

# **Building on virtual common ground: design participation for the network age**

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## **Abstract**

This paper describes a set of action research initiatives intended to disseminate the technical skills necessary to participation in an increasingly globalised design discourse. It starts by examining the shifting relationship between design, production and consumption triggered by globalisation. An account of partnerships between a network of “experts” and a range of “users” follows. This is premised on the use of available infrastructure and the sharing of modest technical skills. This has allowed partners in peripheral locations to embark on the more rewarding process of social learning and exploration of available ICTs without first having to climb a steep technical learning curve.

Using available free web-sites, which provide simple on-line editors, and a minimum of HTML instructions, a sustainable presence has been developed for a range of individuals and organisations. Face-to-face contact in workshops has been supplemented with subsequent on-line contact and knowledge sharing. A combination of simply designed web pages has been linked with the leveraging of already available internet-accessible material to provide the means to create a sustainable presence from the margins. A model developed in the context of West Africa has proved useful to the U.K. periphery with real-time monitoring of public service provision being piloted in North-East England. This approach offers a framework for the design and delivery of goods and services to increasingly diverse and extensive markets. The paper describes the approach at the level of discrete design project, problem formulation and analysis and policy formulation and feedback.

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## **Globalisation: networks and organisations**

Globalisation of the world economy has increased the significance of intellectual capital leveraged by information and communication technology. The deployment of these technologies has undermined the distinction between manufacturing and service activities and produced new forms of locational and functional differentiation across a globalised network of invention, innovation and implementation (see Castells, 1996, 1997; Ohmae, 1990). The imperatives of an emerging global market have led developed economies to shift their focus towards the end of the production chain. This allows product differentiation and customer support to maintain the value of goods and services in the face of growing price competition from newer competitors. As a consequence, the distinction between products and services becomes less obvious. This end of the chain requires closer adjustment to cultural variation among the users and customers. James and Howell (2000) examine the use that Asian companies are making of the R & D facilities they are establishing or acquiring within the United Kingdom. Evidence suggests the objectives are both access to knowledge for market adjustments and broader intellectual capital for application in the home environment.

Evidence of an increasing focus on the end of the chain where product differentiation and service provision allow competitive advantage to be developed can be seen at ICL, once the "national champion" of the U.K. computer industry and now a component of Fujitsu, a former foreign competitor. ICL has moved further from its original manufacturing hardware base to position itself as an information services provider that can support the specificities of a European business environment. This end of the chain is more culturally variable and success reflects specific local or regional knowledge. Evidence of a "value chain" approach (Porter 1990) can be seen in a very different industry. Both ICI and Unilever have been engaged in moving along the production chain, to higher added value, with Unilever passing its specialist chemical division to ICI in order to concentrate on the delivery of differentiated brands based on these feedstocks. Meanwhile ICI has off-loaded its bulk chemical business to firms content to compete primarily on price at the commodity end of this chain.

Both the British government and the European commission are encouraging companies to seek alliances and opportunities in the opposite direction, both as a means of accessing the market potential of Asian growing economies and as a means of improving offshore manufacturing resources in relation to both home and export markets. In this inter-dependent environment design has become the key activity unifying product, process and organisation across geographical and cultural boundaries.

## **Communities and networks**

The contemporary notion of the "network organisation" and decreasing Internet costs appear to present an opportunity for smaller players to access resources from and to compete within global networks. However, using the reduction on transaction costs delivered by ICTs, larger firms can restructure to enter niche markets yet still draw on their wider resource base. New locational strategies allowed white collar work from the US mainland to be relocated off-shore to the Caribbean as far back as the 1980s, and "front office" tasks in prestigious locations have been divided from "back office" tasks relegated to the more local periphery of outer suburbia. Less developed regions find themselves increasingly in competition for such lower value work, and their infrastructure is likely to be developed primarily to support it. At the same time, potential

consumers with limited economic resources are less able to influence the direction of development of technologies, artifacts and services which are targeted at the most lucrative component of global markets. Across the new networked economy as a whole research and development, raw materials sources and routine manufacturing, final assembly, markets and after-market support, are increasingly co-located. The emergent global system is one of complex inter-penetration of peripheries and cores and these terms now refer to competence in the underpinning information and communication infrastructure, rather than physical location.

ICTs are critically important for participation in the global economy but they have been created and driven from within the most developed economies and regions. They carry assumptions about levels of both resources and skills. Many locations have very limited access to the key technologies driving globalisation. These inequities fuel current debates over the nature of the “digital divide”, but despite the reality of division, many marginalised communities have appropriated available ICTs for their own purposes. For example West African communities, in Ghana and Nigeria, use World Wide Web technologies to distribute craft products to a global marketplace by a route which provides its own audit trail safeguarding intellectual property and demonstrating authenticity which adds value to the product. Business centres in the suburbs of West African cities offer phone, fax and email connection to overseas family members and partners in the overseas diaspora (see Little, Holmes & Grieco, 2000).

The twenty-first century has been identified as one in which the large scale movement of civil populations, whether for economic or environmental reasons is likely to be a major feature (Castles and Miller, 1993; Collinson, 1993). This has already been manifested in concerns over “asylum seekers” and “economic migrants”, even in countries such as Australia, which depended on such flows for economic development throughout the previous century.

Many migrant communities seek to reproduce features of their home community in their new locations: the Little Italies, Chinatowns, Little Polands of the United States and Canada. The development of virtual community nets enables migrants to enter once again the discourse and social being of their original community of identity. Miller and Slater (2000) explore the question of local improvisations in the case of Trinidadian diaspora: “Indeed the significance of studying the Internet is the degree to which it transcends dualisms such as local against global. It forces us to acknowledge a more complex dialectic through which specificity is a product of generality and vice versa” (Miller and Slater p. 7). Trinidadians undertake a distinctive set of social activities on the global Internet. What they experience are specific and local practices at a remote location.

Black American members of a more ancient diaspora now have an accessible, authentic, African cultural base which they can access readily. Africa is not a simple recipient of culture across the Internet but rather the location of active shaping of both the cultural and policy content (see the Ghana Computer Literacy & Distance Education site: <http://www.ghaclad.org>)

Africa has seen a major renaissance in the celebration of its indigenous culture and art, both traditional and modern, through the new communication technologies. Local African radio (JOY FM from Accra, Ghana) is available globally through the Internet; African dance can be viewed globally through the same mode. The texts and tales of oral legends and beliefs are now available on line and all serve the perpetuation of an Africa base to identity in the African diaspora (see [http://www.geocities.com/margaret\\_grieco/kentecon/kente.html](http://www.geocities.com/margaret_grieco/kentecon/kente.html)).

In Bangladesh the Grameen Bank (<http://www.grameen.org/>) has extended communication technologies to poor village women as part of their empowerment : communication technologies give these women an ability to check on market prices and to better organise their finances and

production. In India, the Self Employed Women's Association (SEWA) has made use of the new information communication technologies to promote its cause of advancing the interests and improving the situation of poor women (<http://www.sewa.org/>).

Similarly, indigenous African business is making use of the Internet for conducting commerce, most particularly the marketing of craft goods and the organisation of tourism. In the area of industrial relations (<http://www.cosatu.org.za/>) African unions are connecting up both internally within Africa and globally in the advancing of the interests of labour (<http://www.geocities.com/unionsonline/>). They are originators of action as well as receivers of the industrial relations agenda: the global coordination enabled by strategies such as 'web' or 'union rings' permits local determination in the context of global synchronisation.

### **Building and sharing a skills base for virtual common ground**

The "digital divide" is only one aspect of the uneven distribution of and access to resources within the emerging global economy. Nevertheless, we have seen that a number of innovations from well resourced locations can be applied effectively in less well resourced conditions.

In Japan, the Internet has been widely used for political (see <http://www.jlgc.org/>; <http://www.kobe-airport.gr.jp>; <http://www.agora.stm.it/politic/japan.htm>) as well as economic purposes, for example, Business to Business technologies for East Asia (<http://www.ecplaza.net>). The Japan Local Government Center has set up a site through which it links with local governments globally in the search for solutions to new urban problems (<http://www.jlgc.org>). It is designed to open up the interaction between Japan and other agencies, most particularly in the United States. In the same frame but from a different political perspective, alternative and oppositional groups in Japan are also making use of the Internet to influence internal Japanese politics by attracting external allies to their cause. A good example of such a case is the campaign to oppose proposed developments at Kobe airport (<http://www.kobe-airport.gr.jp/>); while the bulk of the site is in Japanese there is an English translation facility which provides the opportunity to sign on to the campaign electronically.

Providing grassroots access to the ICT domain can be used to cut the costs of health and educational servicing (as with the current planned expenditure in the U.K. National Health Service: Cross, 2002). However, in order to improve economic performance through e-commerce modes, the channels for new forms of bargaining are created. The transaction costs for the least powerful to gain visibility are also greatly reduced.

The research described in this paper represents a series of interventions aimed at the dissemination of skills permitting both the voicing and participation of users at the margins.

The Odyssey Group ([http://www.geocities.com/the\\_odyssey\\_group/](http://www.geocities.com/the_odyssey_group/)) is an open network of organisation researchers who meet in physical and cyber-space to discuss and enact the implications of the current generation of Information and Communication Technologies. The group examines the nature of technical skills and resources in the context of collaborative development of an electronically mediated form of design participation that can be accomplished without physical co-location. The Odyssey group conducts workshops involving both physical and virtual participation. An individual may be present at a particular event via either or both modes.

The group developed the Virtual Journey as a means of accessing aspects of the Odyssey Group workshops without co-presence. The use of web technology to capture key aspects of an environment or a pathway through an environment allows virtual participation in workshops and discussion. Such a journey consists of a web page (or small set of pages) containing images

gathered during the journey and links to relevant web-sites discovered either on route or subsequently.

The use of images in conjunction with hyperlinks to communicate both explicit and tacit understandings in a Virtual Journey can be regarded as an electronic equivalent of the role of storytelling in organisation.

Recent interest in storytelling reflects the need for shared tacit knowledge in complex organisations (Denning, 2001) and in design processes (Lloyd, 2000). Stephen Denning, who was the World Bank's Program Director for Knowledge Management has published his experiences of the power of stories in leveraging tacit understanding through concrete examples:

“A springboard story has an impact not so much through transferring large amounts of information, as through catalyzing understanding. It can enable listeners to visualize from a story in one context what is involved in a large-scale transformation in an analogous context. It can enable them to grasp the idea as a whole not only very simply and quickly, but also in a non-threatening way. In effect it invites them to see analogies from their own backgrounds, their own context, their own fields of expertise.” (Denning, 2001, pp. xviii–xix)

Virtual Journeys may be constructed in real time, during a workshop, to communicate immediate experience across the virtual group. They may be re-constructed subsequently, as a means of archiving social practice and experience. They may be constructed as a reflection on experience triggered by events and discussions during the meeting.

The group met in Ithaca, New York in August 1999 and developed some initial sites. “On the Road” (<http://www.re-skill.org.uk/odyssey/road/ontheroad.htm>) is a virtual journey to Rochester New York, “Image Capital of the World”. It represents the perceptions of four members of the group gained over two journeys between Ithaca, NY and Rochester, the city in which George Eastman transformed photography from a craft to an industry.

Township Transport ([http://www.geocities.com/township\\_transport](http://www.geocities.com/township_transport)) is a Yahoo-Geocities free-server site constructed by members of the group who visited South Africa jointly and separately in the space of a year. It is intended to develop through further contributions from fellow travellers to become a resource or tool kit which will further participative planning and organisation of transport in South African townships.

A third Odyssey meeting was held in Ghana during August and September 2001. The Odyssey Group of organisation theorists, drawn from a number of U.K. and European Universities, worked with a set of Ghanaian partners from the University and NGO sectors. The Centre for Social Policy Studies (CSPS) at the University of Ghana were the hosts in exploring the potential and affordances of electronic modes of communication for African development and identifying current and emerging practices in this arena. The immediate aim was to develop theoretical perspectives and their practical applications.

During the Ghana workshop a number of web sites were constructed, including one for the recently completed Ghana Social Index ([http://www.geocities.com/csp\\_s\\_maps](http://www.geocities.com/csp_s_maps)). This site contains a set of maps showing social indices for each region of the country. These can be downloaded in stages, and have been designed for the slow connection speeds prevailing in West Africa. Making data created inside Ghana available both inside and outside the country is a significant move way from the situation (common in developing countries) of dependence on external sources of information about local conditions.

These sites can be accessed and maintained from any of the numerous Internet cafes which are available in the suburbs of Accra: a clear demonstration of the need to consider access separately from ownership (see <http://www.geocities.com/odysseygroup2001/vj/gallery03.html> and <http://www.geocities.com/odysseygroup2001/vj/environs.html>).

Sustainability is a key objective for these sites. This is achieved by creating simple HTML pages with links and JPEG images. These are composed using the on-line text editors provided by services such as Geocities. Simple HTML templates showing sample hyperlinks and image placement can be shared. Basic HTML commands allow simple on-line maintenance without specialist software and maximum compatibility with basic machines and software. This is in preference to the generation of HTML from word processors or other software, which can result in over-complex and opaque code. These techniques are described on the Odyssey site (<http://www.geocities.com/odysseygroup2001/sharing/index.html>).

An on-line toolkit is under development at [http://www.geocities.com/the\\_odyssey\\_group/toolkit.html](http://www.geocities.com/the_odyssey_group/toolkit.html). Instructions on how to set up a Yahoo-Geocities web site are available at <http://geocities.yahoo.com/home>

The same philosophy and techniques can be seen in a site, maintained by the Moor Park community in a collaboration between the Moor Park Community Centre and the Odyssey Group at <http://www.moorpark.freeuk.com/>

### **A framework for social learning**

Sproull and Kiesler (1991) demonstrate that a process of organisational learning is needed to move beyond the technical effects of direct substitution of information technology for manual processes. The work described in this paper suggests three levels at which such social learning can facilitate design participation though the use of web-technologies:

#### *Level 1 Collaborative design of web sites*

Design can be conducted as a virtual process supported over the web. For discrete, individual design interventions, a community presence can be provided, whether the community is of shared interest or location or of practice. This form of participation fits within a well established paradigm, (e.g. Cross 1972).

A number of sites have been developed collaboratively between libraries. For example, the Centre for Social Policy Studies librarian now maintains a web-site at <http://www.geocities.com/cspslibrary/>

Support can be provided through the sharing of passwords within the group. The use of a U.S. based site allows access from locations with higher access speeds outside Ghana.

The CSPS Library site contains links to other libraries, including the Open University Library and the Safari (Skills in Accessing, Finding, and Reviewing Information) on-line resource that allows students to develop skills on electronic information and document retrieval (<http://sorbus.open.ac.uk/safari/signpostframe.htm>). This represents a significant leveraging of the on-site resources.

#### *Level 2 Web-supported problem definition and articulation*

The identification of discrete projects implies problem formulation around multidisciplinary “wicked problems” (Rittel and Webber, 1973), so a need for network of skills, virtual team

building. The CSPS web-site aims to identify areas for direct intervention and an on-line “action auction” of research project proposals was one of the first components developed for the web site. The Moor Park Explore Club at <http://www.geocities.com/moorparkexploreclub/> highlights a range of issues, many amenable to relatively simple design solutions, which reduce the effectiveness of public transport service delivery. These include bus shelters with no information on service routes or timetables. Metro stations with Park and Ride facilities but poor access for passengers trying to get there by bus. A major regional hospital site with feeder bus routes which stop a significant distance away.

The CSPS site contains an “action auction” page which consists of a set of research proposals in search of funding ([http://www.geocities.com/csps\\_ghana/actionauction/index.html](http://www.geocities.com/csps_ghana/actionauction/index.html)).

For example, *Domestic Organisation and The Environment* is a proposal based on observations that households compensate for infrastructural deficiencies in the developing urban context by the use of children's labour. Inadequate infrastructure therefore increases the task burden of children and increases their exposure to health risks. The project proposes the development of an Information, Education and Communication campaign directed at achieving a re-distribution of such tasks.

*Building District Level Information Management Capacity for Development Planning and Resource Management* is a proposal reflecting a government policy of decentralisation which places great responsibility on each District Administration machinery to identify its development needs and the resources available locally and externally to enable it adequately plan and implement development programmes. The project aims at building up the capacity of each district administration to be able to collect, process and disseminate information and network with other districts.

#### *Level 3 Policy monitoring*

The expressed desire of the British government for “joined up government” implies closing the feedback loop at policy levels. North East Action on Transport (NEAT) has experimented with real-time on-line monitoring of public transport service provision.

In the low income areas of the North East of England low car ownership is often partnered by low levels of public transport provision. Although communities are clear that they are experiencing public service failure, petitions, consultations, letters of complaint, requests for more socially balanced services or bus designs which can accommodate young mothers with pushchairs, older persons with restricted mobility or disabled persons are not resulting in public transport improvement. Policy has focussed on getting motorists out of their cars. Ensuring either an adequate range of social and leisure services locally, or an adequate level of mobility for all in accessing of services now located at considerable distances from low income residences is not a visible concern.

The monitoring of public transport systems has traditionally been conducted by professionals who have rarely given the feedback to communities. The advent of the World Wide Web and the availability of new Information Communication Technologies (ICTs) can enable communities to monitor public transport and other public service provision and performance and make transparent that performance beyond their local arena.

In Lemington, in the West End of Newcastle, on the 25th and 26th September 2001, a real time community monitoring of the performance of the Stagecoach bus routes and services was undertaken. Stagecoach, as service provider, joined in with this community monitoring as did members of the Newcastle Disability Forum. Technologies used for this exercise included digital cameras, digital video, on-line surveys, wireless laptops, Global Positioning Systems (GPS)

monitors and Wireless Assisted Protocol (WAP) telephones. The results are archived at <http://www.newnet.org.uk/neat/monitor/default.htm>

## **Conclusion**

This paper has described some of a number of related activities conducted by a loose network of U.K. and overseas-based academics. These are aimed at the collective and collaborative development of virtual forms of design collaboration, at the level of individual web sites, and in the wider engagement with project formulation and policy evaluation.

The on-line version at [http://www.geocities.com/knowledge\\_links/commonground.html](http://www.geocities.com/knowledge_links/commonground.html) provides live links to sites that demonstrate the techniques used in this research and the outcomes from a continuing process.



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