwidth. On the other hand, new technologies, such as WiFi, will make it more difficult to identify ISPs. Furthermore, ISP surveys do not capture dial-up on demand users (i.e. non-subscribers) or those using prepaid cards.

Regional initiatives

25. At the regional level, a number of initiatives have emerged to advance the work on information society statistics. The most advanced of those, Eurostat, the European Union's statistical office, develops relevant information society statistics for European policy makers. In charge of the strategy development and the methodological work, it coordinates with member States' NSOs, and works with other international organisations, in particular the OECD, to promote the creation of harmonised statistics. In the near future it is expected that the work with OECD will be reinforced.

26. The eEurope 2002 and 2005 Action Plans, which contain benchmarking indicators agreed by all member states to track the progress done in the field of the information society, serve as the basis for the work of Eurostat. Since 2001 (2002 for enterprises), Eurostat has been producing two annual ICT surveys, one for enterprises, and one for households/individuals, and has adapted them in 2003 to the eEurope 2005 Action Plan. Eurostat early encountered problems such as weak validation tools, the inability to provide a complete coverage of the financial sector or the small samples provided by some member states, by formulating a tabulation scheme and developing common validation tools to ensure quality. For the future, Eurostat will face the challenges of implementing a legal basis to reinforce the execution of surveys; the introduction of more complex indicators, such as a single e-readiness index for businesses; addressing differences in the size and area of enterprises, in particular the financial sector; and addressing regional differences.

27. Individual national statistics offices have also proved good mobilizers for regional harmonisations efforts. In the case of Latin America, Peru held two regional workshops in 2003, with representatives from national statistical offices and with the participation of regional bodies such as the Ibero-American Science and Technology Indicators Network (RICYT) and the UN Economic Commission for Latin America and the Caribbean. After identifying indicators, defining methodologies and setting priorities, proposals were exposed at the Latin American Commission for Statistics (CEA Comisión de Estadísticas de la Américas) to promote the application of a minimum set of indicators to be considered in the statistical plans of CEA members. It has been recommended that the CEA country members have a permanent workgroup, and cooperate with countries less developed in the matter.

28. Asian efforts in the field of ICT commenced with the eASEAN Framework Agreement signed in November 2000, which endorsed six main thrusts: establishing an ASEAN Information Infrastructure; promoting electronic commerce; the liberalisation of trade in ICT products and ICT services, and of investments; facilitating trade in ICT products and services; building capacity and e-society; and e-government.

29. The first ASEAN e-Readiness Assessment was put in place in 2001. ASEAN members realized the importance of recognizing the needs in monitoring and measuring e-commerce and ICT development, and discovered the lack of many primary data: the lack of appropriate measurement methodologies to collect several reliable statistical indicators and the ambiguity over definitions and scope of coverage.

30. The first ASEAN e-Measurement meeting was held in September 2002, followed by the establishment of an ASEAN e-Measurement Working Group in October 2002, and a second ASEAN e-

measurement workshop (to be held on 28 October 2003 in Myanmar), which will discuss common definitions for a preliminary list of key ICT indicators and some model surveys and data collection methodologies.

31. The experiences of ASEAN and of Thailand emphasized the need to integrate the ICT strategy with measurement activities, measurement and statistics should be done to help the social and economic development, not for its own sake; the need to gain political support for e-measurement activities; the importance of establishing an institution and securing funding; and the benefits of starting small and scaling up later while continuously improving.

Developing countries' needs

32. In spite of these efforts, most developing countries are at an early stage of e-measurement, and although a few of them have recently made full-fledged efforts to collect basic statistics, most face difficulties in defining the data that should be collected. Experts also expressed concerns about the digital divide and the need to create awareness among policy makers about the benefits of ICT. The definitions and model surveys to be used, the financial implications as well as the enhancement of skills were all mentioned as issues requiring attention in order to ensure the success and sustainability of e-measurement efforts.

33. Experts considered it important that internationally recognized concepts and definitions, methods and classifications should be used. It was strongly suggested that the model surveys developed by the OECD and Eurostat should be made available on the Internet and widely disseminated. At the same time, such models should be adapted in order to make them relevant to the reality and needs of individual developing countries. For example, the experts observed that micro enterprises were often excluded from the existing model surveys from developed countries. The considerable differences existing between the concept of SME in developed countries and that are applicable to the reality of developing countries was also mentioned. These differences go deeper than just size and affect aspects such as the adoption of technology and the levels of productivity.

34. The determination of the size and periodicity of the surveys was said to be mainly dependent on financial resources and on the fatigue of surveyed entities. Yet, it was stressed that Governments and end-users should be convinced of the usefulness to carry out ICT measurement. Technical committees composed by representatives of the public and private sectors at the national level could play a role in this regard.

35. The need to review the relevance of the indicators as technology evolves was underscored. For example, the increasing use of mobile phones, in particular in developing countries where fixed lines are not intensively developed, has to be acknowledged and reflected in the surveys. In general, questions have to be kept simple and adapted to the reality of each country.

36. There was a general consensus on the need to assess and strengthen the capacity of NSOs of developing countries in the field of ICT statistics, including the application of new methodologies. Although general statistical skills were mainly in place in many NSOs, it was felt that they would greatly benefit from training on ICT-related issues to improve their understanding of the particularities of measuring the information society. International and regional forums provided an important medium to exchange experience and best practice and improve the understanding of the problems and challenges. It was also felt that there is an opportunity for developing countries to look at their own statistics, together with the existing methodologies developed by OECD and the EU to determine to what extent their existing data could be linked to these systems. Needs were also expressed concerning the technical equipment to process the data in an efficient manner.

37. Experts identified several areas where UNCTAD as well as other international and regional organizations could assist developing countries to develop their capacities to be able to measure the digital economy. The support and assistance from UNCTAD and other international and regional bodies was emphasized in particular at the national and regional level with regard to training on methodologies to collect and analyze data. It was also recommended that the exchange of experiences from more advanced countries in the measurement of ICTs could be shared further through seminars.

38. Universities could be key partners in building an organizational and technology infrastructure to measure the impact of ICT and e-business for development, and in providing training to NSOs in developing countries. The following possible areas of collaboration with Universities were suggested: (1) the provision

of new standard processes readily deployable, and drawn upon best practices; (2) the provision of new metrics and tools, (3) the provision of new forums; such as an international virtual online support network to be of assistance to extend current work, meetings discussions and regional initiatives; (4) the provision of new graduate degrees as an incentive for policy and statistical analysts to innovate.

Discussion forum on e-measurement; core indicators; international database. The way forward

39. Experts highly appreciated that the meeting brought together practitioners from many countries, developed as well as developing. This provided a forum for participants to learn about initiatives and approaches towards e-measurements in other regions and countries, and provided new stimulus to existing work. This was also an important way to diffuse the work that has been accomplished by the OECD to non-OECD countries. The desire to continue discussions and exchange of experiences at the global level was expressed. To this end, suggestions were made for UNCTAD to continue providing such a forum for experts to further develop conceptual and methodological work on information economy statistics and share best practice. For example, the model surveys of OECD or Eurostat should be harmonized at the international level. UNCTAD could play the role of a catalyst for developing a roadmap to develop e-business statistics further globally. Other institutions, such as Eurostat, would be happy to support this initiative and to offer its questionnaires as a base for international comparable statistics in the field of ICT usage.

40. A proposal was made on a set of core indicators for ICT measurement that could be collected by all countries. These would focus on e-readiness and usage indicators for businesses and households, as it would be premature to attempt to measure impact. The collection of such a set of indicators in developing countries should be possible without major resource implications. Experts stressed that the international comparability of data was vital for policy makers. Such a common set of indicators would be the first dataset on e-business comparable at the international level. It would provide an important basis for ICT policy-making, research and business decisions.

41. Suggested ICT business indicators included the following: businesses with PCs; employees using PCs; business mode of access to the Internet; businesses with websites; receiving/placing orders over the Internet; and value of orders received over the Internet. The indicators should include a breakdown by size and sector of activity.

42. In addition to these core indicators, a supplementary list of indicators was presented which could be collected by those countries which have more advanced statistical systems or resources. These could include the following: barriers to ICT use; barriers to Internet access; activities on the Internet; and value of orders placed over the Internet. Future work could focus on reaching an agreement on such a set of indicators, including others related to e-business processes or the legal and regulatory framework.

43. Agreeing to a basic common set of core indicators that could be compared internationally would constitute the starting point for the creation of an international database on ICT and e-business statistics. Experts considered working towards such a database would be desirable objective for future work. The development of such a database could be a collective effort among various international organizations, including the ITU, OECD and UNCTAD as well as interested national agencies.

44. The experts considered that UNCTAD could help creating the political will for the development of national e-strategies, and for the development and harmonisation of e-measurement. Moreover, UNCTAD should collaborate and assist developing countries to develop their national e-measurement strategy. To this end, it was proposed the creation of a virtual forum, an online information and tools exchange between statistical offices from developed countries and developing countries. UNCTAD could also share models of some specific national / regional surveys on ICT and e-commerce. Finally the experience of this and future meetings could be further discussed in the 2004 Electronic Commerce and Development Report.