



Chapter XX

International Network for Integrated Social Science

William Sims Bainbridge
National Science Foundation*

Computer-related developments across the social sciences are converging on an entirely new kind of infrastructure that integrates across methodologies, disciplines, and nations. This chapter examines the potential outlined by a number of conference reports, special grant competitions, and recent research awards supported by the National Science Foundation. Together, these sources describe an Internet-based network of collaboratories combining survey, experimental, and geographic methodologies to serve research and education in all of the social sciences.

The evolution of the social sciences has reached a crucial point which might be called a *phase change*, in which old, atomistic and impressionistic ways of doing research are superseded by a far more systematic and unified methodology. To bring social science to the level of rigor already achieved by some of the physical sciences, a new kind of facility will be needed. This will be a transdisciplinary, Internet-based collaboratory that will provide social and behavioral scientists with the databases, software and hardware tools, and other resources to conduct world-wide research that integrates experimental, survey, geographic and economic methodologies on a much larger scale than previously possible. This facility will enable advanced research and professional education in economics, sociology, psychology, political science, social geography and related fields.

In many branches of social science, a new emphasis on the rigor of formal laboratory experimentation has driven researchers to develop procedures and software to conduct online interaction experiments using computer terminals attached to local area networks. The opportunity to open these labs to the Internet will reduce the cost per research subject and increase greatly the number of institutions, researchers, students and research subjects

who can participate. The scale of social science experimentation can increase by an order of magnitude or more, examining a much wider range of phenomena and ensuring great confidence in results through multiple replication of crucial studies.

Technology for administering questionnaires to very large numbers of respondents over the Internet will revolutionize survey research. Data from past questionnaire surveys can be the springboard for new surveys with vastly larger numbers of respondents at lower cost than by traditional methods. Integrated research studies can combine modules using both questionnaire and experimental methods. Results can be linked via geographic analysis to other sources of data, including census information, economic statistics, and data from other experiments and surveys. Longitudinal studies will construct time series comparisons across data sets to chart social and economic trends. Each new study will be designed so that the data automatically and instantly become part of the archives, and scientific publications will be linked to the data sets on which they are based, so that the network becomes a universal knowledge system.

The expertise, hardware, databases, and user communities that will make this facility possible are located at many different universities, archives, and government agencies. But Internet can bind them together into a unity. Various sites in the collaborative will have special responsibilities for collecting, archiving, analyzing, cataloging, retrieving and integrating social, behavioral and economic data. All must be linked through shared protocols on data transfer and cost recovery so that the resources at any one location are available to students and researchers at all other locations. New tools for analysis and visualization of data will be required, as will a range of new data collection methods. Like a great telescope, this facility will provide the physical infrastructure and organizational framework for research by scientists from many universities. Its distributed archive will provide data and statistical analysis tools to researchers, students, and policy makers everywhere.

To determine the scientific needs and opportunities in this general area, the NSF Directorate for Social, Behavioral and Economic Sciences (SBE) has supported many varied workshops, bringing together social-scientists and experts on information technologies to advise the Foundation as it plans its investments. Already back on June 22-24, 1995, SBE held a workshop at the San Diego Supercomputer Center called *Connecting and Collaborating*, focused on the implications of Internet for international scientific collaboration. The workshop report observed, "As computer-mediated communication makes physical separation less and less of a barrier to international collaboration, a 'globalization' of formerly parochial disciplines occurs." This means not only that sociologists from different nations can collaborate, but also that the boundaries separating sociology from other disciplines like political science, economics and anthropology have begun to dissolve. The workshop participants recognized that the new technology not only permits but practically demands the integration of the social sciences across both nations and disciplines. The greatest minds have always recognized that there should exist a single, unified social science, united in the diversity of theories and methodologies it employs. In the twenty-first century this dream can be brought to reality.¹

WEB-BASED DATA ARCHIVES

Large social-science databases are unusual in that they are generally capable of serving many researchers beyond those who originally collected the data. This is to say that

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