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The Need for a Cultural Grid

“Abstract: “The Need for a Cultural Grid,” *Nederlands ICT-Kenniscongres <2001>*, 6 en 7 September 2001, Nederlands Congres Centrum, Den Haag, p. 39. (www.ict-kenniscongres.nl)

In the first decades of the Internet there was a vision of supercomputers. It was assumed that these machines at research labs (Sandia, Los Alamos, Livermore) would solve all the problems of the day. The past decade has seen the rise of distributed computing. By 2000, the Search for Extraterrestrial Intelligence (SETI) project, which uses the energy of over 2 million home PCs while they are in screen-saver mode, produced almost as much computing power as the world's most powerful supercomputers. Thus the notion of grids is now accepted as an important key to the future in high-energy physics, and manufacture. This paper claims that such a grid is also necessary in the realm of culture.

The past decades have seen an enormous rise of digital cultural content. Museums such as the Louvre have terabytes of information about their collections of painting and sculpture. Libraries such as the Bibliothèque de la France are scanning in the full text of 80,000 books. The Coalition of Networked Information is speaking of scanning in the full text of 10 million books. In the realms of art history and archaeology, universities around the world and particularly in Europe are reconstructing hundreds of sites. These range from individual rooms (e.g. the *Stanze* of Raphael), to buildings (such as the Vatican), cities (Bologna in the NUME project) and even whole regions (such as Galicia in the SANTI) project. These projects typically range in size from 50 megabytes to 200 gigabytes and at present are usually only visible in national supercomputing facilities (e.g. Bologna, Madrid). On the everyday Internet one tends to find only a few slides about these projects. If we are to prepare students for the future we need to make them aware of the best in the past and the present. We need high-bandwidth access to these materials.

Digital culture is about much more than scanning in existing objects. It requires historical and cultural metadata (virtual reference rooms); multi-lingualism; interoperability of content; and a new integration of local, regional, national, international and global knowledge to ensure cultural diversity. It requires new multimedia education (development of dynamic knowledge, augmented knowledge and culture; new methodologies for veracity, authenticity; new criteria for quality; new policy). Others have noted the dangers of McDonaldization. Needed therefore are new economic models which embrace cultural diversity. This requires networked centres of excellence (universities, research institutes) in digital culture.

These centres must have high-bandwidth connections in the gigabit range. These should begin at the national level. They must be linked with (initially European) memory institutions (libraries, museums, archives) in order to develop new methods and critical skills, new content for the European Schoolnet, and to create new creative content. This will contribute to the vision of a European Research Area (ERA) and lead towards a global research area. A cultural grid is a necessity.

Proposed Topics to be Presented:

Interoperability of Content
Historical and Cultural Metadata (Virtual Reference Rooms)
Integration of Local, Regional, National and International Knowledge
Dynamic Knowledge
Augmented Knowledge and Culture
Multimedia Education (methods, critical skills)
Centres of Excellence
Cultural Grid

Dr Kim H. Veltman is Scientific Director of the Maastricht McLuhan Institute. He is working towards a new European Network of Centres of Excellence in Digital Cultural Heritage with the MEDICI Framework. He has worked as a consultant in new media to the CEO of Bell Media Linx (1996-1998), and done research on new media and standards for Northern Telecom (1995-1998). From 1990-1996 he was Director of the Perspective Unit in the McLuhan Program at the University of Toronto. He has a doctorate in the history and philosophy of science (Warburg Institute, London) and has spent twenty years as a post-doctoral fellow with support from the Canada Council, the Social Sciences and Humanities research Council of Canada, the Wellcome Trust, the Volkswagen, Alexander von Humboldt, Thyssen and Gerda Henkel Foundations, and the Getty Trust.

His research is focussed on the history of perspective, Leonardo da Vinci and developments in new media. He has published three books, 49 sections in books, 23 articles in refereed journals, 5 on-line articles, and 15 reviews. He has just written a book on Augmented Knowledge and Culture. He has taught at the universities of Toronto, Göttingen, Siena, Rome I and II, and Carleton. His professional memberships include the Internet Society (Reston), the International Institute of Communications (London), International Society for Knowledge Organization (Amsterdam), and the Wolfenbütteler Kreis für Renaissance Forschung (Wolfenbüttel). He is a member of the International Who's Who of Professionals.

Dr. Veltman has given lectures around the world. In Canada, he has given keynotes at the Ontario Library Association, the Couchiching Conference, the Ed-Media, Ed-Telecom Conference, at the National Gallery, the Louvre, the CIDOC section of ICOM and the Elizabeth Cummings Memorial Lecture. He has spoken at the Europäisches Forum (Alpbach), the Conference on World Affairs (Boulder) and has given the annual Reynolds Lecture (Boulder). His keynotes elsewhere include Berlin, Brussels, Kuala Lumpur, Munich, Nantes, Paris, Rome, and Vienna.

For the past decade he has been working on a System for Universal Media Searching (SUMS), which was one of 18 Canadian projects at the G7 exhibition in Brussels (February 1995), and the World Summit in Halifax (June 1995). In 1996 it was chosen as part of G7 pilot project 5: Multimedia Access to World Cultural Heritage and represented Canada at the Information Society and Developing Countries (ISAD) conference in Midrand (May 1996). In 1996, he was awarded the International Capire Prize for a Creative Future in the area of science and art integration.