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Topic (c): Use of new audio-visual, electronic and  
print technologies in disseminating data to the media

**STATISTICAL LITERACY: THE CASE FOR CO-OPERATION  
BETWEEN DISSEMINATORS AND MEDIA PROFESSIONALS**

Submitted by ISTAT<sup>1</sup>

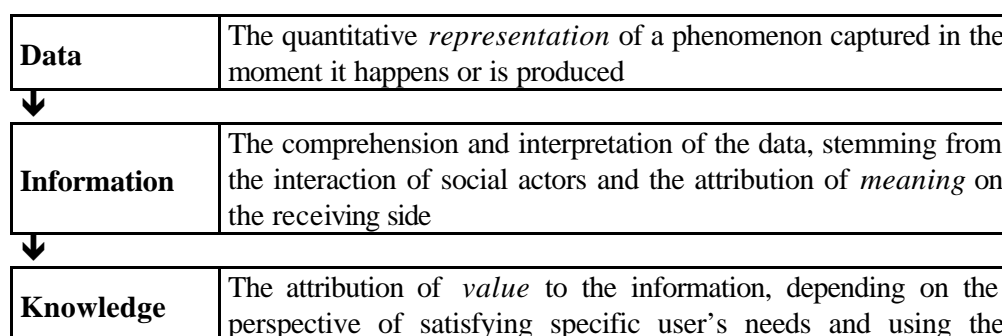
**Invited Paper**

**Introduction**

At the beginning of the “web revolution”, a few observers decreed the end of intermediation. The immediate availability of “raw” information on the web – they argued – would have favoured a do-it-yourself approach. Final users would have been able to browse on their own and, with the help of search engines, to find the relevant information, which suits their needs.

The evolution of the Internet has demonstrated that life is not so simple and that the prophecy was largely wrong. But why? We can try and propose a few explanations.

1. The access to the Internet is not guaranteed to everybody. There are technological and economic issues, especially in developing and transition countries. Even in developed countries, producing and maintaining a web site and the underlying technological infrastructure obviously comes at a cost, which is not transferred on the final user, because s/he is a potential customer of value-added services.
2. There is also a cost in finding, extracting and building information on the web. Most of this work and the related cost is on the user, who “spends” his/her own time, brainwork and attention in the process.
3. Raw information – that is: data – is not immediately useful. At the end of the day, the final user is looking for the satisfaction of a cognitive need. The usefulness of the information as perceived by the user – its relevance – is measured on his/her needs, on the possibility of using it as a decision-making tool, effective in reducing uncertainty and complexity. This can be represented in the following scheme:



<sup>1</sup> Prepared by Giovanni Barbieri and Donato Speroni

The process in which raw data can be transformed in knowledge is where the value-added of information lies and the “intermediation” of professionals – information brokers, journalists, professional disseminators – is still necessary.

### **Users first**

The reference to different categories of users, derived from the marketing concept of segmentation, is crucial to target the dissemination of information, but not sufficient. Actually, the same user may have different needs, in different areas (even outside his/her “professional” competence), at different levels of detail and depth, with a trade-off between timeliness and completeness, and so on.

The Internet has changed expectations and heightened knowledge about the ease of access to information as well as broadened the universe of users. Customers expect technology to provide easy and rapid access to better documented, usable and interpretable data and information.

In this respect, the web is an enabling technology, making possible the satisfaction of a wider range of needs in an easy, cost-effective and reasonably fast way – provided the necessary set of tools is available.

From the user’s standpoint, these tools are at the core of the new capabilities. To be empowered with the equipment to look deeply and widely into the on-line data is of no use, if the user is not able (is not given the technological, meta-informative and cultural tools) to relate the information available to his/her needs and to evaluate the quality of the information extracted. In other words, to take full advantage of the opportunities offered by the new technologies, it is necessary to develop meta-data on a systematic and ongoing basis, as well as to promote access for all. While quality assurance with reference to intrinsic issues (in the case of statistics: sampling, collection, processing, timeliness, “unbiased-ness”, etc.) can and must be given by the information providers, quality about relevance can be evaluated only by the users themselves. For this reason, the apparatus of tools and meta-data given to the user is of paramount importance in on-line dissemination. As long as the Internet widens the audience of users, an increased responsibility is given to the information providers and brokers.

### **User-oriented dissemination tools**

These trends in users’ behaviour demand for an integrated output database; this necessity has been advocated many times by the UNECE<sup>2</sup>.

The rationale for building corporate-wide data-warehouses is that statistical information (and official statistics in particular) is multi-purpose. Many of the specific users and uses are unknown when the statistics are designed and produced. Different categories of users have different needs. Indeed, the needs of the same user vary on a case-by-case basis. Of course, this is a mixed blessing: good in terms of potential and flexibility; bad in terms of effort necessary to manage and maintain it<sup>3</sup>.

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2 UNECE (1999). *Information Systems Architecture for National and International Statistical Offices. Guidelines and Recommendations*. Conference of European Statisticians-Statistical Standards and Studies-No. 51.

WALLACE, Mark (2000). “User Driven Integrated Statistical Solutions. Digital Government by the People for the People”. *Proceedings of the UN/ECE Seminar on Integrated Statistical Information Systems and Related Matters*. Riga, 29-31 May 2000.

3 The effort is not only quantitative, but also qualitative: dissemination issues demand for a new set of competencies, where the professional exchange with media operators can provide valuable cross-fertilization opportunities. See also our other paper “The possible role of statistical communicators from UNECE countries”.

But this is not enough: usability demands that the dissemination system integrates data and meta-data in a user-friendly way. In other words, the burden of compiling, sorting, parsing, reformatting, and otherwise putting data from disparate sources into a digestible form should lie on the information system itself, and not on the user. As more and more data from multiple sources and time periods become available, users are increasingly being left with the additional burden of integrating data sets without the tools or knowledge to know if the data sets can be integrated or if the results are meaningful.

### **Co-operation between disseminators and media professionals**

If we look at the corporate-wide data-warehouse from the vantage point of statistical literacy, the main issue is that in this architecture the “openness” to the information needs of different segments of users and different kinds of uses – and thus to the relevance of information as the basis of its value – is more important than information sources. This has been the Copernican revolution in statistics in the last decade.

In this framework, a wide area of co-operation between the dissemination departments of statistical institutes and the other professionals operating in the media is open. This co-ordinated attempt should result in an improved integration of the functions of dissemination and of promotion of statistical literacy. The expected outcome would contribute to fully document all statistical data according to agreed-upon standards; to ensure a proper use of official data through specific tools and resources; to meet confidentiality requirements. In the end, to minimize data user burden and uncertainty and to maximize data quality and usefulness;

First and foremost, the statistical disseminator and the media professional can co-operate to put in perspective the on-line statistical information. Both can contribute to enrich the *content* made available on the web, by providing the *context* useful to *connect* the data with the users’ needs. Their tasks can be differentiated according to the specific competencies of these professional figures: the statistician should provide the instruments for integrating data stemming from different sources and for relating them in a wider analytical context, making clear to the user their restrictions and their potential; the journalist and the media operator should provide the “story” behind the data, that is the perspective over time and the relevance for real-life tasks. Once the data are put in a deeper and wider picture, the task of their interpretation and their use in concrete day-to-day decision-making is up to the user.

### **Statistical information as a tool for governance**

The processes outlined so far are not (only) individual, but also social. To become known, information has to be interiorised, both at the individual and at the societal level. Any information interacts with other information bits, so as to build a network of interconnections. It has to be used in processes creating “metaphors”, that is, mechanisms allowing for the application of information, or information sub-systems, to problems and fields different from those that motivated its collection in the first place. This process is familiar to each of us, because this is the way each of us has produced and still produces his/her body of knowledge. But it is not only an individual process, it is also a collective one: knowledge and competence are built this way throughout society, in the production process of industries, in local and virtual communities, in lifestyles, in the creation of cultural universes, in public governance.

What is true for the single user, of course, applies also to society at large. This is the issue of governance; that is “the rules, processes and practices that affect how public powers are exercised”. Empowering the citizens with the tools for measuring and evaluating public policies, in fact, contributes to the accomplishment of the five main dimensions of governance<sup>4</sup>:

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<sup>4</sup> EUROPEAN COMMISSION (2001). *European Governance. A White Paper*. COM(2001) 428 final (25.7.2001). Brussels.

- *Openness*: a better understanding of the process of policy-making through the awareness of the information available improves the confidence in the institutions.
- *Participation*: the citizens are kept informed throughout the whole policy cycle, from conception to implementation, and are able to make their opinion relevant to the decision-making process.
- *Accountability*: the role and responsibility of every political body taking part in the policy cycle is clearer if the final and intermediate results are documented.
- *Effectiveness*: policies can be effective and timely only if the objectives are clear and quantified in advance and if actual outcomes are evaluated against *ex ante* expectations.
- *Coherence*: within modern institutional systems, which are both complex and diverse, a consistent approach can be attained and evaluated only through comprehensive information systems.