Museum International

Heritage issues in the information society
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Mourning, wash drawing by Anders Zorn, signed at the bottom right.

2002/7185-1
Dimensions: 25 × 20 cm.
Stolen from an exhibition at an Antiques Fair at Älvsjömässan at Älvsjö, Stockholm, Sweden.
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Memory and the Digital World: a few philosophical pointers for new memory practices in the information era

by Alain Renaud

A disciple of the philosophers Gilles Deleuze and François Dagognet, Alain Renaud is himself a philosopher, holder of the agrégation *in philosophy and a university doctorate. He teaches at the University of Lyon-II and at the School of Architecture in Saint-Etienne. For some twenty years he has been a teacher, researcher and project initiator, devoting the bulk of his work to the new digital world and, more especially, to the aesthetic question of the digital image and form. He is the author of many articles on these subjects and is currently working on the publication of a comprehensive digest:* L'image-information. Jeux et Enjeux Anthropologiques, Epistémologiques et Esthétiques de l'Image et de la Forme au Sens Néo-industriel de la Pensée Numérique [The Informative Image. Anthropological, Epistemological and Aesthetic Issues and Challenges of Image and Form within the Neo-industrial Meaning of Digital Philosophy].

'The modern world is modelled on the human mind.' – Paul Valéry[1]
'In the modern world information replaces nature.' – Gilles Deleuze[2]

Modern industrial societies, giving no thought to what they do, and unconcerned by the nature and impact of what is produced within, by and around them, are increasingly forewarning signs of the practical capabilities to unleash, unprecedented anthropological, epistemological and aesthetic upheavals. The successful neologisms 'cyberculture', 'multimedia', 'interactivity', 'hypertext' and 'virtual reality' testify in their own way to this neo-industrial adventure.

We are speaking here of 'neo-industriality'. The notion is important since it serves to pinpoint

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the origin of the trend and to identify its space-time location and its lines of force. Leaving behind the mechanical phase that gave it birth – gradually driving all societies along in its wake – the industrial world is adopting a new logic for thought and action: the informational order to which the numerical or digital system (the dyad 0/1 and its infinite combinations) effectively provides the means for its policies. Thus, increasingly every day, and on an unparalleled scale, a general process of decomposition and recomposition is gradually incorporating all spheres of material, social and cultural existence into the folds of information. Consequently, from the sphere of 'things' (the production and exchange of material goods – the real world) to that of 'symbolic goods' (the level of meaning), via that of 'aesthetic goods' (forms and expressions perceived by the senses: text, voice, music or image), including all modes of action – from the most spiritual to the most sensory, from the most mundane to the most poetic, all human activities now seem to share the same history and appear to be moving towards the same situation: the informational environment, for the development of which the digital system (information and communication technologies) must provide the practical conditions.

In this way industrial rationalism is about to effect the systematic recomposition of the entire cultural economy by means of the informational integration of the major anthropogenic matrices: (a) communication, of course (the informational idea, in its very essence, contains something of a communicational vision of the world); (b) knowledge (the field of technosciences in modern industrial societies); (c) material production and exchanges between people and the world (the level of industrial organization itself); and finally (d) the order of memory (preservation, transmission and updating of the past), a most decisive cultural matrix in which the strategic question of people's individual and social identity is posed and decided, and which, from the dawn of humanity, has been engaged in the external quest for sociotechnical supports and surfaces to ensure its operation (traces, rituals, writings, monuments, and so forth).

However modest and banal it may seem at first sight, the smallest digital action today (text processing, browsing the Internet, production of a CD-ROM, etc.) has, therefore, the dimension, the significance of a major epistemological and cultural revolution. In selecting the informational vision as a global social strategy, modern industrial rationalism is not merely proposing some additional tools: it is instituting information as a cultural paradigm for thought and action, establishing and imposing it as the foremost social authority.

If such is the case that the global landscape is taking shape for each society and for each one of us, it is clear that, over and above the concerns of how to adapt to a new order (Which machine should we choose? What results should we expect from it? Which skills should we acquire? What benefits may we expect from them?), what matters is the assessment that is made of what is taking place, and the identification of the lines of force and the boundaries that this development is currently marking out in the name of a certain idea of humanity, a certain image of the thinking process.

The digital system and its materio-logical games

One could never spend too much time on the concrete conditions underpinning the new information order: the curious idea of an 'all-digital' world in which robotic calculation makes it possible to apply digital solutions systematically to every single thing, situation or problem. In short, the integral isomorphism achieved by the digital strategy on the basis of the 'information-principle'. How is this done? Achieving both practical and theoretical convergence, the strategy encompasses (a) a dimension of physical matter (from silicon to microprocessors); (b) a thought process (the rationalistic formalism of programmes, models and numbers); and (c) a body's aesthetic or sensitive dimension (the scope of experience as it is developed over time, through use, by the mediological system of interfaces and peripherals). From this emerges a highly useful primary point of reference: information as a logistical system, as an operational material configuration. The 0/1 dyad, with its indefinite variety of combinations, makes it possible to represent and manipulate the infinite complexity of specific forms and things, and to design and create new ones. Such intellectual, judicious and magnificent manipulation of forms in the singular light of the intellect creates the matter, the architecture and the automatic meaning of the digital world.

At the core of this automatic system we find the mark of a decisive gesture: the description or analytic and algebraic transcription. In short, a 'pure game of writing' by means of which information processing establishes the 'domain of the legible', and raises it to its most powerful state. This is the logical exaltation of the text, its enthronement as a higher form of *logos*, where the univocity of thought and being is achieved by the grace of, or rather the 'virtue of' the data.

As when the Greek world adopted a written alphabet – a revolutionary literary choice that would reach its culmination with the printing press, totally in keeping with the 'logic of writing' described by Jack Goody[3] – the information integration shows how an exclusively discursive model of thinking has become vested with social authority. Mention is made in this connection of the concept of hypertextuality in which all forms of thought (images, sounds, text), the experience itself, converge in the same logological vision of the world. Valéry summed it up succinctly: 'Nature, meaning the Given, and that is all.' This ideographic model (whose potential was first grasped by Leibnitz) is the child of the 'Brain–Information' couple (Gilles Deleuze), not reducible to the old analogical 'Body–Nature' couple, which, up to the present, has stimulated and enriched the world with its debates. It is a highly problematic and extremely powerful neo-modern couple which has already produced many interesting offspring (including the most common contemporary items: cell phones, computers, video games) and thanks to which the contemporary concept of the information system throws opens the door to an unprecedented strategy of thought and action: thinking in all directions, acting in the straightforward sense of thought seeking knowledge, beyond resistance, inertia and material and physical constraints.

Hence our question: What happens to human beings and cultures when human energy must no longer come to terms, in the first place,

with the resistance or 'otherness' of the world, but instead with the discursive and constructive products of knowledge, when the relationship between human beings and the world, and the world itself, without actually disappearing, become, as it were, a metaphorical exercise in thought seeking knowledge?

Formation of an information memory system

Because of its extreme complexity, it is not possible to describe every detail of the new structure being erected before our very eyes. We have, therefore, decided to concentrate on one of its most strategic aspects – memory – as it is shaped by the new order. This involves the development and proposal, through a digital reconstitution of physical channels and media, of a new social 'praxis' of the past in which previously unknown visions of contemporary culture are concentrated and expressed.

Once again a historic perspective is essential: original as it may be, informational memory did not appear out of nowhere. Its foundations were laid with the rise of an archival vision of the world from which documentation, conservation and museology have emerged as fully fledged disciplines. The phenomenon was singled out by the photographer Susan Sontag, a sharp observer of modernity, from an angle that Walter Benjamin would not have challenged: 'A world whose past has become (by definition) obsolete, and whose present churns out instant antiques, invites custodians, decoders and collectors.'[4] Thus the story in which we are interested began long before the information industry got involved. From the early days of industrialization and urbanization, an entire panoply of technical procedures and actions punctuates Western history; European history first of all, giving rise to a highly singular system of memory in which the sheer pleasure of classifying, conserving, restoring and celebrating the traces of the past vies with the unbearable idea of seeing beings, things and signs (beginning with the archivist's very existence) escape our grasp and inexorably disintegrate with the passing of time.

That is what we shall call the patrimonialist system of industrial and urban memory. Fundamentally ambivalent, such a system is both fascinated and worried by accelerated time (speed), its conscience marked by the erosion of the most well-established and solid beings starting with those responsible for ensuring that permanence is celebrated and underwritten by society – the monumentality of a building, of a style of architecture and of the values represented therein who, like the others, are moving inexorably towards obsolescence. The industrial and urban wasteland will be the last image in a story which started with the romantic ruin.

Modern memory is therefore engaged in a state of 'fear and trembling', and in the throes of ecstasy in a labour of societal edification, a social audit, the growing difficulty of which is associated with the proliferation – to the point of overload – of signs of the past and sites assigned to them: the construction and layout of specific areas for the conservation, exhibition, consultation (museums, libraries, repositories, documentation centres, etc.) and restoration of works or objects bequeathed by history; the rehabilitation of even the most ordinary sites (industrial wastelands), to which the patina of time, as if to compensate for the cruel destiny that

ended their moment of glory, provides retroactively a strange and ambiguous added value. All of this, naturally, accompanied by an entire arsenal of corollary symbolic operations: the preparation of catalogues and lists, the making of inventories, the indexing of beings and things in terms of collections, the construction of reserves, etc. In short, so many procedures in which sociologists or historians would have no trouble discerning the classical tradition of taxonomy and classification, so strikingly explained and brought up to date by Michel Foucault.[5]

Informational thought takes up the torch effortlessly by proceeding to reconstruct digitally those elements and fields of industrial memory which have been thus classified, inventoried and indexed. Although this might appear to be an innocuous process, the digitalization currently under way is, as it were, to use Clauzewitz's famous phrase, the continuation of modern memory policy 'by other means', namely, the neo-rationalist, neo-industrial methods of the information system: dealing with all things in economic terms as sources or veins of data open to circulation or exchange, provided with suitable space-time (Internet and intranet networks), woven in a common language (HTML) and placed on proliferating sites, duly named (domain names), accessed through portals by the use of codes, some of which are secret (cryptage).

Information and memory: an organic relation

At this point the epistemologists take over, pointing out to their colleagues that memory holds a special place within the logic of the information system. First of all, memory is the condition *sine qua non* of its practical operation: memory is at the heart of the technical mechanism, giving it the revolutionary form of digital automaton. Secondly, using the same technological basis, the system transforms memory into a major industrial affair, enabling it to become a global economic business involving merchandise, capitalization and profit: memory as a cultural facility. The virtuality of information logic or information as a system of thought; the actuality of automatic calculation or digital processing as a physical system – these are two sides of the same coin, the obverse and reverse of this neo-memory offered to us by informational memory.

The virtues of the informational order

Consequently, we can try to understand what kind of memory system informational thought is now able to bring to the baptismal font, and thus extend within society, for private and public use. Even though it retains the marks of its predecessor, this system clearly has the traits, the features of the thinking and the implementation plan that governed its formation.

Like the number and the *logos* from which it is organically derived, information defines very different economic relationships with physical surfaces, supports and channels, while selecting its own existential channels and supports according to the links that it wants to establish with them. Links that no longer involve establishing a record or a trace (which was the basis of the old memory system's primary ontological consistency and thus the condition that regulated its space–time), but which involve giving possible form, that is, which inform *stricto sensu*. As its first nature is that of a fluid, within society it imposes a universe of flows.

Fluidity is the system of expression *par excellence* of modern entities. It gives rise to a genuinely revolutionary onto–industrial situation that has been summed up clearly by Italo Calvino: 'The second industrial revolution (the information revolution) does not project the overwhelming image of rolling mills or steel castings, but is portrayed as bits of information through circuits flowing in the form of electrical impulses. Metal machines still exist but they are controlled by weightless bits.'[6]

This entails two important consequences to say the least. Solids, which have heretofore been the source and guarantor of major cultural values (in particular those expressed in monuments) are now losing, if not all presence or power in society, then at any rate all regulatory cultural authority. They are henceforth subordinated to the liquidity – hence the accusation of liquidation that will be levelled against it – of information financial markets (born of currency flows that have now become information flows, this is the most characteristic form of this unstable state of affairs). While conserving in their cultural landscapes the hard and durable forms on which basis they hitherto regulated their order of existence, social groups are becoming dependent on a new thermodynamic, if not meteorological, type of identity, with the major consequences that a takeover by such a resolutely dissipative 'ontology' entails. The socio-cultural field is now subject to an increasingly high factor of instability which projects it into an extremely critical state that simultaneously affects, through a twin process of geographical (transport) and communicational (telecommunication) deterritorialization, the space–time of bodies and minds.[7]

Informational thought calls for and selects channels, or physical supports, capable of effortlessly adopting its forms and its tricks of calculation and logic. This is the reason for the selection of undulating media (electric, electronic or optical) capable of carrying information at the speed of light. As a corollary, in the coming culture, this will also account for the irreversible decline of channels and supports with an 'atomic' (physico-chemical) consistency. Their high inertia and solidity coefficients objectively prevent them from joining in the meteorological dance of the various flows. The real time, which constitutes their foundation in terms of duration, places them instantly outside the 'real time' of information entities. A great materiological change therefore, but, at an even deeper level, an enormous paradigmatic change: the dissipation of 'free time' (speed, acceleration and instantaneity) triumphs over spatial divisions and frames, dynamics triumphs over statics. This puts cultural formations into extremely critical existential situations, starting with ubiquity.

A beautiful, clear and stimulating passage from Paul Valéry provides valuable insight here. Wondering what changes in the 'ancient craft of the beautiful' the scientific and industrial development of the time would make to works of art and the artistic heritage in general, he said:

> They [the works] will in future be no more than sources or origins and their full effects will be experienced again and again wherever one wishes. Just as water, gas, and electricity are brought from afar into our houses to satisfy our needs with minimal effort, so we shall be supplied with visual or auditory images, which will appear and disappear with a simple motion, hardly more than a sign. As we are

> accustomed, if not compelled, to receive various forms of energy in our homes, we will therefore find it very easy to obtain or receive at home these high-speed variations or oscillations, which our sensory organs pick up and put together, doing all the things that we know. I am not aware that any philosopher has ever dreamed of a company for the delivery of sensory reality to every home.[8]

Here we are deep in the heart of contemporary memory: access to all reality, be it a thing, a form or a work, that has the modular status of a source. In other words, it has the status of a liquid, virtual and functional entity: everything in the source has to do primarily with potential – a source exists only to flow, to spring freely before irrigating the land or forming a river or a lake. A source is thus reality awaiting a form (natural or artificial), whose shape and use will be determined only by its subsequent flow movements, and therefore by the geography of the land and soil to which it flows, or else by its artificial impounding. This is a rich metaphor that gives insight into a key feature of the new informational environment: nothing is taken for granted at the outset, apart from the pure potentiality of a source. The value of the information entity thus depends entirely on its future, its social mobilization. In other words, it depends simultaneously on its circulation in one circuit or another (major role of networks as a new type of geography) and therefore, of course, on the use that the devices which administer this process (programs, interfaces) permit through the delivery of information. This is strongly implicit in a notion such as 'data bank', in which explicit reference to a commercial model expresses, most clearly, the potential dimension. Whenever a 'source' or a 'deposit' is being considered, what matters is the momentum of subsequent circulation (circuits) and thus its mobility index, the immediacy ('real time') to define its ideal status. These are the very conditions of the social (and, of course, commercial) exploitation of the information entity, and the original practical uses that it permits and prefers.

This situation has two inseparable and contradictory effects whose subtle dialectics must be understood by sociologists, and even politicians: first, a general, irreversible shift of the cultural field towards a dissipative type of informational status – the information order as a neo-industrial neo-urban process of deterritorialization; and, secondly, a process of reterritorialization – here, the term 'local revenge of the place' could describe the retroactive affirmation of place as part of an identity game. This identity game is characterized by an essential ambivalence that could be described in Spinozist or Nietzschean terms: (a) a sad and unhealthy version – a fantastical vision of place as the ideological basis of an ethnic claim, or the establishment of a place of origin; (b) a happy and creative Proustian version – a 'time lost and found' relationship with place, which involves an attempt to extend to the 'genius of place' Baudelaire's proposed definition of 'place of genius', namely 'childhood revisited at will'.

We now come to the last and no doubt one of the most significant aspects of the digital economy, interactivity, which we think is the most significant quality of the information order and its works. It is the hallmark of its resolutely operational dimension. More than any other aspect it provides insights into and measures the qualitative leap made by the information model in comparison with the previous model, namely, in

relation to the visual order. It is no longer a question of watching, even less of contemplating (with the quality of time that such a system implies), but of analysing and acting. Such a relationship presupposes perfect ductility in the form and substance of the action to be taken, and a modular ability to define and propose a 'variable-geometry' version of reality and, also, to define a reality that is readily adaptable to the aim and vision of the thought that confronts it. It is all as though even in its very materiality the world concerned – and it is obviously a very unique matter and world – could now be entirely moulded to fit thought scenarios, as if it had in some way become a thought scenario, although its changed state at no time alters, or still less prevents, the exploration and experiments of thought.

Such a situation gives insights into the issues and challenges of the new memory that is actuated in the modular games of the digital avatar. Consider, for example, what happens to a work of art that is subjected to digitalization. Once the operation is complete, the work continues to exist in its space–time. That being so, it also has a digital version of itself, with all the virtues of that version of existence: a modular dimension, transparency, ubiquity and interactivity. What does that mean and, above all, what does that add to the work? Like Vishnu, it has a prodigious polymorphic ability, derived from the 'avatar', to be incarnated in many forms which, without exhausting its being or meaning, gives it a presence by informing it in a palpable form. In addition, it possesses a feature which is peculiar to the digital avatar, namely, it is an intelligible, controllable version of its model and is open to all kinds of experiment and manipulation.[9]

The digital avatar and its virtues

Let us compare the original work and its digital avatar: the former appears as a non-decomposable whole by virtue of the singular force of its 'being-there' (*dasein*); the latter appears as a decomposable whole or system, whose form, which makes it possible to refer analogically to its model, is by no means intended to provide a copy of that model or to be a servile imitation of it, but rather to discern the finer details of its foundations and uncover its most subtle mechanisms. The digital avatar therefore presents all the virtues of the most elaborate discourse (mathematics, logic), from which it wholly derives. At the same time, it possesses qualities regularly lacking in discursive logic, namely the aesthetic qualities of the tangible form. That is why the avatar does not provide a *presentification* discourse on the work, but rather a representation of the work itself, half-way between the intelligible and the tangible.

An anecdote may help explain this point: several years ago, during a major symposium organized by the Louvre Museum on the theme 'Museology and the New Technologies', a speaker, visibly upset, let out this rhetorical cry, hoping to free himself once and for all from a problem which was obviously not his 'cup of tea': 'To hell with all this hardware! What counts is having the Mona Lisa!' This zealous defender of enthroned works might have recalled that in previous epochs countries rich in raw materials paid (and are still paying) a painful price for their 'physiocratic' discourse praising the cardinal virtue of owning the source. Possessing a vein of copper or manganese or owning land or works of art is obviously not wholly without value. Nevertheless, property or

wealth of that kind turns out in the end to be worth very little – it may even be threatened with elimination (or dispossession) – unless it is part of a process of exchange, either commercial (profitable) or symbolic (meaningful). In both cases what counts is, first, putting the source into circulation, second, the way in which such circulation is conceived and managed (policy) and, third, the form which enables it to be brought into use (communication). In short, aside from the work's production or creation, what counts is its relational dynamic. This places significant responsibility on the shoulders of the curator, the keeper of memory. Of course, it is the conservator's task to cherish the work, to restore it and to preserve it as well as possible in order to make it available as a singular object, radiating its full aura here and now in the space-time of the museum (with the important issues of architecture and design which arise in that regard).

At the same time the curator is equally obliged to reflect on and present the work as a source. The point is that the work offers a world of infinite virtuality and its museum presentation, albeit essential, expresses only the consubstantial reality of the work's 'being-there'. As rich as it may be, the 'presential' aspect of the here and now hardly exhausts the virtuality of the work. What is more, whether the partisans of presence like it or not, the virtue of that presence is never spontaneously revealed merely by the magic of a masterpiece. The masterpiece must have already found a place and defined itself somewhere, somehow, in the existence of the spectator so that, if and when there is a direct encounter, the work can reveal itself in all its splendour. Education is thus the first laboratory of virtuality, whether it be in the form of art, knowledge or meaning. It is here that technical avatars (photographs, videos) and, now, digital avatars play an irreplaceable and even founding role. They make the work, as idea, available before and after its presence. They lay the groundwork for a meeting – in the ideal case – and replace it with brio when a meeting is not possible.

There is more: the digital product – today's technical avatar – is now capable of unfolding the work, of placing it within the reach of the user, not in the flat form of a representative discourse or image, or even of a perfectly imitated second 'similar object' (Plato), but in the form of an intelligible and tangible double: an interactive and ubiquitous[10] simulacrum which, wherever it may wander, the thought process can lasciviously return to, and dwell upon, to the point of complete immersion. In its digital version, the avatar is neither a simple copy of the model nor a pale imitation or mediocre representation thereof, but actually the work itself in other senses. The avatar can undoubtedly not replace the work or replace direct experience of it: just as books are not going to be forced out of existence by computer screens, physical museums will not be replaced or eliminated by 'virtual museums'. Yet, both will be displaced by the new information scene and its offerings. What the good curator or teacher should do under such circumstances is not to take a harder line on the status, competences and context which, previously established, and justified their authority. Neither should they sell out those qualities 'cut-price' to replace them with the 'virtualist' stance of a rough and destructive modernism. What they should do is to play creatively and judiciously with the difference in levels corresponding to the two poles represented by the work and the avatar and

with the dialectic that such a difference generates in the spectator, enhancing the eminently virtual meaning of the work. This meaning is sufficiently complex and open to authorize and justify multiple peripheral practices and products, each reflecting one facet of the work without claiming to have exhausted its infinite variety. The conception, production and use of this new type of mediating facility therefore calls for special attention and genuine competence and, indeed, a veritable art policy and the launching of a genuine democratic effort to provide access to the works.

Let us conclude this somewhat future-oriented philosophical reflection on the information scene and its new cultural dimensions. Beyond the 'progressive' delirium and vulgarity of the desire to adapt, giving rise to a profusion of increasingly sophisticated means for arriving at what is easiest and most widely agreed upon as long as benefits are involved; beyond the pathetic headlong flight of a worn-out clerical culture, whose only motivation is self-preservation, dynamic thought must 'joyfully embrace the risks of the time' (Nietzsche), resolutely accept the new state of affairs, including its meanderings and bad habits, and endow it with a framework for resistance and creation.

Consequently, confronted on a long-term basis by the exponential increase in capacities and achievements of every sort, dynamic thought will have to ask what form to give to such a world, how to install within the culture, that is, within its thinking, the new informational state of affairs. That is the high price we must pay today for the cultural projects of knowledge, memory, creation and education.

| NOTES

1. 'Regards sur le Monde Actuel', *Œuvres II*, p. 922, Paris, Galimard, La Pléiade, 1931.

2. *Cinéma 2. L'image-temps*, p. 352.

3. Jack Goody, *The Logic of Writing and the Organization of Society*, 1986.

4. *Under the sign of Saturn*, New York, Ferrar, Strauss & Giroux, 1981

5. *Les Mots et les Choses*, Paris, Gallimard, 1965.

6. Italo Calvino, *La Machine Littéraire, Cybernétique et Fantasmes*, Paris, Le Seuil, 1984.

7. Social groups are now dependent on the profoundly 'deterritorializing' interplay of an expanding dynamic space-time, in which each element, each region, while keeping its old topological (vernacular or political) regulations more or less alive, now takes on global significance and functions in the new 'translocal' scheme of relations which do not dissolve them but link them up to regional groups worldwide which have hitherto been ignored or regarded as exotic (tourism). Over and above the economic system of capitalistic interests, which are quite obviously on the offensive in such a situation, the process of globalization has to do primarily with a technoscientific, industrialist relationship with the world which tends to cancel out substantive differences and thus gives precedence to, or even systematically establishes, a level of substance and of exteriority, which is not immaterial as some have hastened to assert – even in electronics, the material subsists – but increasingly adapted to the object of thought, espousing the lines of force of the possible. This, in our view, is what today's partiality, the evident irrepressible passion for virtuality, implies; not that virtuality is an invention of the informational order or of digital thought – an aspect of reality (and not its opposite) whose power it expresses, virtuality characterizes the openness that marks an existential structure and which it exercises in practice through its choices and acts – but, owing to the virtues of information, the information order provides people with the means of bringing virtuality under control, by exercising it in terms of the possible: in the case in point, this means in terms of programmes, calculations, models ... as denoted by the logic of the project and the object of thought.

8. Paul Valéry, *La conquête de l'ubiquité. Pièces sur l'art*, Gallimard, La Pléiade, Œuvres II, Paris.

9. This is the fundamental difference between the religious universe and the rational universe: in the former, there is a top-down movement (incarnation) that triggers a whole series of opacifying differences during formal transition; in the latter, the movement is from the bottom up, the form being the occasion, the very mediation of the intelligible.
10. DVD production is thus a major creative and political act. See in this connection the remarkable work done by Alain Bergala for the French Ministry of Education on the world cinematographic heritage.

WORLDWIDE USE OF THE INTERNET

INTERNET HOSTS

	Hosts total	per 10 000 inhabitants
Americas	112 496 115 000	1 333.86
Europe	15 324 765 000	191.46
Asia	10 554 632 000	29.29
Africa	274 742 000	3.44
World	141 382 198 000	232.66

Source: ITU, 2001

1:1

WORLDWIDE USE OF THE INTERNET

INTERNET USERS COMPARED WITH POPULATION (MILLIONS)

	Internet users	Population
North America	180,68	419,83
Europe	155,26	727,19
Asia/Pacific	143,99	3 650,27
South America	23,33	433,41
Africa	5,5	858,58
Middle East	4,65	177,91
Total	513,41	6267,19

Source: *http://www.journaldunet.com* 2002 and UNESCO 2002

1:2

TOP TEN COUNTRIES USING THE INTERNET

PERCENTAGE OF POPULATION USING THE INTERNET

Iceland	60
Norway	49
Sweden	46
Canada	41
Finland	40
Denmark	37
Republic of Korea	35
Australia	35
USA	35
Singapore	30

Source: ITU, 2001

1:3

WHY THOSE OFFLINE ARE OFFLINE

Research by Ipsos-Reid about people in thirty countries who are not on the Internet and who claim that they have no plans to go online.

MAJOR REASONS FOR NOT USING INTERNET

40 %	No need for it
33 %	Don't have a computer
25 %	Not interested in it
16 %	Don't know how to use it
12 %	Cost (general)
8 %	Not enough time to use it
7 %	Not able/too old

Source: *http://cyberatlas.internet.com* 2001

1:4

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Values, Built Heritage and Cyberspace

by Sílvio Mendes Zancheti

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This article has two objectives. The first intends to discuss how the economic value of built heritage changes as a consequence of the advent of cyberspace. The article is centred on the changes provoked by the emergence of new values associated with the virtual dimensions of built heritage in cyberspace. The second objective intends to initiate a discussion on the economic, political and social implications of cyberspace for the conservation community and for its theoretical and practical framework.

Some concepts

It is important to define the concepts of value, culture and community as they are used in this text, due to their fundamental importance for conservation theory.

Values are understood as social relations. Each value exists only in relation to other values. Values are not absolute.[1] They are symbolic creations deriving from long-standing cultural practices and exist only in immaterial forms. Values are transmitted and re-appropriated over time. Each generation hands down to the next a set of values and the structural relations with which to understand it.[2] Therefore, in the long term, values are in constant transformation.

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Culture is defined as a network of symbolic systems that make sense to groups of people belonging to many generations.[3] As it is the product of historical processes, this network of symbolic systems is in constant transformation.

Community refers to a group of individuals who share a particular set of values independent of the cultural context to which they belong. Some communities may share the values of one or more different cultures, as is the case with Internet communities. A determined society, with a well-defined culture, may have many communities organized around specific subsets of cultural values.[4] Local communities are groups of people who share a set of values, having a determined geographical base. These communities are related to specific places and historical contexts.

The value of built heritage as a time/space relation process

The new technologies of digital information and communications created the possibility of instantaneous communication, at low cost and independent of spatial restrictions. The time of the economic, political and cultural processes has changed completely with this new possibility, as well as with the perception of the dimension 'time' by the social actors. Virtual time is very different from the time of human production and interaction. However, the social enlargement of virtual space (cyberspace) and time, brings the real time/space relations close to their virtual dimension. There is an adjustment of the real relations to the impulses, speed and rhythms of virtual relations. The historical subordination of time to space has been broken and inverted completely. Space is now being subordinated to virtual time (i.e. the human relationships adjusted to the speed of light)[5] in the development of the economic, political and cultural processes.

The value of built heritage is a cultural category profoundly determined by time and space relations. For example, the simplest description of a built heritage in the World Heritage Sites List includes, at least, the name, the place and the period of construction. However, the most important information about the element is the definition of its universal value in relation to other cultural contexts and built heritage elements. It is this value category that settles the cultural background and justifies the inclusion of a particular built heritage in the prestigious list. In the listing process of the universal values, the categories of space and time acquire the form of a specific place and a historical period.

A built heritage element, in its material form, has universal value especially when it is put in relation to other elements with different time/space definitions. The idea of cultural diversity, that gives support and meaning to the World Heritage List, is also the way to perceive the different forms of expression of the material side of human culture and its expression in time/space references.

Built heritage and local communities

The establishment of values is a historical process that needs to be continually redone by each generation, otherwise values can be lost, or accepted only by restricted groups of people. The concept of universal values, as used today, is a historical construction which has its origins in the humanist

and Enlightenment era. The reproduction of values (their perpetuation in time) is a task of communities that co-operate and share specific values inside the cultures. Since the beginning of the nineteenth century, the community of scientists, artists and art critics working with archaeology, arts and architecture has been responsible for establishing, perpetuating and developing the concept of heritage and universal values, as they are known today.[6]

The assimilation of heritage values, by larger groups of people, in many localities, is a complex political, ideological and cultural process. Heritage values are important and determinant to the dynamics of cultures, only if they are accepted and reproduced in time by many communities in an intergenerational process. They become cultural substrata only when they are present in societies for relatively long historical periods.

Heritage value is not the only type of value determined by time/space relations. It depends on many other types of values as the artistic, the monumental, the memorial, the use and the exchange value, which are defined by the same historical process. However, the determination of values is fundamentally a process that involves communities of people in particular time/space circumstances and relations. For many centuries, local communities have been responsible for determining their heritage values. The sites and buildings were constructed and conserved according to decisions concerning the allocation of communities' resources. Certainly, the local communities were being influenced by symbolic systems and values from other cultures. Since antiquity the communication system has been an important medium for cross-cultural fertilization.

Today, this situation has changed a lot. For example, normally the process of listing a building is the recognition that its values have surpassed the geographical limits of the local communities. In certain countries the inclusion of a building in the national list is a decision process that involves representatives of the national communities. There are many spatially different communities involved in the determination of heritage values and in the conservation of sites and buildings. Heritage values officially continue to depend on cultural experts and public officials. However, unofficially, they depend on financial supporters of conservation projects, tourists and tourism promoters, urban planners, real estate developers, and many other social groups.[7]

Built heritage is also an important form of connecting communities. Past, present and future communities can share values carried by buildings and sites, if the interpretation codes of these values are also transferred between the generations. Thus, to recognize a building as a social heritage is the creation of a vector of communication with future communities, and the intergenerational transference of built heritage is an important form of maintaining the cultural values in societies.

The relation of communities and the universal value of built heritage is different from that established with local communities. There is not a close relationship between the buildings and the communities that recognize their values. This process is mediated by a broad spectrum of symbolic codes and structures that are common to many groups of people in different places and times.

Universal value is a concept related to the local authenticity and the diversity of cultures: 'the modern concept of universal value is referred to the particular quality of a heritage resource. This is related to its being an authentic product of a particular culture or cultures. This issue is related to the idea of cultural diversity, that is, humanity has the capacity to be creative and innovative.'[8] But the recognition of the universal value is a process of creating relationships with other values that are not linked to a particular culture or cultures. Universal values, as a category, depend on social representations and symbolic systems shared by many communities in the world. These symbolic systems have to be built and reproduced in time, using some specific form of 'cultural medium' that can exist in many parts of the globe, and can last for many generations. This reproduction process is extremely complex, since it requires costly media, such as universities, schools, cultural ministries, films, television and radio programmes, books, journals, photos, art galleries, museums, and so on, which operate thorough the use of mass-media communication systems and infrastructures. It is almost impossible to think of a concept of universal values in a world not connected by transportation and communication systems. That is, a complex cultural system is in the background of the reproduction process of universal values, and the communication revolution has an enormous impact on its dynamics.

Cyberspace, cybersymbols and cybervalues

The communications revolution has created a new form of space: cyberspace. This is a realm of symbolic forms, whose only life is electronic, and which operates at close to the speed of light. All the elements of cyberspace are symbols and relations (interfaces and networks).[9] The material elements that support cyberspace (communications networks, computers, etc.) constitute the 'gates' of entry (interfaces) to this realm for people – permitting the interaction of the elements of cyberspace with the human senses.

Cyberspace has a profound impact on human life. Some important thinkers consider it to be 'the space of human culture' or knowledge, not because it is possible to insert all the forms of knowledge in it, but because its essence is the 'relation'. Cyberspace minimizes, and may even remove, the barriers to human relationships imposed by the time/space relations that prevail in the material world.

A virtual image of any cultural artefact may be generated and posted on the Internet. There are, however, some artefacts that exist only in cyberspace, such as, for example, virtual reporters, the fantastic architecture to be found in games and the 'Visible Man'.[10] The latter is a complete visual representation of the human body, from both the outside and the inside. There are no limits to observation; it is only necessary to define the angles, co-ordinates and type of movement for the observer to enter into a new reality of the body. The 'Visible Man' is also an 'operational symbol' that can simulate the bodily impact of many scientific experiments which could not be performed on real humans.[11] The set of virtual representations of the virtual-only artefacts, organized in relational space, constitutes cyberreality.[12]

Built heritage and cyberspace

The values of built heritage are important elements for those seeking knowledge and new life

experiences. Built heritage is already in cyberspace. The number of Internet sites directed at virtual heritage is growing fast, and many of these are experimental sites that are searching for new forms of presenting buildings and sites. To this end, they employ the full range of human sensation, comprehending sight, touch and hearing.[13]

Cyberspace changes the way people understand and interact with built heritage. In a similar way to the 'Visible Man', virtual heritage is different from a photograph, drawing, textual description or any other conventional form of representation. Fundamentally it is an 'object of knowledge', which can be manipulated in accordance with the objectives of many diverse intellectual projects. Furthermore, it is an 'operational object', open to any kind of experimentation and suitable for testing theories, meanings and sensations as well as establishing relationships between people and other things.[14] It is not subject to the restrictions of the real and material world; consequently, it can participate in simulation processes that (a) change the perspective one has of them and (b) change its nature by the addition and subtraction of its components.

One of the most interesting aspects of virtual heritage interface is the possibility of associating and establishing relations between buildings and sites in real time. Space and time lose their frictional characteristics, thus permitting monuments and sites to be put together[15] in the same time/space relation and be manipulated, in part or totally, to create a new space.[16] Virtual heritage is subject to symbolic operations. These operations have to be meaningful to those communities sharing the operating tools. Thus, virtual heritage is a medium for generating new sensations and knowledge related to real heritage. The virtual operation can most certainly contribute to deepening knowledge about the cultural heritage. This is due to the fact that any comparison between monuments or sites involves a methodological procedure necessary to improve the understanding of their values. Cyberspace allows for this and other kinds of operational procedures that may lead to new objects of knowledge.

Cybercommunities and cultural values

Cyberspace is a suitable medium for overcoming the cultural barriers that restrict the sharing and operation of heritage by different communities.

Built heritage has been a solid element in the representation of culture and its diversity, and virtual heritage is an effective medium for the dissemination of cultures and values. But virtual heritage is not only important because it uses a special medium, but also because it is a source of new symbolic systems. Cyberspace was the product of a special culture; however, its development is turning it into a medium for the creation of new forms of culture.

Virtual heritage is leading to the increase in the number of people and groups of people who are interested in cultural values. On the Internet, there are many communities centred on built heritage, and their members come from many parts of the world. Cyberspace enables their participation in specific cultural processes and, through the medium of virtual reality, they are also able to share values that are different from those of their own

cultures.[17] What ties virtual communities together is the possibility of actively participating in cultural processes and specifically creating symbols and values. The possibility of operating with symbolic systems attributes to cyberspace a new quality that distinguishes it from other media, such as books, radio or television. All past forms of mass media were very important in the cultural cross-fertilization process. They did, however, lack the main attribute of cyberspace, which is real-time interaction among people, in addition to the possibility of intervention in the symbolic systems that are represented in the medium.[18]

Without doubt, cybernetic cross-cultural fertilization and the operation of cybervalues are restricted to those local communities that are in fact connected to the Internet. The form of appropriation and construction of symbolic structures related to heritage sites also differs a lot from community to community. There is a complementary relationship between the symbolic structures of virtual space and real space, because the symbols and meanings of the two systems overlap. However, it is impossible to state that the overlapping corresponds to universal values. There are a lot of other questions that must be answered before the identification of common universal values in the two systems is possible. For example: Can universal values exist in the two systems at the same time? Are universal values connected only to places, and therefore to a specific space/time relation? Can these values continue to exist in the virtual built heritage or are they substituted by other values that we cannot yet classify? The answers to these questions are not easy because they require a larger cultural practice in the use of cyberspace. However, the phenomena that are behind these questions already start to change the perception of some categories of values, specially the economic value of built heritage.

The economic value of built heritage in cyberspace

Built heritage is important for economic processes. Today, some international businesses have adopted a strategy of associating the symbolic system of built heritage with their commodities (the material and immaterial objects of commerce and services). This association, when successful, adds a value to products that could not be created through the production process. The example of the tourist industry is perhaps the most immediately visible case. However, the same strategy is used in the fashion, craft and food industries, as well as by sophisticated service enterprises. These businesses are able to do this due to the fact that the economic value of any kind of human object is always a social relation. This is true for simple commodities as it is for unique human creations like built heritage. With the transformation of time/space relations, cyberspace and cybersymbols are bringing about profound changes in social relations and in the economic value of human artefacts.

Economic theory has been pressed to ask what the economic value of the non-reproducible goods of nature and human culture is, and how this can be calculated. The most accepted concept of the total economic value of a cultural artefact describes it as the sum of three other types of values:

Total economic value = use value + option value + existence value.

The option value is divided into three subcategories: use value for individuals, use value for future individuals (future generations) and use value for other individuals.

It is not the purpose of this article to discuss these categories, or their application to cultural objects, because reputable economists have already done this extensively.[19] What is being investigated is the new meaning of the total economic value of the heritage with the advent of virtual heritage. Certainly, since virtual heritage impacts on the meaning and the application of all the value categories that make up the total economic value, the total value is not the same.

When we analyse built heritage, we also have to consider the existence of its virtual representation; thus, for any building or site, the new total value can be expressed as:

Total economic value = total real value + total virtual value

The addition of the forms of value is a perfectly reasonable operation. Even though the two forms of value do enjoy some relative autonomy, they constitute two parts of a whole. Virtual heritage is a new dimension of real heritage that makes sense only with the existence of the other form. There is a genealogical process, by which virtual manifestation appears only after the real heritage. But were the real object to disappear, virtual representation may continue to exist.[20]

The use value has historically been associated with the material existence of built heritage and with the people who may visit the sites or monuments. Virtual heritage extends and enlarges use values because it creates a new form of visit and, more important, because it is an object of knowledge. Virtual heritage also enjoys some other properties not to be found in the real counterpart. The most striking of these is its infinite operational capability, as an object of knowledge that can last for ever, regardless of the kind of operation performed on it.[21]

The option value is greatly affected by cyberspace. The option value is associated with the potential for individuals to use or share the heritage values with other people and with future generations. This potential is present only when the heritage is known, otherwise it would be impossible to opt for not using it or for bequeathing such use to future generations. Cyberspace is enlarging the potential of individual choice, since individuals may exercise the option of using virtual heritage as a proxy of the real experience. For example, fragile sites may be protected from the hazards caused by visitors, through the use of virtual simulators that reproduce the environmental conditions and spatial perceptions of the sites.[22]

The existence value of the world's built heritage may change drastically with cyberspace. Quantitative and qualitative processes are transforming this type of value. The existence value depends on the knowledge that people have of a determined object and the number of people who have that knowledge. Thus, this value will increase in proportion to (a) the number of people aware of the values of the buildings and sites, and (b) the increase in the number of qualitative values that are socially recognized in the heritage.

In the case of well-known sites, such as, for example, the Pyramids in Egypt, the impact of virtual heritage on the existence value will be minimum. In contrast, however, sites that are not yet well known, such as Chan Chan (Peru) or Potosi (Bolivia), may experience a dramatic change in their existence values as calculated in monetary terms.

The qualitative determination of the existence value can be considerably altered by virtual heritage and cyberspace. The existence value of virtual representation of heritage provokes profound philosophical deliberation. For example, it is not clear whether it is ethically correct to destroy a virtual representation of built heritage. Is it a new artefact, having its own intrinsic value? Or is it possible to claim that it is a mere representation, empty of any value? Certainly, it is a cultural object that, though distinct from the real heritage, is necessarily attached to it. At the very least, virtual representation is the best manner of guaranteeing a record of the real heritage should it be destroyed by some disaster. Virtual heritage comprises elements that represent a new dimension of the same artefact. They can be the depositories for experiences related to the buildings and sites, subject to unlimited expansion and open to all kinds of reasoning and conclusions. It is a space of knowledge, complementing the space of material information, the domain of the real heritage.

Finally, the practical determination of the economic value (in monetary terms) of built heritage is a difficult and costly process. The classical analysis of, for example, the willingness to pay for the conservation of the sites, or the cost of visiting the monuments, requires time-consuming surveys in different regions of the planet. Cyberspace permits a reduction of the time involved in these procedures, the expansion of the samples used for the surveys and the formulation of more precise questions (as well as the provision of answers), with the use of virtual heritage and simulators (in the future).

Conclusion

Virtual built heritage cannot be considered a simple representation of real buildings and sites. It is a new element of knowledge that will profoundly change our conception of built heritage and its cultural values. This impact will perhaps be present in the economic value that communities attribute to built heritage. Over the last decades, economic theory has made great advances in understanding the importance of environmental and cultural goods for economic processes. The emergence of cyberspace poses a new challenge to economic theory. Virtual heritage is an object of knowledge; thus it has the right to exist *per se* and has value independent of the material existence of the heritage. Virtual heritage brings to the economic process new flows of goods (virtual goods) and services and is a source of utility to large communities around the world.

The two forms of built heritage – the real and the virtual – are not exactly different 'faces' of the same thing. The independence of the two forms creates a dynamic in the process of value generation which will change our approach to our cultural heritage.

NOTES

1. Artefacts are simple artificial elements, that is, men create them. Herbert Simon defined an artefact 'as a meeting point – an "interface" in today's terms – between an "inner" environment, the substance and organization of the artefact itself, and an outer environment, the surroundings in which it operates' – H. A. Simon, *The Sciences of the Artificial*, p. 7, Cambridge, Mass., MIT Press, 1969.

2. S. M. Zancheti and J. Jokilehto, 'Values and Urban Conservation Planning: Some Reflections on Principles and Definitions', *Journal of Architectural Conservation*, Vol. 1, March 1997, pp. 37–51.

3. P. Lévy, 'A Internet e a crise do sentido', in N. M. C. Pellanda and E. C. Pellanda (eds.), *Ciberespaço: um hipertexto com Pierre Lévy*, pp. 21–35, Porto Alegre, Artes e Ofícios, 2000.

4. In this text, the concept of community is that used by Ester Dyson. See: *E. Dyson, Release 2.0: A Design for Living in the Digital Age*, p. 33, New York, Broadway Books, 1997.

5. To be more precise, the adjustment of human relations to electrical time, according to Marshall McLuhan's concept.

6. This process has been very well described and analysed by distinguished authors and does not need to be detailed here.

7. The traditional group of intellectuals and public officials which, for example, has been involved in organizing the World Heritage List, is losing its importance, relatively, to other economic communities. The pressure on ICOMOS to analyse the large number of requests to list world heritage sites is today quite revealing.

8. This definition comes from a comment by Jukka Jokilehto to a previous version of this article.

9. Relations between: man–machine; machine–machine.

10. See: *http://www.nlm.nih.gov/research/visible/*.

11. C. Waldby, *The Visible Human Project: Informatic Bodies and Posthuman Medicine*, Routledge; L. G. Santos, *O ser digital e a virada da cibernética*, Folha de São Paulo, Caderno Mais!, 25 May 2001.

12. In this text, cyberreality is a concept comprehending the elements that exist only in cyberspace. Virtual reality is the concept used to express the elements of our world that have a representation in cyberspace.

13. On the Internet, the number of sites specializing in virtual built heritage is growing fast. The site *http://www.virtualheritage.net/* is a compendium of some of the most interesting experiments with virtual heritage and is a source of information about new initiatives in this field.

14. The properties of virtual heritage listed here can only be experienced if there are interfaces linking cyberspace to our sensations. The interface is the crucial element for the full development of built heritage as a new object of knowledge. For a very good interpretation of the social impacts that interfaces are causing in our culture, see S. Johnson, *Interface and Culture: How New Technology Transforms the Way we Create and Communicate*, New York, Harper Hedge, 1997.

15. In the newsagents of Italy, particularly in tourist spots, it is common to find, a 'photo' or a 'map' of Italy composed of photos of other monuments and heritage sites. At first glance, the image is similar to a satellite photo, but on closer scrutiny, we realize that it is composed of photos of famous monuments. It is a rather kitsch image. However, it is also an attempt to establish a general framework of relations between the sites and monuments. Cyberspace allows for this type of construction, and the result is a completely new element.

16. Johnson, op. cit.

17. The creation of opportunities to 'visit' the monuments and sites of the world heritage has constituted the strongest motivation for members of the virtual heritage community to create virtual representations of these elements.

18. Certainly there is no substitute for the real experience of visiting heritage sites and monuments. Visiting such sites is an aspiration of any member of virtual heritage communities. However, for the majority, time and cost restrictions are prohibitive.

19. There is a vast bibliography on the subject of the economic value of cultural and natural artefacts. This work referred mainly to Pearce's contribution. See D. Pearce, A Markandya and E. Barbier, *Blueprint for a Green Economy*, Chapter 2, London, Earthscan, 1989.

20. Virtual heritage has been used to 'create' representations of vanished or ruined built heritage. It is a powerful instrument for carrying out stylistic restoration, such as that done in the nineteenth century by Viollet-le-Duc and others. A good example of these new creations of ancient built heritage is the site of the 2004 Athens Olympic Games, aimed at recreating ancient Olympia. See *http://www.phm.gov.au/ancient_greek_olympics/*.

21. The new use value of virtual heritage creates economic opportunities

for the local communities that own or conserve the original buildings and sites. They can acquire certain rights to the conservation of the material authenticity of the artefacts and the universal values for the use of other communities. This economic gain is similar to that resulting from the maintenance of rain forests by the indigenous peoples.

22. The use of virtual representations and simulators can be very important in the case of buried archaeological sites. Cyberspace is a suitable space for the construction of operational representations of these sites without the need to conduct an actual dig or, at least, permitting the postponement of their exposure until a future in which the loss of information would be minimal.

THE INFORMATION SOCIETY

PART OF SERVICE SECTOR IN THE GDP (%)

	1998	Evolution from 1980 to 1998
Brazil	more than 60	+40
Canada	more than 60	—
France	more than 60	—
Latvia	more than 60	+78
Bangladesh	50–59	+31
Georgia	50–59	+45
Malawi	40–49	+35
Mongolia	40–49	–30
Saudi Arabia	40–49	+150
China	30–39	+57
Dem. Rep. of Congo	20–29	–37
Guinea-Bissau	20–29	–30

Source: World Bank/OIT

1:5

THE WORLDWIDE ICT MARKET BY REGION

WORLDWIDE ICT MARKET	2 442 BILLION EUROS (%)
USA	34
Europe	29
Japan	12
Rest of the world	25

Source: EITO

1:7

THE WORLDWIDE ICT MARKET: ANNUAL GROWTH BY REGION

2001 AND 2002/2003 PREVISIONS (%)

	2001	2002	2003
World	4.4	6.6	9.8
Western Europe	5.1	5.4	7.8
USA	0.5	5.1	9.4
Japan	5.3	7.6	7.3
Rest of the world	8.7	9.3	13.8

Source: EITO

1:6

PROPORTION OF GDP SPENT ON PUBLIC ADMINISTRATION ICT COMPARED WITH EU AVERAGE

PERCENTAGE OF GDP SPENT ON PUBLIC ADMINISTRATION ICT COMPARED WITH EU AVERAGE IN 2000

Sweden	+0.40 to +0.50
Denmark	+0.30 to 0.40
Finland	+0.20
United Kingdom	+0.10
France	0 to +0.10
Spain	0 to 0.10
Luxembourg	–0.10 to –0.20
Ireland	–0.20
Portugal	–0.20 to –0.30

Source: EITO

1:8

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Access to Digital Heritage in Africa: bridging the digital divide

by Lorna Abungu

From 1989 to 2000 Lorna Abungu worked with the National Museums of Kenya (NMK) as a coastal archaeologist and editor. In 1998 she spearheaded Internet and multimedia work at the museum through the formation of a working group that oversaw the development of the NMK website and other multimedia projects. In 2000 she left the NMK and was appointed Executive Director of AFRICOM, the International Council of African Museums – a new, pan-African NGO based in Nairobi, Kenya.

Introduction

In most countries in Africa, museums were established during the colonial period and were modelled upon Western museums. This was understandable, as they were created by the colonialists themselves. Many museums exhibited cultural heritage (or ethnographic) objects and natural history specimens for a rich élite audience. Decades later, the African scene has changed: African countries are no longer ruled by colonial powers, and visitors to museums are not just the élite of society. This socio-political change, and the emergence of New Information Communication Technologies (NICTs) in many African countries are, however, not yet adequately reflected in the museums. Many of the national museums are still clinging to the old style of exhibition (e.g. dusty objects hidden in glass cases), despite the changing needs of the African society that they now represent.

Changing needs

What is the role of a museum, especially in relation to the needs of the communities they represent? For an art museum in Europe, the role is very

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clearly defined. For museums in Africa, this is a question that was asked as far back as 1991. Museum professionals from the entire African continent met at a series of meetings in Benin, Ghana and Togo, organized by the International Council of Museums (ICOM). ICOM's President at the time was Alpha Oumar Konaré, until recently the President of Mali. At the meetings, Konaré very eloquently pointed out that it is now time 'to eliminate the Western model for museums in Africa so that new methods for the preservation and promotion of Africa's cultural heritage can be allowed to flourish'. He acknowledged, however, that this could not be done 'if the realms of education and culture remain isolated from each other, as long as the population, especially in rural areas, remains marginalized and even excluded' (ICOM, 1992).

As rural populations continue to be marginalized in many African countries, it has become the responsibility of the museums to break down their walls and, quite often, literally go out to the people. In the face of rapid globalization, museums in Africa – despite limited financial and human resources – are trying to become more socially relevant. They are increasingly trying to jump on the bandwagon to embrace ICTs, and adapt them to the needs of the communities, so as to give them greater access to their heritage.

Addressing the needs

No one will doubt that the basic priorities of most African governments are health and education. Culture rarely gets the attention it deserves, and it is unfortunate that it is not appreciated as the important tool it is for guiding national development policies. As more and more African museums are realizing that they can use the national heritage to address social, economic and even political issues, culture may eventually be accorded its rightful place in government priorities.

In South Africa, the Apartheid Museum, District Six Museum and the South End Museum all address the atrocities of the Apartheid era, and serve as a common ground for understanding the past. These 'new' African museums arose because of the need from within the community to share their stories with each other and the rest of the world. In Mali and Senegal, museums dedicated to the role of women in society have emerged as powerful forces to address gender issues and raise awareness of the role of women as the backbone of contemporary society. Specialized museums for contemporary art, and even telecommunications, are emerging throughout the continent, from Morocco to Mozambique.

The National Museums of Kenya and the National Museum of Mali are currently undergoing major restructuring programmes that will result in increased exhibition space and improved and modernized exhibitions.

These examples – as well as the establishment of organizations such as the West African Museum Programme (WAMP) in Dakar, Senegal, and the International Council of African Museums (AFRICOM) in Nairobi, Kenya – clearly show a determination by African museums to break away from the traditional Western mould. With the emergence of these new museums aiming to be more relevant to the communities they serve, also comes an attempt to embrace new technologies.

New technologies: facing the challenges

It is easy to talk about 'embracing new technologies', but the reality on the African continent needs to be considered. A 1998 Nua Internet Survey showed that more than half the Internet users worldwide are in the United States, despite the fact that the country makes up less than 5 per cent of the total world population. Surprisingly, by 1999, of the fifty-three African countries, fifty had direct Internet access (Black, 1999); today, the figure may be slightly higher.

Yet while many African countries may have access, this does not mean that the population has access. On a continent where, in most countries, 80 per cent of the population live in rural areas, without running water or electricity, Internet access is but a dream. For those in towns who do have access to NICTs, Internet access can still be a hurdle (slow connections, expensive dial-up, etc.).

A major obstacle to African countries gaining access to digital information is the national telecommunications infrastructure. Even as developing countries are experiencing rapid extension and modernization of their telecommunications systems, most networks in Africa are analogue, and many sectors are highly unreliable, especially during rainy seasons. The Internet is dependent upon the quality of the underlying telecommunications infrastructure, and so the poor quality of the network still remains a basic impediment to rapid development in this area (Abungu et al., 1999). With such obstacles, how can Africans gain better access to digital information, and how can African museums help to bridge the 'Digital Divide'?

While the above is important, the obstacles to digital access are not only technical. There is also a psychological obstacle to New Information Communication Technologies. Within the heritage sector in Africa, many of the 'old guard' have refused to embrace NICTs due to a simple fear of change. Often, neither the benefits of NICTs are understood, nor their relevance to the heritage sector.

Bridging the gap

Africa's population can be estimated at almost 750 million people; however, there are less than 20 million phone lines – fewer than in Manhattan or Tokyo. Of those lines, 80 per cent are in only six countries. In 1999 it was estimated that there were only 1 million Internet users on the entire African continent, compared with 10.5 million in the United Kingdom. (Black, 1999). With these statistics, the idea of bridging the 'Digital Divide' looks ever more difficult.

At the National Museums of Kenya (NMK), in Nairobi, the Computer Department has traditionally been used for data management for such mundane purposes as personnel and payroll records. When, in 1998, a few computer department staff utilized their self-taught HTML skills, Kenya's natural and cultural heritage made a splash on the World Wide Web. The NMK web site (*www.museums.or.ke*) made a huge step in the region by putting Kenya's heritage on the world map. Now the entire world could share what hundreds of thousands of museum visitors see every year. Connected Kenyans throughout the country – however few – could also access their own digital heritage like others around the world.

The NMK's experience showed that African museums entering the twenty-first century must not only gear their efforts towards dynamic exhibitions, but must also keep abreast of new developments in technology. Among some of the latest technologies positively affecting museum operations globally are multimedia and communications. Many museums and museum associations around the world – even in Africa – are connected to the Internet, which has made the sharing and exchange of ideas and information much easier.

The Agence de la Francophonie, under the direction of the Director of the National Museum of Mali, produced a fascinating interactive CD-ROM that takes visitors on a virtual tour of the museum; it also guides them through the rich archaeological and cultural heritage of the country. A South African initiative joining several African countries, 'Culture Africa Network' (CAN), had the aim of developing an interactive cultural database for distribution on CD-ROM and on the Internet. While the project has stalled in some countries, Kenya's own subproject, 'Kenya-CAN' – which has received funding from the Ford Foundation – has resulted in a colourful, interactive and stimulating CD-ROM of Kenya's cultural heritage. The digital database has been further developed into a touch-screen module, which will soon be launched at the Nairobi Museum.

As African museums develop more community-oriented education programs and take these programs to the people, the potential to reach disadvantaged rural communities has increased. Dynamic, interactive education programs are being developed not only to teach the children, but to encourage them to think critically and analytically, and to introduce them to the reality of globalization. Efforts like these are indeed going some way in bridging the 'Digital Divide' and bringing access to digital heritage closer to the people.

Regional and international initiatives

While the actual facts and figures still place Africa at a disadvantage as concerns accessing digital information, there is a ray of hope. Many museums in Africa are facing up to the challenges of the twenty-first century: decreased government funding, low visitor statistics, stagnant exhibitions, high staff turnover, among others. Regional and international initiatives are helping African museums to face these challenges.

The International Council of Museums (ICOM) realized that the needs of African museums were particular. Its AFRICOM Programme was born as an outcome of the series of meetings in Benin, Ghana and Togo in November 1991. This was a very successful programme, and in 1999 the Constituent Assembly of AFRICOM convened in Lusaka, Zambia, and resolved to establish AFRICOM as a pan-African organization.

AFRICOM today is an international NGO registered by the Government of Kenya, with its headquarters in the capital city, Nairobi. AFRICOM in its new form seeks to contribute to the positive development of African societies by encouraging the role of museums as generators of culture and as agents of cultural cohesion. It aims to do this through developing projects that facilitate exchange and the sharing of experiences. By building an expansive network of museums and museum

professionals, AFRICOM will be better placed to serve as a dynamic resource for cultural heritage on the continent.

In 1984, the Swedish National Committee of ICOM 'gave birth' to the Swedish-African Museum Programme (SAMP). Based in Stockholm, SAMP has, since its inception, been spearheading a unique programme of exchange and 'twinning' between African and Swedish museums. Among its achievements, the programme initiated a project to get more museums in Africa connected to the Internet.

Bodies such as AFRICOM, WAMP and SAMP – together with partners around the world – must continue to develop projects and seek funding to encourage and promote access to digital information on cultural heritage on the continent. Only in this way can the gap between the 'information rich' and the 'information poor' be filled.

Conclusion

This article has briefly discussed the origins of African museums and their development into the twenty-first century. At present, out of 357 known museums throughout the African continent (including the Indian Ocean islands), only seventy-five have – on an institutional level – at least basic Internet access for e-mail. While this shows an understanding of the need to embrace new technologies for the promotion of our national heritage, it also shows that more effort is needed to bridge the 'Digital Divide' in the heritage sector in Africa.

At a recent UNESCO initiative in preparation for the World Summit on the Information Society, participants stressed the important role that the non-governmental sector plays in the economic area, in education, in sciences, in culture and in the media and in the building up of the Information Society. A series of basic principles and resolutions – which aims to bridge the gap between 'information rich' and 'information poor' – were adopted and will hopefully be recognized at the World Summit in Geneva in 2003 and in Tunisia in 2004. The meeting clearly recognized the role of the heritage sector in Africa in advancing the Information Society and urged African governments to respect digital culture in all dimensions, and recognize and support the role of cultural organizations such as libraries, museums and archives as essential actors in the Information Society.

There are great obstacles to be overcome, but with growing awareness and respect for the 'Digital Revolution' in Africa, more people may soon be having improved access to digital information and therefore the digital heritage of the continent and the world at large.

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| THE INTERNET IN GERMANY

POPULATION (MILLIONS)	83
Internet hosts	2 426 202
Internet users (millions)	32.6
Internet users under 17 (%)	18.9
Connection rate (men %) (number of days for one month)	10.7
Connection rate (women %) (number of days for one month)	9.0
Use: Web (%)	97.9
Use: e-mail (%)	45.9
Time spent	7 h 49m
Number of sessions	17
Number of pages (by session)	762

Cyberatlas.internet.com 2001–2002

1:9

| THE INTERNET IN CHINA

POPULATION	1 306 668 400
Computer hosts	8 920 000
Internet users	22 500 000
Internet users: men (%)	69.56
Internet users: women (%)	30.44
Age: under 18 (%)	14.93
Age: 18–35 (%)	68.91
Age: 36–60 (%)	14.9
Age: above 60 (%)	1.26
Education attainment: under high school (%)	6.44
Education attainment: high school (%)	23.45
Education attainment: above high school (%)	70.11
Hours of internet use per week	13.66

CNNIC 2001

1:10

| THE INTERNET IN NORWAY

POPULATION (MILLIONS)	4.5
Households with Internet access	1 000 000
Persons having access to Internet	2 390 000
Persons using Internet every day	1 116 000
Number of companies with more than 10 employees having access to Internet	66%
Number of companies having a website	46%

http://eureope.rights.aoc.org 2000

1:12

| THE INTERNET IN BRAZIL

POPULATION (MILLIONS)	174.5
Internet hosts	1 644 575
Internet users (millions)	6.1
Time spent	8 h 11m
Number of sessions	13
Number of pages viewed per session	626
Duration of page viewed (seconds)	47

http://www.journaldunet.com 2001–2002

1:11

| THE INTERNET IN BOTSWANA

POPULATION (MILLIONS) (2001)	1.68
Internet hosts (2001)	4 671
Internet users (2000)	12 000
Access providers (2000)	3
Rank in Africa (2000)	7

http://odci.gov. TeleGeography and *http://ced.montesquieu.u-bordeaux.fr 2000–2001*

1:13

A New Taxonomy on the Web: the new top-level domain: *.museum.org*

by Cary Karp

Cary Karp is the Director of Internet Strategy and Technology at the Swedish Museum of Natural History and has the same position in the International Council of Museums. He has been involved in many aspects of establishing the museum community's presence on the international electronic communications networks since the early 1980s and is now responsible for the development of the .museum.org *top-level domain as the President and CEO of the Museum Domain Management Association – MuseDoma http://musedoma.museum/.*

The significance of the Internet as a channel for the distribution of scientific and cultural information has scarcely begun to be appreciated. The Net has been used from its inception for the communication of plain text, and e-mail has been one of its most important and widely used services. The subsequently developed World Wide Web has gained such pervasive acceptance that it is often regarded as being identical to the Internet. (Without commenting on this popular conception, the present article will distinguish rigorously between the Internet – which is solely a transport medium – and the content that it conveys.)

Familiar text documents have long since been joined by intricate multimedia material. In the museum context, this includes both digital surrogates for physical objects and born-digital creative works. Beyond the present well-known services lies the Internet's potential to serve directly as a creative medium. Efforts at cultivating this may be seen in the development of what are termed 'mixed realities' and, again in the museum sphere, 'virtual museums'. Given the essential intangibility of everything conveyed by the

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Internet, the network presence established by physical museums are frequently labelled 'virtual museums'. The same term is, however, also used to designate born-digital museums, which can be far more intricate in many regards than, say, born-digital images.

In the broader cultural context, similar consideration is due to virtual libraries, virtual archives, virtual monuments, virtual performance and virtual anything else that designates some facet of cultural activity. Many such terms already have some currency, but one of their shared characteristics is that they are likely to mean different things to different people. This is of little consequence in a reasonably well-focused discussion with specialist participants. A less erudite observer might, however, have difficulty in following such an exposition. The two meanings ascribed above to the apparently homogeneous notion of virtual museum, for example, easily trigger heated controversy between the brick-and-mortar museum establishment and the digital-only community. This is further confounded by shades of nuance applied in the hybrid click-and-mortar environment. The comfortable recognizability of a physical museum edifice lacks any counterpart on the Internet and the casual network user may easily be confounded by the maze of alternatives encountered in the burgeoning digital landscape.

As it happens, potential for significantly reducing the scope of this confusion is provided by one of the most fundamental features of the Internet. Although not as widely known by name as are e-mail and the Web, the service most frequently invoked by Internet users is the domain name system (DNS). The countless millions of computers that are connected to the Internet all identify each other by numerical 'IP addresses' (IP meaning 'internet protocol'). Although Net users are free to call these computers in the same manner, it has long been understood that human beings find it far easier keeping track of ordered sequences of letters than they do in managing long strings of numbers. (IP addresses are currently twelve digits long and are about to increase by 50 per cent.)

DNS converts Web and e-mail addresses into the IP addresses necessary to establish contact with the target computer. It was first conceived to afford relief from a problem experienced by network managers rather than to make life easier for what was then still a relatively small number of more or less specialized users. The list of computers connected to the Internet had simply become too long for convenient maintenance and distribution, and an alternative mode of publishing the database was necessary. The result was the division of what had previously been a single text file into a series of separate files, with responsibility for the maintenance of each being delegated to someone with authority over what was termed a 'domain'. It is important to note that the domain subdivision was 'based on administrative authority or organization boundaries' (not necessarily network boundaries).

The domains had a hierarchical relationship to each other with the 'name space' being structured in a formal manner that is now familiar to all users. This hierarchy emanated from a single 'root'. Under it were a series of 'top-level domains'. Each was designated with an abbreviated label intended to be of mnemonic utility. For example,

the label '*.com*' was selected to provide a clear association with the notion of commercial activity. Since there was no intention of providing an explicit designation for anything other than a segment of domain name space, the use of actual words was deliberately avoided. Dot-com was to be recognized as a top-level domain (TLD) label and nothing else. There were several other labels, subsequently termed generic TLD (gTLD), each intended solely to provide a mnemonic association with some segment of human activity.

In addition to the gTLDs, *.com*, *.edu* and *.org*, initially established in 1984, a sequence of so-called country-code TLDs (ccTLDs) was made available to permit a national subdivision of domain name space. The ccTLDs are based on standard two-letter abbreviations for countries, such as *.fr*, *.se*, and *.uk*. Shortly thereafter, the list of gTLDs was expanded with *.int*, *.net*, *.mil* and *.gov*. Despite the loose degree of association between these mnemonic labels and the activity they were intended to designate, one sector was explicitly excluded from registering in any of them. Quoting from the registration form provided by InterNIC, then the sole source of this service: 'museums register under country domains'. However, the authors of this policy had no authority to ensure that museums could register in a given ccTLD, and in actual practice, this policy restriction was never enforced. Museums were permitted to register anywhere they wanted and therefore turn up in *.com*, *.edu*, *.net* and *.org*, as well as in the country domains in which they legitimately abound. As a result, whatever use its selected TLD may be to a museum, it certainly does not provide any direct indication of the simple fact that the domain belongs to a museum.

The DNS, as initially designed, ran reasonably smoothly for as long as the Internet was maintained primarily for academic and research communities. This situation quickly changed as a result of two interacting factors. The advent of the graphic web browser, with its 'address line', meant that domain names were being included in the more elaborate names given to websites and documents. The adequacy of a brief mnemonic construct was thereby strained. Also, the opening of the Net for commercial activity meant that attractive domain names began to acquire commercial value. Despite the original intention of domain names not explicitly consisting of words or phrases, they began to be structured and used in precisely that manner. Several ccTLD labels, which coincidentally happened to be words, or have clear meaning in some language, were made available for activity with no connection to the designated country, thus functioning as though they were gTLDs. The most fearsome manifestation of all was the emergence of the so-called 'dot-com' phenomenon, the eventual implosion of which is still being felt in widespread economic regards.

In an attempt to modify the system to accommodate changing needs, in August 1996 the author of the initial list of TLDs, Jon Postel, proposed means for substantially increasing the number of TLDs. Given what had become established notions of using domain names as corporate brands, the demand for relevant, easily remembered domain designations had for some time far exceeded the supply. Although not a part of the 1996 proposal, but in recognition of the fact that semantic value was being ascribed to domain names, there also appeared to be some possible benefit in relaxing at least some of the conceptual

constraint on the use of meaningful words as domain labels.

The scope of the contention that arose because of the proposed introduction of new TLDs is difficult to imagine. Ideological debate about the appropriate structuring and application of domain names has never been keener. Acrimonious political battles are being fought for administrative control over the name space and, particularly, the ability to create new TLDs. The establishment of a dedicated TLD for museums figured prominently in this discussion almost from the outset. Bypassing historical detail that will be recounted immediately below, *.museum* also became one of seven new gTLDs to be designated in November 2000; the first in the sixteen years since the initial establishment of the DNS. More important, *.museum* was alone among the new seven in being created specifically to support cultural activity. Perhaps most important of all, it was seen as a test initiative, the success of which could set the stage for the future addition of other similar domains with the clear intention of establishing a named sector for cultural activity on the Internet.

A key initial response to the 1996 Postel Proposal was the drafting of a 'Generic Top Level Domain Memorandum of Understanding'. Its signatories represented a wide spectrum of international interests but participation soon proved to be a matter of significant political intricacy. Museum interests were put forward via a newly created 'Registry of Museum Network Resources' (REMUNERE). The International Council of Museums (ICOM) authorized REMUNERE to speak on its behalf and endorsed any statements that REMUNERE might make towards articulating the attitudes and needs of the museum community as the domain-name process advanced.

The general discussion on the expansion of top-level name space included both procedural issues and suggestions for new TLD names. The notion of a museum TLD attracted sufficient enough interest for it to appear likely that it might figure among subsequent formal proposals whether or not the museum community played an active role in that process. In keeping with its mandate to further the interests of the museum community, ICOM considered action to maximize the potential benefits to its sector of the impending changes in TLD structure. No matter who might end up responsible for operating a museum TLD, ICOM wished to ensure that the professional museum community would be able to exert a clear influence over both the selection process and domain administration. Despite uncertainty about what this might entail, ICOM was prepared to consider making a bid for direct authorization to operate a museum TLD.

Despite its promise, the action following the 'gTLD Memorandum of Understanding' was brought to an effective standstill of unanticipated force during the course of debate. The United States Government lifted the initiative from its community-based platform and, after a series of actions, stated the need for the creation of a new organization that would be charged with a number of tasks relating to the administration of the Internet and the DNS. The subsequent process resulted in the establishment by the United States Department of Commerce, in November 1998, of the 'Internet Corporation for Assigned Names and Numbers' (ICANN). Among ICANN's initial tasks was determining the viability of introducing new

gTLDs and, if there were to be any, implementing means for their selection and establishment. In July 2000, ICANN announced its intention to proceed and issued a call for proposals for new gTLDs.

At that time, as today, anyone could acquire a domain name containing the letters '*museum*' without this providing any information whatsoever about the nature of the activity conducted in that domain. A bona fide museum and a scurrilous imposter might operate in domains that were perplexingly similar even to the most erudite user. The potential for such confusion would only increase as new TLDs were created in which further '*museumsomethingorothers*' could be registered. It was obvious that a reserved *.museum* domain, with a distinctly worded charter stating policies to be conformed to by all registrants, could provide a good deal of relief from this situation. Despite this inherent appeal, however, if control over the domain were to be assumed by a profit-driven entity, the museum community could easily end up being the target of exploitation on a new front.

Recognizing all this, in response to the call for TLD proposals, ICOM, together with the J. Paul Getty Trust, formed the Museum Domain Management Association (MuseDoma). The purpose of this action was the preparation and submission of an application for the creation of a TLD restricted for use by museums. The basic underlying premise was that both the public and the museum community would benefit if a strong identity for the museum sector were established and maintained on the Internet.

The moment of truth followed rapidly thereafter as ICANN, at its meeting in November 2000, considered over forty submitted applications, listing four times that number of new TLD names. Although a minute-by-minute chronicle of the final presentations and the Board's public evaluation of them would certainly be worth while in the present context, it will be sufficient to note that *.museum* found favour as one of the more convincing proposals. The value of the museum community to Internet users was deemed sufficient to justify the new dedicated TLD. It was equally clearly indicated that a fuller value of *.museum* might lie in its ability to demonstrate that other segments of the cultural community would be worth similar recognition in the future creation of an even greater number of new TLDs.

The proposal put forward in 1996 called for the establishment of up to 150 new TLDs to be operated by newly created administrative authorities which would be responsible for up to three new domains each. It did not allow for new authorities to operate individual new domains: each new authority would be expected to operate up to three domains. At that point, ICOM considered acting jointly with other non-governmental organizations within the heritage sector to prepare for the eventuality of co-ordinated operation of a single TLD authority. ICOM had previously acted jointly with neighbouring organizations, such as the International Council on Archives, the International Council on Monuments and Sites, and the International Federation of Library Associations. Since several of these were developing network resources comparable to ICOMs, joint action on the domain issue also seemed appropriate. The ICOM Executive Council discussed this matter in the presence of the other organizations. The most immediate result was a proposal submitted to the

committee that had been created to realize the goals of the 'gTLD Memorandum of Understanding'. This proposal delineated museum and heritage sector interests in the gTLD delegation process.

As previously noted, the initial gTLD proposal was altered in a manner that rendered joint action by the non-governmental organizations largely irrelevant. The further course of events led ICOM to pursue *.museum* as a focused initial action, with clear thought towards its potential for easing the subsequent creation of *.library*, *.archive*, etc. The opening of a second call for proposals for new TLDs is now making its way towards the top of ICANN's list of priorities. It is, therefore, in no way premature for the heritage management community to begin devising strategies for participation in the impending action.

Several new TLD names have been mentioned above in illustration of possible directions for community action. Although it may be too soon to suggest a specific list of second-wave TLDs, it should be worth discussing two basic alternative modes for proceeding. One is simply for any nameable segment of our community to respond as it best sees fit to the next call for proposals. The other is co-ordinated action for the establishment of a cluster of related TLDs. In addition to strategic considerations, there are significant challenges in maintaining the technical infrastructure needed for the operation of a TLD. Having all of the TLDs in the cultural cluster sharing the same host facility would simplify matters for each of them. It would also make it easier to develop value-added services such as directories and co-ordinated calendars of events.

The battery of administrative and mechanical issues that will confront any agency attempting to establish and operate these new Internet domains provides a basis for discussion many times the length of the current presentation. These aspects of the matter will, therefore, be left for further consideration elsewhere. Remaining focus here will, instead, be turned towards an application of domain names that may be of particular interest in the heritage management environment. This excursion will be introduced by a brief description of the naming conventions that have been developed for *.museum*.

The creation of *.museum* provides a useful basis for differentiating the organizations that hold names in it from, for example, the co-operative associations that populate *.coop*, or the agencies in the air transport industry using *.aero* (two other new gTLDs). If the top-level label '*museum*' tells Internet users that you are a museum, it would be of obvious further utility to use the lower-level labels to differentiate one museum meaningfully from another. (A domain name is a series of labels on sequentially numbered levels, numbered from right to left: *fourthlevel.thirdlevel.secondlevel.toplevel*.). Encouraging registrants to select names that are as directly informative as possible both serves the public interest and provides a broad name space in which as many entities as possible may register their desired designations. A museum well known as the 'Thisville Motorcycle Museum', currently operating the Internet domain *thismm.org*, might be better served by registering *thisville.motorcycle.museum* than by simply transferring its previous domain from *.org* to *.museum*.

Although simply adopting the principle of 'first-come, first-served' access to any available

name would reduce the headache of TLD administration, initial *.museum* policy is focused on satisfying two simultaneous requirements. The first is establishing means for having the largest possible segment of the museum community happy with the names of their *.museum* domains. Pleasing one museum by giving it *art.museum*, while disappointing thousands of others equally entitled to the same name, is not consistent with this goal. The second requirement is providing the public with as much information as may be possible in a domain name. The TLD *.museum* indicates a resource maintained by a bona fide museum. It would be desirable if the remainder of the domain name could provide at least a useful hint about the more specific identity of the museum in question.

Although names registered directly on the second level are attractive (*myorganization.museum*) restraints are, none the less, being placed on the use of that level. The second level is being reserved to indicate a museum's location, disciplinary affiliation, or some other generic concept with which it is associated. Although not the primary purpose, the generic, location and disciplinary labels that are registered provide a controlled vocabulary that can support an index of the names registered in *.museum*. The resulting public index of *.museum* already exists and will, for example, return a listing of all entities registered under *naturalhistory.museum* if this is entered in a web browser. (The reader is encouraged to test this by visiting *http://index.museum/*.) Since a museum is welcome to have more than one name, the Toontown Portrait Museum might wish to register both *toontown.portrait.museum* and *portrait.toontown.museum*, thus ensuring that it would be included in any listing of either portrait museums or museums in Toontown.

Although the present implementation does not extend beyond the straightforward indexing of the second-level labels in *.museum*, the underlying principle can be extended a good deal further. For example, a museum might wish to provide a specific web identity to material descriptive of selected important items from its collections. This could provide a means for enabling an Internet user to recognize information explicitly sanctioned by the museum. Using the following examples solely for purposes of illustration, one such aggregate of information relating to an object well known by name might be designated *monalisa.portraits .louvre.museum/*. Identically structured name spaces can be used in other domains that house similarly well-known objects. Within *.library*, for example, it might be purposeful to have a *magnacarta .manuscripts.british.library/*. In further extension, this could be applied to any sectoral domain dealing with nameable objects, whether it is of industrial, social, scientific, cultural or any other nature. It might also be possible to use the general form *collections.institution.domain* as a basis for the structured cataloguing of individual objects, with each such catalogue immediately integrable into countless user-defined, cross-domain catalogues.

The preceding example is not put forward as anything more than what may be an intriguing notion. It does, however, suggest that a controlled name space intended to establish a recognizable cultural sector on the Internet has potential for the management of information not just about the named domains. It can also enable the recognition of trustworthy material relevant to the objects and documents that are housed within these domains. Although unlikely to have been an anticipated result of the selection of .museum as the seed

initiative, the museum community possesses at least one skill that is singularly well-suited to the exploration of the semantic potential of the DNS. One of the fundamental attributes of the museum profession is the ability of its members to devise hierarchically structured nomenclature systems in order to make it easier to locate and identify named objects. Their ability to cultivate the fullest potential of domain-name constructs in at least an analogous context is therefore likely to prove formidable. Equivalent skills are stock-in-trade in adjacent segments of the heritage management community.

Cultural activity thus has significant potential both for deriving benefit from information society technologies and in enriching the development, if not of technologies themselves, certainly of the utility that they afford to the broader user community. The taxonomic challenges that are presented in the actions sketched above are easily met by the abilities of practitioners of several facets of the scientific and cultural heritage management profession. Fewer may be conversant with the more arcane workings of such things as the Domain Name System and Internet administration, but requisite familiarity can hardly be regarded as beyond reach. The most stimulating challenge of all is the opportunity given by the cultural sector's presence at the very outset of the expansion of Internet name space. The management and presentation of scientific and cultural heritage is a profoundly significant aspect of human activity. The corresponding professional communities must not forget the need for propagating this into the digital environment. The invitation to participate in the building of the information society must not be taken lightly.

| GLOBAL INTERNET BANDWIDTH

TOP TEN INTERREGIONAL INTERNET ROUTES

Rank	City, Country	City, Country	Internet bandwidth (Mbps)
1	London, United Kingdom	New York, USA	77 705.0
2	Amsterdam, Netherlands	New York, USA	22 895.0
3	Paris, France	New York, USA	20 775.0
4	Copenhagen, Denmark	New York, USA	10 417.0
5	San Francisco, USA	Tokyo, Japan	7 904.0
6	London, UK	Washington, USA	6 885.0
7	Frankfurt, Germany	New York, USA	6 302.0
8	Seattle, USA	Tokyo, Japan	4 817.0
9	Los Angeles, USA	Tokyo, Japan	3 451.0
10	Miami, USA	São Paulo, Brazil	3 384.0

TeleGeography 2002

1:14

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THE INTERNET AT SCHOOL

PUPILS HAVING INTERNET AT SCHOOL (%)

Sweden	78
Canada	74
Taiwan	63
USA	59
United Kingdom	59
Italy	28
Japan	28
Germany	25
France	25

Ipsus Reed, 2000

1:15

THE INTERNET AND TRADITIONAL MEDIA IN THE USA

USING THE INTERNET INVOLVES

	Television	Magazines	Radio	Newspapers
Fall in use of (%)	23	20	9	15
Increase in use of (%)	7	8	11	9
No change (%)	70	72	81	75

http://cyberatlas.internet.com 2001

1:16

THE INTERNET AND WOMEN

PERCENTAGE OF WOMEN USING THE INTERNET

	Women Internet Audience (%)	Time spent by women on the Web (in hours per month)
USA	51	8
New Zealand	48	6
Australia	45	6
Ireland	45	3
Singapore	42	5
UK	39	4

http://www.cyberatlas.internet.com and *http://www.nielsen-netratings.com* 2000

1:17

WHAT CAN BE FOUND ON THE WEB

WHAT CAN I FIND ON THE WEB? (%)

Business and e-commerce	82.6
Sciences and Education	5.6
Health	2.8
Private	2.3
Companies	1.9
Pornographic	1.55
Communities	1.4
Governments	1.2
Religions	0.8

http://www.netcraft.com

1:18

Launching a Redesigned Website at ICCROM

by Jennifer Molina and Nicholas Stanley-Price

Jennifer Molina is currently Web Manager at ICCROM and co-developer of the new website. She worked previously for the International Fund for Agricultural Development (IFAD), a specialized United Nations Agency in Rome, and for AOL Time Warner in San Francisco. She has a degree in history from San Francisco State University; and a post-graduate certification in digital film-making and multimedia from New York University.

Nicholas Stanley-Price has been Director-General of ICCROM since August 2000. He has published a number of works, using traditional media, on archaeological conservation, professional education and training, and the history and theory of conservation.

The impact of the Internet is such that no organization that wishes to make itself widely known can afford to ignore it. Its widespread use, and the ease of searching its information content, mean that hitherto unsuspected audiences are already within easy reach. This optimism needs to be tempered by some of its less welcome features, such as the intrusive nature of unwanted contacts – and by the reality that still, for a large proportion of the world's population, the Internet is accessible only by means of a technically unreliable and relatively expensive telephone network.

Nevertheless, the potential that it offers must be exploited: ICCROM (International Centre for the Study of the Preservation and Restoration of Cultural Property), based in Rome, has aimed to exploit it further by redesigning the website that it first introduced in 1996. The redesign formed part of a broader communications strategy that has included a review of publications policy and a consistent use of its logo. As an intergovernmental

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organization dedicated to raising the level of cultural heritage conservation, it wished to broaden the audience that it reaches. Often referred to for its expertise in international professional education, ICCROM owes some of that expertise to its having collected, over the past forty years, essential information about conservation – its philosophy, its techniques, its institutions and its exponents. An important part of its mission is not only to collect but also to make that information freely available: a well-designed website is nowadays a key tool to that end.

Re-launch of the website

ICCROM's new website *http://www.iccrom.org* was launched in March 2002. The site serves as a gateway to the world of cultural heritage conservation, combining ICCROM's in-house knowledge with the best resources available on the Web. More than a year under development, the completely redesigned website was created in collaboration with the EVTEK Institute of Art and Design in Finland, and ICCROM staff and consultants. It represents a natural progression in the multimedia age, building upon the existing site using the latest design and web-development technology. The website supports ICCROM's mandate of providing training, information, research, co-operation and advocacy within the conservation/restoration field. It contributes towards making ICCROM the first point of reference for information on cultural heritage conservation worldwide.

The ICCROM website is targeted at the widest possible audience: the worldwide conservation community (through content-specific pages); and the interested non-specialist public (through general information pages). The purpose of the website is to provide accurate, valuable and timely information while increasing the visibility and awareness of ICCROM.

The site is an excellent reference point for research in conservation, in that it maintains six databases; the ICCROM Library catalogue; a web links search database, covering over 1,000 institutions relevant to international conservation; an images archive held in the ICCROM collections; search databases for training opportunities in conservation, and for forthcoming conferences on cultural heritage conservation around the world; and a catalogue of publications for sale. Under each database, users are encouraged to inform ICCROM of future activities and to update and correct information where necessary.

The new design opens with an animated presentation, created with Macromedia Flash (the user has the option of moving straight to the opening page). It illustrates dynamically the five main spheres of ICCROM's activity, using images from its archive, followed by a world map showing and listing ICCROM member states. When the animation concludes, the site immediately opens to 'News at ICCROM', which is one of the eight main menu headers. 'News at ICCROM' is updated weekly and provides short, illustrated information on current activities within the organization.

Providing information: access to ICCROM databases

Of the seven other main menu headers, one is 'About ICCROM', which explains ICCROM's status

and role in promoting the conservation of both movable and immovable heritage, its history, strategic directions, governance and organizational structure. Another, entitled 'Programmes' describes its current activities. The eleven programmes presented under this header are the principal activities in the current biennial programme (for 2002–03) approved by ICCROM's General Assembly. Each has links to other relevant pages and to partner organizations.

The other main headers make available one of ICCROM's strongest resources, namely its information databases. The main ones provide access to: the Library Catalogue, the world's most extensive collection of resources on every aspect of cultural heritage conservation in a wide variety of languages, together with a separate search database for periodicals (over 700 current titles are listed); an image archive, drawing upon material accumulated over forty years of ICCROM technical missions (currently over 2,000 images are accessible through the Web); 'Training Opportunities', which provides information on ICCROM's own courses and internships, and also an 'Index' to training opportunities in conservation worldwide; an extensive listing of the ever-increasing number of conferences devoted to cultural heritage; and 'Links', which provides links to over 1,000 other conservation organization websites, or of national government agencies in the cultural field. This has been created in direct response to user requests for easy access to a comprehensive databank of this kind.

'Technical Services' provides information on the Office of Communications and Information (responsible, *inter alia*, for maintaining the website), the Laboratory, the Technical Assistance Service, and on ICCROM's specialized role as an Advisory Body to the World Heritage Committee of UNESCO. Finally, a service much in demand, the 'Bookshop' houses the catalogue search and purchase options for ICCROM's own publications and select titles from other publishers that are available for sale from its premises in Rome.

Some technical details

The design was developed to ensure quick response on modems and other connections used in all parts of the world. It takes into consideration a wide variety of computer equipment, browsing software and transfer speed to ensure accessibility to the broadest possible public. The English version of the website (the French one will be launched later in 2002) consists of 210 HTML files, two flash presentations, two audio clips, four java applets and forty-five photos, all compressed for high speed and quality resolution. There are six CGI (Common Gateway Interface files – a system for programmes to communicate through the web server) that run the databases. The latest databases, the web links database and the bookshop catalogue, were created using Microsoft Active Scripting. This web software works with the server to interpret and elaborate on the data, rendering a final HTML file.

The site is constantly being updated with news, reports from the field, announcements of ICCROM missions, courses and publications. For the first time on the ICCROM site, a site-wide search function is now available on each page. The user can simply type in a topic and the relevant pages will appear.

Impact of the new site

Since its launch in March 2002, the new site has been well received by users. Web analysis shows an increase in visits from an average 224 to 341 per day in the first two months. Of these, the 'hits' for visited pages has risen from 1,500 to 2,789 per day on the English site. The e-mail responses that ICCROM has received from the public at large – not only from cultural heritage specialists – indicate that the overall design and ease of navigation of the site has increased recognition of ICCROM. Informally, staff have noted a greater number of inquiries reaching ICCROM for technical information; applications for staff positions, and for internships, frequently make reference to the website as having been the applicant's source of information.

Such experience is not unique, of course, to ICCROM, being well known to any organization that promotes itself through the Web. The greater demand generated by successful promotion in turn raises expectations about delivery of services. The challenge is to find the right balance between raising an organization's profile and continuing successfully to fulfil its mandate. Internet technology offers immense possibilities but ICCROM will continue to produce a range of material in printed form that can reach all audiences irrespective of their access to technology.

| WORLD HERITAGE SITES

TOP ELEVEN COUNTRIES

Country	Number of sites
Spain	36
Italy	34
China	28
France	27
Germany	25
United Kingdom	24
India	22
Mexico	21
USA	18
Russian Federation	16
Greece	16

http://www.unesco.org 2001

2.1

| HERITAGE INSTITUTIONS IN CANADA

HERITAGE INSTITUTIONS IN CANADA

	Total Number	Attendance
All Heritage Institutions (excluding nature parks)	2 357	53 825
All types of museums	1 368	26 173
Community museums	743	3 886
Art museums	181	5 783
History museums	278	9 009
Other museums	166	7 496
Historic sites	436	16 073
Nature parks	163	60 239

Statistiques Canada 1998

2.2

| TOURISM DESTINATIONS

ARRIVALS (IN MILLIONS)	
France	76.5
Spain	49.5
USA	45.5
Italy	39.0
China	33.2
United Kingdom	23.4
Russian Federation	n/a
Mexico	19.8
Canada	19.7
Austria	18.2

http://www.tia.org/ivis/worldtourism.asp 2001

2:3

| AN AFRICAN PROGRAMME: THE NIGER NATIONAL MUSEUM WEBSITE

A WEB CATALOGUE OF THE MUSEUM COLLECTIONS	
Number of artefacts	5 000
Software	Multimedia Museum
Company	HyperSOLution
Delay	500 artefacts: 2 months Rest of the Collection: 1 year
Budget for launching	€3 800/4 500
Budget for functioning	€450/630
Contribution	Mission Française de Coopération ICOM Agence de la Francophonie

hyperSOLutions 2002

2:4

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The Development Gateway: a major new Internet resource for information and debate about culture, heritage and development issues

by Patrick J. Boylan

Patrick Boylan directed major British local authority museums, arts, heritage and archive services for almost twenty-three years before joining the Department of Arts Policy and Management in 1990 at the City University in London. In the university he was Head of Department for five years, and was Course Leader for the MA in Museum and Gallery Management. At the international level, he has undertaken a wide range of consultancies, notably for UNESCO. He is currently President of the ICOM International Committee for the Training of Personnel (ICTOP). His recent publications include: 'Universities and Museums: Past, Present and Future', Museum Management and Curatorship, *18(1), pp. 43–56, 2000 and* Museums and Insurance *(with J. Sarafopoulos), London; Museums & Galleries, Commission, 1999.*

General framework

With the development of the Internet, and particularly the World Wide Web, access to information on almost any subject has, at least in principle, never been easier. Some indication of the volume of information now available on those areas of the Web which offer unrestricted public access is given by the popular Google web search engine.[1] Currently (June 2002), this search engine regularly checks and indexes the contents of almost 2.1 billion individual documents and resources. These range in length from the archived copy of very short e-mail messages on an Internet discussion group (or Listserv), through to the full texts of

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major encyclopedias and complete databases, each of which may be many millions of words long. In addition, every hour an increasing number of multimedia and other non-text items are being added to websites. These range from photographic and artistic images, including complete illustrated catalogues of museum and art gallery collections, through to sound and video items of all kinds.

However, this explosion in the availability of data is itself creating massive problems of 'information overload', in that it is becoming increasingly difficult to find the specific information that a user may need among the extraordinary volume of web data now available. A Google search currently produces 11.8 million 'hits' for the English word 'museum' (plus 1.3 million for the Spanish *museo* and 188,000 for the French *musée*), and 6.33 million 'hits' for the term 'heritage' (1.1 million for the Spanish *patrimonio* and over 738,000 for the French *patrimoine*). Even advanced search methods using complex terms can produce a volume of responses that is, arguably, already unmanageable in terms of finding and extracting useful information within a reasonable search time. For example, to take just three of the many possible expressions, 'heritage preservation' and 'culture and development', each currently produce over 22,000 references, while there are 13,400 'hits' for 'cultural economics'. Checking through the texts of such a large number of 'hits' to find one that provides relevant advice or information in relation to a particular aspect of any of these would take very many hours, or more likely a matter of days.

Consequently, there is now much concern about ways in which the inquirer can be pointed towards information in a manageable and evaluated form especially, though by no means exclusively, in the case of users in developing countries with perhaps only a very slow and expensive Internet connection. Since at least the 1996 'G7' Brussels Summit on the Information Society and Future Internet Development, it has been recognized that there is a serious danger that the world will soon see the emergence of a 'Fourth World' underclass of information-deprived people in both developing countries and among socially and economically disadvantaged peoples within the so-called developed world.

Origins and purpose of the Development Gateway

This danger was taken very seriously by the International Bank for Reconstruction and Development – the World Bank, to use its popular name – both internally, and within its governing intergovernmental annual meetings. The concern was such that in June 2000 the World Bank started developing a completely new type of World Wide Web 'gateway' (Internet portal) to give easy access to information, advice and debate on all aspects of development. The aim of this was to help countries, communities, organizations (whether governmental, non-governmental or commercial), and individuals to build partnerships, share ideas and work together in all aspects of social, economic and cultural development.

Named the 'Development Gateway', the objective was to establish an easy-to-use and freely accessible multilingual 'portal' (literally a 'doorway' or 'gateway') website which would facilitate access to information and provide a space where communities of all kinds could share their

experiences and resources relating to all aspects of development. In contrast with a web search engine, the 'Gateway' provides a specially written short abstract for each entry, together with a wide-ranging coding or classification covering, among other things: (a) the type of material (e.g. article, official policy, statistic, organization, multimedia production); (b) geographical data (global, regional and/or country significance); and (c) both 'Gateway Topics' and 'Key Issues' for which the entry is particularly relevant. In addition, there is a powerful Gateway search engine which can seek out any word or expression either across the Gateway as a whole or within a particular Topic or Key Issue.

There is a particular emphasis on providing access to, and sharing information, resources, tools and case-studies on, a wide range of development issues – especially, though by no means exclusively, those of special relevance to the more than 100 developing countries throughout the world. Equally, the Gateway was conceived not just as an information source, but as a worldwide virtual community, through which anyone interested can contribute their own knowledge and experience, whether as documents, web links, discussion, or debate and communication. Any interested person can join the Gateway community, supporting and using one or more topics, and can contribute both web links and original documents and multimedia productions, together with the required abstracts and classification data on each of these.

From its initial public launch on a research-and-development basis in September 2000, the Development Gateway,[2] has developed very rapidly in terms of both its scope and its range of resources. The earliest phase concentrated on a range of around twenty-seven key topics of relevance to social, economic, educational, political and cultural development. Each topic is led by one or more experts in the field serving as the 'Topic Guide'; this 'guide' works with a range of advisers and co-operating organizations who constitute an initial series of worldwide virtual communities, working with the policy, editorial and technical staff of the Gateway itself, based at World Bank headquarters, Washington, D.C.

The original key topics included subjects as varied as aid effectiveness, culture and development, e-government, e-learning, gender and development, HIV/AIDS, information and communication technology (ICT) for development, indigenous peoples, judicial and legal reform, microfinance, privatization, and trade and development. Other widely used resources are the series of approximately 160 'country overviews', each of which provides an introduction to the economic, social, political and environmental situation of the featured country.

However, the Gateway system is very flexible, and new topics can be added whenever the circumstances suggest that this would be helpful. For example, in mid-2001 an additional finance and economics related main topic was added for the Argentine crisis, and in autumn 2001 a 'heritage in peril' 'key issue' was added to culture and development in the light of the serious threats to the heritage and museums in Afghanistan, the Middle East, and more recently the Indian subcontinent. As of mid-June 2002 the typical topic page offered links to over 500 resources, with more than 1,000 abstracts, links and documents on three of these (e-learning, ICT for development and

poverty), and a total of more than 13,000 resources in total, which over the past twelve months have attracted almost 200,000 Internet 'visits'.[3]

Another major resource offered by the Gateway is AIDA – Accessible Information on Development Activities[4] – produced and maintained in co-operation with eighteen important organizations working in the development field, and which is already the world's largest online source of public information and development activities. AIDA provides descriptive and financial information on more than 400,000 planned, current and completed projects and programmes carried out by the World Bank and over 200 other international, national, public, private and non-governmental development agencies, over the past half century. The data is searchable by country, region, sector or thematically. For example, AIDA currently offers details of 5,510 culture and development projects, including 227 heritage projects and 173 museum developments.

In addition to the general topics on the central Gateway resources, 'Country Gateways' are being developed in and for a total of thirty-two developing countries on four continents, ranging alphabetically from Algeria and Argentina to Viet Nam and West Bank/Gaza. Country Gateways are locally owned and operated, each with their own priorities and character. However, each serves as an Internet portal for information and knowledge about the country from a development perspective and, more generally, as catalysts and facilitators of development through ICT in their own right.[5]

The key aim of all areas of the Development Gateway is to make information available online, to bring new resources to the development community, to promote the sharing of information, and most of all about working together to empower communities and improve the lives of the poorest and most disadvantaged peoples. It aims to serve the needs of a broad array of stakeholders, including developing countries, the official donor community at the international and national levels, national and local governments in developing countries, non-governmental organizations and other civil society bodies, individual academics and professionals, and the private sector, by sharing information online, and finding new ways of working together. All of these stakeholders are expected to pay a vital part in Gateway governance, editorial management and content development.

Following the Gateway's official public launch in July 2001, the development of both systems and content has continued to develop rapidly, while responsibility for it has now been transferred from the World Bank, which originally established and funded it, to the newly created Development Gateway Foundation.[6] This is an independent international non-profit coalition of international organizations, governments, civil society and the private sector – based in Washington, D.C., with the objectives of working towards the reduction of poverty and to bridging the digital divide by promoting development-related information and communication technology (ICT) initiatives.

The foundation held its inaugural donors and board meetings in December 2001 in Washington, D.C. The meetings were attended by founding members, sponsors, and potential future

partners of the foundation. Prior to the meetings, the founding members – Australia, Germany, India, Japan, Republic of Korea, Mali (sponsored by the Netherlands), and the World Bank – and other sponsors committed to contribute US$42 million in cash and in kind over the period of 2001–03. After the board meeting, the Government of Pakistan announced its intention to join the foundation as a founding member by committing to contribute a further US$5 million to the initiative.

Culture and development on the Development Gateway

Among the first topics selected for the Gateway was culture and development – reflecting the rapidly growing recognition in recent years of the role of culture and the cultural heritage in many areas of the development process, including economic and educational development as well as the more obvious field of cultural development and the rapidly growing cultural tourism sector. Equally important is the recognition that improved cultural awareness and education contribute to peace and reconciliation.

Eleanor Fink, previously Director of the Getty Information Institute, joined the World Bank/Gateway staff as manager for a group of topics including culture and development in the spring of 2000. Patrick Boylan, City University, London, and current Chairperson of the International Committee for the Training of Personnel (ICTOP) of the International Council of Museums (ICOM), then joined as part-time 'guide' (content manager/editor) for the culture and development topic and its subtopics and key issue in July 2000. Both continue to work for the Gateway in this field.

Culture and development on the Gateway is supported by a panel of co-operating organizations, currently comprising: (a) ICOM; (b) the International Federation of Library Associations and Organizations (IFLA); (c) the newly opened Bibliotheca Alexandrina (which aims to provide both the national and international communities of scholars and researchers with unique collections and facilities focusing on Alexandrian, Egyptian, ancient and medieval civilizations as well as on contemporary disciplines, including socio-economic and cultural development studies on Egypt and the region); (d) the Washington-based Center for Arts and Culture – a non-profit, non-partisan organization, which aims to stress the central position of the arts and culture in everyday life; and (e) the World Monuments Fund, which safeguards the heritage by encouraging the conservation and preservation of culturally and historically significant works of art and architecture worldwide.

Leading professionals in the field serve as advisers to the culture and development team.[7] In its first two years almost 1,000 abstracts and links to websites, documents, meetings and conferences have already been contributed to the Development Gateway's culture and development 'topic',[8] and more than 800 of these are still current. Culture and development on the Gateway aims to provide an authoritative entry point to, and focus for, information and discussion about all the key issues within the scope of the Development Gateway's definition of culture in relation to development including: arts, crafts and media (164 current resources); cultural management (151 current resources); cultural policy (79); cultural tourism (72); heritage in peril (75); heritage preservation – including museum and conservation issues (179); and the economics of culture (58).

The most recent additions to the topic are featured on the culture and development home page, together with a topic highlight, the culture and development project of the day from AIDA, and search facilities, both within the topic or across the Development Gateway as a whole. There are also links to each of the current key topics, to related topics on the Gateway, and to the pages on the topic's objectives, its guide, advisers, editors and co-operating organizations, and a highlight from the current calendar of events of culture and development interest. In addition, there are links back to general Gateway features, including the Gateway home page, Country Gateways and the business opportunities information service, the Development Gateway Market,[9] which is a global online marketplace providing information on hundreds of current competitions for donor- and government-funded tenders for projects. These include all World Bank contracts, and those funded by the African, Asian and European Development Banks, EuropeAid, the European Union's Phare/Tacis aid programme, the European Bank for Reconstruction and Development, and relevant tender notices from all fifteen European Union member states.

A new related topic is a special 'focus page', e-commerce for arts and crafts,[10] which brings together knowledge from two diverse realms – the high technology world of electronic commerce and the traditional arts and crafts of indigenous people. In the practical application of ICT for development, however, the marriage between these two realms holds much promise. In the informal economies of developing countries, artisans (particularly home-based women and craftspeople living in remote villages), need markets for their handicrafts to help keep them out of poverty. Electronic commerce can use the Internet as a tool to link traditional crafts products to global markets, and also has much to offer museums, heritage sites and heritage tourism facilities in relation to web promotion and marketing. Already the site offers 146 resources covering themes such as exporting and financial issues, empowerment of female craftspeople, tourism and marketing projects and a 'marketplace' feature.

Participation[11]

A crucial part of the objectives of the whole Development Gateway project is to engender active participation by all parts of the development community: governments, international, national and non-governmental organizations, donor and aid bodies, communities in the developing world, commercial bodies, academics, students and interested individuals. In the culture and development field the World Bank's interest predates the establishment of the Gateway. Following a successful expert meeting in Washington in January 1998 an e-mail discussion group, CHDEV-L, was established for those interested in culture and development issues, and through which views, news and other information could be exchanged. Hosted originally by the Swedish Museum of Natural History through the good offices of Cary Karp, CHDEV-L built up a membership of almost 500 registered users. In September 2001 it was transferred to the World Bank's Lyris Discussion Group system[12] which operates through both e-mail and a web interface, and the list is now being closely integrated with the Gateway's culture and development area.

In addition, a key part of the participation objective is to build up individual membership of all parts of the Gateway. This is completely free and requires just a simple one-off registration, after which the member can contribute resources and participate in discussions in relation to topics of interest to the member. They can also ask for regular e-mail updates giving information daily, weekly, etc., according to choice, on all new material added to their registered topics. Culture and development has been a runaway success in terms of both use and membership. Over the past twelve months it has been used 7,282 times, averaging twenty 'hits' a day, while its total of 1,195 registered users is now the second largest membership out of the twenty-seven current Gateway topic groups.

| NOTES

1 *www.google.com*.

2 *www.developmentgateway.org*.

3 See *www.developmentgateway.org/all-topics/* for the full current list of topics.

4 *www.developmentgateway.org/node/100647/*.

5 See *www.developmentgateway.org/CountryGateways/* for a list of, and links to, all those currently available.

6 See *www.dgfoundation.org*.

7 These include Nancy J. Fuller, Research Program Manager in the Smithsonian Center for Education and Museum Studies, United States; Y. Raj Isar, until recently the Director of the Cultural Policies for Development Unit, UNESCO, and previously Secretary to the World Commission on Culture and Development, and a former Editor of *Museum* (now *Museum International*); Liddy Nevile of Australia, a specialist in making computer technology more useful for those learning in formal and informal contexts; Gaby Richie, Programme Director for the new Heritage and Information Awareness Programme at South Africa's National Library; Dr Lynn Thiesmeyer, an associate professor in the Faculty of Environmental Information at Keio University, Japan and who also works with community projects in Thailand and Viet Nam, and Professor Dr Andreas Weisand, Director of the Zentrum für Kulturforschung in Bonn, Germany, and Secretary-General of the European Research Institute for Comparative Cultural Policy and the Arts (ERICarts).

8 *www.developmentgateway.org/culture/*.

9 *www.dgmarket.com/*.

10 *www.developmentgateway.org/node/161523/*.

11 To join 'culture and development' on the Gateway go to *http://developmentgateway.org/register/* and follow the straightforward instructions, selecting the area or areas of special interest and other preferences, such as whether or not the user wishes to post a biography, portrait or other personal information, and the frequency of e-mail alerts to additions to the preferred areas. Members can, if they wish, help to develop the site by sharing their knowledge, experience and information with the culture and development community. New content such as links to useful websites, word-processed documents such as case-studies, reports, case-studies and research documents, and even document facsimile (.pdf) files, can all be easily added online by anyone interested by just clicking on an 'Add it here' link, and following the simple instructions.

12 *http://vx.worldbank.org/cgi-bin/lyris.pl?enter=chdev-l/*.

| WHAT CAN BE FOUND ON MUSEUM WEBSITES IN THE USA

WHAT CAN I FIND ON MUSEUM WEBSITES IN THE USA?

	(%)
General information	99
Description of the collections	49
Information/reservation	32
Pictures	25
Sales	17
Online exhibitions	11
Tourist information	10
Databases	6

Museum Documentation Service http://www.open.gov.uk 2000

2.5

| ONLINE CULTURE: THE CANADIAN EXPERIENCE
The Canadian Culture Online Funding Programs (CCOP)

Total budget of the CCOP *(for three years)*	Number of programmes sustained by the CCOP
C$ 200 million	10

THE CANADIAN CULTURE ONLINE FUNDING PROGRAMS

PROGRAMMES	
Partnership Fund	C$1 000 000 or up to 75 per cent of the total eligible cash expenses for the project
Electronic Copyright Fund	C$1 000 000 or up to 75 per cent of the total eligible cash expenses for the project
Canadian Memory Fund	C$3 000 000 or up to 75 per cent of the total eligible cash expenses for the project
Canada New Media Fund	nc
Canada-TELUS New Media Learning Fund	C$200 000 or between 10 and 50 per cent of the total eligible cash expenses for the project

Canadian Heritage/*http://www.pch.gc.ca/ccop-pcce/2002*

2.6

| THE CANADIAN MEMORY FUND: THE 2000–02 PROJECTS

THE CANADIAN MEMORY FUND: THE 2000–02 PROJECTS

Organization	Number of projects	Total contribution from CCOP
National Archives of Canada	22	C$5 850 000
National Library of Canada	27	C$5 000 000
National Archives of Canada–Canadian Council of Archives – 'Canadian Archival Information Network' Project (CAIN)	6	C$2 650 000
National Arts Centre	1	C$45 000
National Film Board of Canada	3	C$2 000 000
Canadian Museum of Civilization and Canadian War Museum	4	C$455 580
Parks Canada	2	C$1 025 000
CBC/Radio-Canada	8 files	C$2 500 000

http://www.pch.gc.ca 2002

2.7

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PARTNERSHIPS FUND: THE DIGITIZATION OF CULTURAL COLLECTIONS

FUNDING THROUGH THE CCOP TO DATE IN EXCESS OF C$2.3 MILLION

Organization	Digitization projects	Contribution from CCOP
Windsor Public Library	Collection of documents, artefacts, maps, photos	C$65 155 900
Glenbow Museum and 4 partners	Collections of 22 191 images	C$165 675
Centre for Contemporary Canadian Art	Development of the Canadian Art data base	C$198 000
Centre d'Information Artexte	Collection of public works of art created in Canada since 1964	C$96 729
Musée du Bas-Saint-Laurent	75 000 photos from the collections	C$66 716

http://www.pch.gc.ca

4

CULTURAL POLICIES IN FRANCE

CULTURAL POLICIES IN FRANCE

2001 budget of the Ministry of Culture	€2.5 billion
Part of the budget of the Ministry of Culture in the total state budget in 2001 (%)	0.98
Active population working in the cultural sector (%)	1.8
Total budget of private sponsorship in the cultural sector in 2000	€198 million

J. Cardona. C. Lacroix. Statistiques de la culture, Chiffres clés 2001. Paris, La documentation Française, 2002.

2.9

| CENTRAL GOVERNMENT PRIORITIES IN CULTURAL SPENDING IN SEVEN COUNTRIES IN EASTERN EUROPE

MAJOR AND LOWEST EXPENDITURES

Country	Year	Major Expenditures	Lowest Expenditure
Albania	2000	Monuments	National Art Gallery Film
Bulgaria	1998	Radio and Television Performing Arts	Cinema Production
Croatia	1998	National Cultural Institutions Protection of monuments Archival Material	Cultural Association Information Technology
Estonia	1998	Radio and Television Performing Arts Libraries	Press Literature Education and Training
Latvia	1998	Education and Training Museums, Archives Performing Arts	Monuments and Sites Press
Romania	1998	Research Conservation and Restoration	Books and Publications
Russian Federation	2000	Museums Performing Arts	Research, Arts Education Circus, Cinema, Libraries

European Council and *http://www.culturalpolicies.net* 2001

2:10

| CULTURAL EXPENDITURE IN AZERBAIJAN

CULTURAL EXPENDITURE IN AZERBAIJAN

Budget of the Ministry of Culture	US$ 13 211.95
Part of the budget of the Ministry of Culture in the state budget in 2001 (%)	1.47
State budget in cultural sector	US$ 23 067.3
Part of the budget of culture in the state budget (%)	2.6
Cultural expenditure per inhabitant	US$ 2.75

European Council and *http://www.culturalpolicies.net* 2001

2:11

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Inclusion and ICT: the challenge

by David Dawson

David Dawson is Senior ICT Adviser, People's Network Development Team, Resource: The Council for Museums, Archives and Libraries (United Kingdom).

'To enable the collections and services that define our sector to touch the lives of everyone' is the strategic commitment of the Resource Manifesto.[1] This manifesto has guided the development of Resource: The Council for Museums, Archives and Libraries, since its launch in April 2000, and resulted in the production of an Information and Communication Technologies Plan for Action[2] that explores the more detailed strategic issues facing the sector in the United Kingdom. The ICT strategy identified that new thinking would be needed to deliver this vision, challenging the ways that services are currently managed and developed. This new vision entails a critical review of current ways of working in cultural institutions. Reaching new audiences means new ways of working; a common purpose means new partnerships; encouraging lifelong learning calls for new styles of presentation and interpretation – new tools and ideas are needed for innovative ways to unleash and celebrate the vast potential of our cultural and creative wealth.

This is nowhere more evident than with the potential of information and communications technology (ICT) as a medium for service delivery, and as an agent for social development. The growth of e-commerce, e-government and large learning networks in the United Kingdom – such as the National Grid for Learning and the University for Industry – are beginning to create mass markets for electronic information services. But there are danger

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signals. Over 75 per cent of newly created jobs are knowledge-based, and the ageing United Kingdom population – and the resulting 'time-bomb' – means that it is essential to re-skill older workers. Lack of participation in democratic elections, particularly among the young, is in stark contrast with the huge numbers voting by telephone or online for television shows such as *Big Brother* or *Pop Idol*. The digital divide threatens to deepen, marginalizing the technology-poor, whether within communities or between countries and continents.

However, progress is being made. Already in the United Kingdom, 46 per cent of households have online access; telephone and online voting has been successfully trailed in recent elections; and the government has made a specific commitment that there should be universal access to the Internet by the end of 2005. The People's Network project[3] is central to this commitment, creating ICT learning centres in all 4,300 public libraries by the end of this year. Resource is the expert adviser to the New Opportunities Fund[4] for the design and implementation of the project. A major impact is already being made: the technology is enabling people to keep in contact with support agencies, enabling them to create and read newspapers in their community languages, and refugees are able to keep in touch with family and friends who may be scattered around the world. Further research is being undertaken on that particular point to identify and assess the impact being made across the country.

Currently, only a minority of museums are in a position to offer this level of service. However, ambitious government targets for broadband connectivity will provide the impetus to extend this facility to these important community spaces.

International framework

The new age of ICT provision in the United Kingdom must not be allowed to perpetuate existing causes of exclusion or, worse, create new ones. Such inclusion rests at the heart of Resource's strategic commitment. This same commitment is behind the launch by the European Commission in 1999 of 'E-Europe – An Information Society for All', an initiative which proposed ambitious targets to bring the benefits of the information society within reach of all Europeans.[5] It proposed ten action lines to bring every citizen, home and school, every business and administration, online and into the digital age in order to create a digitally literate Europe. It will also ensure that the whole process is socially inclusive, builds consumer trust and strengthens social cohesion. The cultural sector has an important role to play in this, and one of the e-Europe action lines is to create a mechanism to co-ordinate national digitization policies. At a meeting in Lund, Sweden, in 2001, a number of key issues were identified and an initial workplan was set.[6] This workplan is being carried forward by a national representatives group of experts. These experts are nominated by each of the European Union member states, and supported by Minerva, an EU-funded project which is in the process of creating a blueprint for digital cultural heritage in Europe.

The issues being tackled within Europe are also being faced internationally. Recognizing the common issues, a small group of decision-makers and policy-developers from Canada, Europe, New Zealand and the United States met in London in June 2001, to explore the extent to which each could learn from the lessons of the others, and to identify the areas in which collaborative work

might be of mutual benefit. With many similar issues, concerns and experiences, there is much to be gained as this group begins to work together on concrete research and outcomes.[7]

Unlock the heritage richness

It is clear that museums, archives and libraries hold great richness and diversity of resources for the whole spectrum of learning – from formal education to the self-renewal gained from the chance encounter with books, paintings or manuscripts. ICT helps unlock that richness for all, inspiring sections of the community where traditional delivery has failed; turning non-users into regular visitors, whether real or virtual.

Museums, archives and libraries must be supported and encouraged to take advantage of what ICT can offer to the management and promotion of their collections – particularly for lifelong learning. Learning at all stages of life is a crucial force for the improvement of individuals and communities. However, there is much work still to be done in identifying sustainable and successful models of delivery in the digital environment. It may be that our traditional approaches to creating and providing content may no longer be the most effective. More especially, there is an urgent need to investigate the impact and learning that results from making collections available online. We are now in the position to begin to evaluate the impact. This evaluation will, in turn, allow us to create more effective information resources and learning packages and to encourage and develop best practice. The potential of inclusive ICT content (webs, interactive exhibits and audio-guides for museums) through interactivity, layered information and random access is huge, but remains largely untapped. Examples include ensuring website accessibility for the visually impaired, text accessible for those with learning difficulties and multiple layers of interpretation. This is one of the most fascinating areas for development and a strengthened audience focus is the key to unfolding the potential.

ICT cannot replace the sense of place that is often so important to the experience of visiting a museum, archive or library. However, the vision for the future must see ICT opening up access, allowing people to plan and anticipate visits; offering personalized interpretation during the visit, perhaps by mobile device – palmtop or third-generation mobile phone – and then giving those same people a chance to re-live and dig deeper into the experiences of the visit once away from the building. It can allow them to learn as much as they wish at their own speed – before, during and after a visit. This calls for the creation of high-quality digital resources that meet real need.

Such developments will, moreover, help the individual who does not have easy access to a particular place. A virtual visit to the National Gallery in London by someone unable easily to travel from the Highlands of Scotland must be better than no visit; just as access to the resources being created through the New Opportunities Fund (NOF) Digitise Programme[8] will give us all a new means of exploring a unique seam of history, regardless of where we happen to be. There is no physical 'place' to visit; the content will bring together resources from a wide range of places, museums, archives, libraries, voluntary sector organizations and community groups into a vast

range of multimedia stories. This approach is fundamental to the future use of ICT within the sector, where success will be measured by the breadth and depth of cultural resources online, the ease with which they can be located and viewed and the extent to which diverse resources are integrated in ways that are attractive and useful to people. Indeed, the NOF Digitise Programme is designed to support and encourage lifelong learning for all, to support government strategy for social inclusion and to enable those not part of formal education to benefit from the information age.

Based on the three themes of cultural enrichment, citizenship and re-skilling the nation, the NOF-Digitise Programme is creating the learning materials to complement the commitment of the United Kingdom Government to bring about universal access to the Internet by 2005.

Give people a voice

Creating learning resources and bringing together collections of resources will also challenge some of the assumptions held in the sector. By emphasizing the 'C' in ICT, the technology can give people a voice, enable users, real and virtual, to contribute their views. Already this has been built into projects such as the 'Planes, Tools and Automobiles' Project[9] funded by the DCMS/Resource IT Challenge Fund.[10] Here, visitors are able to bring their own materials, and contribute their own stories, together with the more traditional view of the museum curator. However, the real power of the technology is that it can empower community groups. An outstanding example is Comma – a software tool, developed by a co-operative – which enables anyone to scan images, link them together in innovative ways, and to publish the content, either in the form of CD-ROMs or online.[11] Already, over 500 communities worldwide are creating their own archive, as the software is now being used in Canada, Denmark, Germany and the Netherlands.

The power of ICT can also help bring new hope and new opportunities to communities and to individuals. With the support of the IT Challenge Fund, and the Coalfield Regeneration Trust, 'Virtually the Ice Age' created a learning resource about the prehistoric cave site at Cresswell Crags in Derbyshire, which is set in a former coalfield area and is playing an important role in the economic regeneration of the region. The website[12] brings together material excavated from the site, and now held in at least four museum collections, and includes virtual reality tours of the caves themselves, most of which are not normally accessible to visitors. The website played a particular role in ICT learning centres based in a range of communities in the local area, and has played an important part in encouraging the use of ICT by former miners, helping them to develop the skills and confidence to seek new employment. In Newcastle upon Tyne the University Museum of Antiquities has worked with a school in the deprived area of Benwell to investigate the site of a Roman temple on Hadrian's Wall near the school, using digital cameras to record objects in the museum collections, and linking the results to the museum website.[13] The Discovery Museum, also in Newcastle upon Tyne, has worked with the City Fostering and Adoption Agency to encourage a group of excluded children to record their perspective as part of the millennium Great City Exhibition at the museum. As a result of this activity, the children have become involved in other

museum activities, built personal links (despite attending different schools in the city) and improved their performance at school.

Fully effective use of this potential demands a real commitment to working with communities and seamless connections between materials from institutions of all types and sizes, and access from the widest possible range of network channels (digital television, mobile phone, etc.). The success of this potential can only be measured by the impact that ICT has on formal and informal learning opportunities within the sector. In the United Kingdom, this process has already begun with projects such as the People's Network, Access to Archives,[14] the New Opportunities Fund digitization programme and the recently announced Culture Online.[15] However, to place our sector at the heart of the 'e-revolution' will require sustained co-ordination and demand the commitment of the whole sector working together in partnership, sharing ideas, skills and extending partnerships to include the learning networks, the broadcast media and the cultural industries.

NOTES

1 Resource: The Council for Museums, Archives and Libraries Manifesto. URL: *http://www.resource.gov.uk/information/policy/manifesto/00manifesto.asp/*.

2 Resource, 2001, ICT Strategic Plan for Action. URL: *http://www.resource.gov.uk/information/policy/ictstrat.pdf/*.

3 *http://www.peoplesnetwork.gov.uk/*.

4 *http://www.nof.org.uk/*.

5 *http://europa.eu.int/information_society/eeurope/index_en.htm/*.

6 *http://www.cordis.lu/ist/ka3/digicult/lund_principles.htm/*.

7 P. Miller, D. Dawson and J. Perkins, 'Standing on the Shoulders of Giants: Efforts to Leverage Existing Synergies in Digital Cultural Content Creation Programmes World-wide', *Cultivate Interactive*, No. 5, 2001. URL: *http://www.cultivate-int.org/issue5/giants/*.

8 *http://www.nof-digitise.org/*.

9 *http://www.virtualgallery.org.uk/*.

10 DCMS/Resource IT Challenge Fund: the Department for Culture, Media and Sport/Wolfson Public Libraries Challenge Fund; see *http://www.resource.gov.uk/action/dcmswolf/00dcmswo.asp/*.

11 *http://www.commanet.org/*.

12 *http://www.creswell-crags.org.uk/virtuallytheiceage/*.

13 *http://museums.ncl.ac.uk/benwell/index.htm/*.

14 *http://www.pro.gov.uk/catalogues/a2a.htm/*.

15 *http://www.cultureonline.gov.uk/*.

EMPLOYMENT IN THE CULTURAL SECTOR, MULTIMEDIA AND SOFTWARE IN THE EUROPEAN UNION

Employment in Cultural sector (millions)	7.2
Employment in multimedia and software (millions)	12.4

http://europa.eu 2001

2.12

THE EUROPEAN ART MARKET

TOTAL SALES IN 2001	€12 billion
Part of Europe in global marketplace	45%
Employment in art market in Europe	73 5000
Number of companies in art market in Europe	28 600
Imports from outside the European Union	€1.53 billion
Exports from outside the European Union	€1.81 billion

http://www.kusin.com 1999–2001

2.13

Access and Preservation in the Information Society

by Abdelaziz Abid and Boyan Radoykov

Abdelaziz Abid holds a Master's degree in library and information science. He served as Secretary-General of the National Library of Tunisia for many years before joining UNESCO in 1976. He is currently in charge of the "Memory of the World" Programme and also projects relating to libraries and access to information. He co-ordinates the joint IFLA/UNESCO library and information work.

Boyan Radoykov holds a Ph.D. in political science and a postgraduate diploma in economic studies. He joined UNESCO in 1991 where he is currently in charge of programmes related to the legal and ethical aspects of the Information Society and of the follow-up of UNESCO's draft recommendation on the promotion and use of multilingualism and universal access to cyberspace.

We live in a world of contrasts: often bewildering, it functions nevertheless according to well-established standards and is always seeking a consensus on the rules that structure the various aspects of the international system.

In its 1999 Human Development Report, UNDP already highlighted the fact that while globalization was shaping a new era of interaction among nations, economies and people – on account of its positive, innovative and dynamic effects – it also had 'negative, disruptive and marginalizing aspects'. International institutions and the competent national authorities must therefore find the means of nipping potential marginalization in the bud, particularly as regards access to knowledge, the spreading of new information and communication technologies and the development of multilingualism in cyberspace.

Furthermore, the advent of the digital medium has created a new and complex

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environment. Not only are the carrying media new, but the content and distribution methods have also changed completely and new stakeholders have emerged among both users and creators of information. It is therefore necessary, as a matter of urgency, to establish a clear framework to facilitate collection, classification and preservation efforts.

UNESCO has given centre stage to two challenges, namely, access and preservation, in its discussions and action with regard to the information society. The draft recommendation on the promotion and use of multilingualism and universal access to cyberspace and the draft charter on the preservation of the digital heritage are two programmes that the Organization has launched to take up these challenges in an effective manner.

Multilingualism and universal access to cyberspace in a globalized world

As there are no borders in cyberspace, a regulatory process and joint action plans must be established internationally to facilitate the promotion of broad and equitable access to computerized data and the dissemination of multicultural information. This is the context of UNESCO's plan to have its Member States adopt a recommendation to promote 'the use of multilingualism and universal access to cyberspace'.

The Director-General has highlighted the opportunities opened up by world information networks and new technologies in terms of the dissemination of knowledge, the protection of minority languages and the preservation of cultural diversity, and as a tool for sustainable development. 'The draft recommendation will be an important intellectual and conceptual contribution by UNESCO to the international response to the challenges of the information society. For UNESCO, it is a fundamental mission that we cannot evade. … The alternative is exclusion, which is no alternative at all', he has said.

UNESCO, which has always been involved in the promotion of universal access to the sources of knowledge, could not remain on the sidelines of these strategic debates conducted internationally, and closely linked to its fields of competence. Under its mandate, and through its standard-setting action, UNESCO raises its Members States' awareness, and mobilizes them for the major challenges of our time. Its governing bodies have already adopted several resolutions inviting the Organization's Member States and Associate Members to promote universal access to public domain information in order to strengthen the educational, scientific and cultural aspects of social development.

It is precisely in this spirit that the General Conference of UNESCO, at its twenty-ninth session in 1997, requested the Director-General to prepare a draft recommendation concerning the promotion and use of multilingualism and universal access to cyberspace. The draft, subsequently examined on several occasions, has been modified substantially to take account of the opinions of all Member States and intergovernmental and international non-governmental organizations that wished to join in this great undertaking, in order to produce a worthwhile and consensual draft text.

The text is based on broad general principles that were derived from the situation analysis. The essence of the draft recommendation is to foster an equitable and multicultural

information society, respecting the principles embodied in the Universal Declaration of Human Rights. Above all, it is a call to all stakeholders in both the public and private sectors, and to civil society, to maximize information and communication technology (ICT) capacities so that everyone can enjoy the benefits of universal and affordable access to information and knowledge.

Facilitating access to telematic services

The availability of publicly accessible Internet networks and services is the first prerequisite to ensure that all citizens and all nations gain benefit from the multicultural human heritage in cyberspace. Inequalities in access to Internet services are the most evident cause of the disparities existing between the information 'haves' and 'have-nots', as between the developing and industrialized countries. Among the many obstacles to universal access are economic constraints and high rates for Internet service connection and access to telecommunications channels necessary for access to the Internet, particularly in the developing countries.

The provision of telecommunications facilities as a public service is subject to well-defined regulatory frameworks at the national level, as well as international standards developed by the International Telecommunication Union (ITU), which has adopted universal access of citizens to telecommunications as one of its goals. On the other hand, Internet service connection is considered by the ITU as a user application rather than as a telecommunications service within its mandate. While most industrialized countries do not regulate Internet connectivity, many developing countries restrict the establishment of Internet service providers (ISPs) or their access to international gateways, contributing to the higher costs of Internet access in these countries. In addition, the historical development of the Internet has led to a strong market dominance by a very few major international providers. Subsequently, ISPs in most developing countries are generally obliged to assume the full cost of an international leased telecommunications channel to a backbone provider. Another consequence has been the distortions in traffic that have hindered the development of strong regional Internet backbones and, in the case of certain developing countries, also national backbones and peering arrangements.

Promoting multilingualism

Language constitutes the foundation of communication between people and is also part of their cultural heritage. For many people, language carries far-reaching emotive and cultural associations and values embedded in vast literary, historical, philosophical and educational heritage.

For this reason the users' language should not constitute an obstacle to accessing the multicultural human heritage available in cyberspace. Harmonious development of the information society is therefore only possible by encouraging the availability of multilingual and multicultural information.

Facilitating access through development of public domain content

A significant amount of world human heritage lies in information content known as public domain

information, or the information commons. This enormous legacy of knowledge, partly generated by governments, public institutions and international organizations, exists in every country, every culture and every language. The facilitation of its provision and dissemination on the global information networks will substantially contribute to the goal of universal access.

Facilitating access through application of exemptions to copyright

Maintaining a balance between copyright protection and access to information is a major challenge for the information society. This involves both national and international regulation. Certain principles of copyright (e.g. limitations on the duration and scope of protection) embody the quest for that balance. More fundamentally, the notion that a work can be protected on the basis of the criterion of originality is a vital instrument for drawing the border between protected works and those in the public domain. Users are also allowed exemptions reflecting the need to strike a balance between the private interests of the creators of intellectual content and the larger public interest, by providing not only for legitimate access to information and culture, but also for the dissemination of knowledge through education, research and libraries.

It is obvious that the questions raised and the measures proposed to improve the current situation are complex and elicit conflicting observations even though the strategic guidelines on the subject are sufficiently clear. For example, the Dakar Framework for Action adopted in April 2000, 'Education for All: Meeting our Collective Commitments' clearly stresses that access to the knowledge and skills that are being increased exponentially by the information highways is a basic right and a *sine qua non* of sustainable social and economic development.

While new technologies provide countless opportunities to improve the free flow of knowledge, they also run the risk of widening the gap between the 'info-rich' and the 'info-poor' because the disparity in levels of economic development influences prospects of cyberspace access. Similarly, the domination of a few languages in cyberspace could lead to a tangible reduction in the scope for expression and to undesirable cultural standardization.

In other words, the promotion of linguistic diversity in world information networks and universal access to cyberspace must have pride of place in discussions today, since they are decisive factors in the establishment of a just and equitable information society.

The problems: representing all sensitivities

The Intergovernmental Council of UNESCO's new Information for All Programme noted, at its meeting in April 2002, the significant progress made in the acknowledgement of sensitivities of various groups regarding these important subjects. It recommended that national and international bodies contribute even more to the creation of basic infrastructure for the modernization of information and telecommunication networks, particularly in the developing countries, in order to promote multilingualism successfully, and ensure greater access to cyberspace.

The text of the revised draft recommendation will be consolidated in the light of various observations formulated by Member States, Associate Members and intergovernmental and international non-governmental organizations, which were all consulted again in 2002.

The recommendations

Several practical measures have been proposed by UNESCO in connection with the draft recommendation to guide the debate and action in this regard. A new step should thus be taken in this direction with the formulation of national policies to strengthen the information society by adopting appropriate legislative measures.

Member States should thus define national policies to promote the teaching of the mother tongue and foreign languages in cyberspace. They should contribute to the development of automated translation services accessible to all, as well as intelligent language systems such as those performing multilingual information retrieval. Public and private sectors at the local, national, regional and international level should also provide the necessary resources to reduce linguistic obstacles and encourage human interaction on the Internet. This can be achieved by encouraging the creation and processing of educational, cultural and scientific contents in a digital format as well as access to such content, ensuring that all cultures can express themselves, and have access to cyberspace in all languages, including indigenous languages.

Internet access, which is regarded as a public information service, should be encouraged by adopting appropriate policies. Member States should recognize and establish the right to online access to public documents and government files, covering all the information required by citizens in a modern democratic society, thus ensuring universal access to and the free flow of public domain information, without geographical, economic or social discrimination.

Similarly, Member States and international organizations should facilitate the acquisition of basic computer literacy, popularizing the introduction and use of information and communication technologies. They should also identify and publicize repositories of public domain information and knowledge and make them accessible to all by providing sufficient funding to enable public institutions to preserve and digitize public domain information.[1] They should also support local and indigenous production of Internet content.

National and international officials concerned with the new technological situation should encourage the updating of national copyright laws and their application to cyberspace, taking international copyright conventions into account while identifying and ensuring a fair balance between the interests of authors and rightholders, and those of the general public.

Put in this way, the issue of copyright in the new environment merits further comment. The advent of the information society has led to an overall review of the copyright machinery,[2] which reflects the legitimate need to adapt the legal provisions to new circumstances. This circumstantial necessity may sometimes clash with

other interests, such as those of the public, an abstract entity, for which unfettered access must be fostered. On the other hand, the various representative categories of authors and producers of works are being afforded an opportunity in this context to protect their long-term interests because existing regulations are being consolidated.

The existence and extension of public domain information and knowledge is a crucial aspect of the defence of the interests of the great majority of information users. It is therefore important to ask whether resources are adequate in all states to defend and promote the public domain.

The lively debates on the subject have often bordered on confusion in appraising the problem. In fact, the promotion of an information public domain is certainly not supposed to deny or lessen the importance of copyright (which *inter alia* enables creators, in certain cases, to impose conditions to prevent their works from being used for commercial purposes). Changes in the law must be made, however, without any political, cultural or ethical ambiguity. As the information society will, sooner or later, have its own well-defined rules, it is important to ensure right now that they will serve the interests of the great majority of its beneficiaries in accordance with basic democratic principles.

Through the measures proposed in the draft recommendation, UNESCO aims, above all, to ask real questions and to deal with the cultural and social aspects of copyright that are clearly within the bounds of its competence and its constitutional mandate. There is, therefore, no question of going against measures that states have taken and adopted on the subject in other international bodies.

UNESCO's role is to assist in the emergence of the notion of balance and equity in the information society, to show that free access to information is above all a political choice and to ensure that this is the most informed choice possible.

Preservation of the digital heritage: the draft charter

A large part of the vast amounts of information produced in the world is born digital, and comes in a wide variety of formats: text, database, audio, film, image. For cultural institutions traditionally entrusted with collecting and preserving cultural heritage, the question has become extremely pressing as to which of these materials should be kept for future generations, and how to go about selecting and preserving them. This enormous trove of digital information produced today in practically all areas of human activity, and designed to be accessed on computers, may well be lost unless specific techniques and policies are developed to conserve it.

The new problems

Preserving valuable scientific information, research data, media output, digital art (to name but a few areas) poses new problems. If such material is to be accessed in its original form, technical equipment – original or compatible hardware and software – must be maintained alongside the digital files that make up the data concerned. In many cases, the multimedia components of websites (including Internet links) represent additional problems in terms of copyright and geography, sometimes making it difficult to determine which

country a website belongs to. Arguably the most democratic publishing medium ever, some argue that the ever-growing Internet deserves to be preserved as a whole as its pages and discussion forums can be considered a priceless mirror of society.

There are also technical problems in ensuring that the digital material that is saved in archives remains accessible in its original form. While the share of total information and art produced around the world on traditional media such as the printed page, analogue tape or film, is declining yearly as compared with material designed for computer access, software and hardware are constantly replaced by more powerful new generations which ultimately become incompatible with their predecessors. This means that within just a few years, material – which often includes sound and moving graphics or pictures, as well as links to Internet sites and/or databases – becomes inaccessible.

Traditional preservation methods, such as the 'legal deposit' used by national libraries to ensure that copies of all printed materials are kept, cannot be applied as such to digital material for a variety of reasons, notably because web 'publications', often draw on data stored on servers in different parts of the world. The sheer volume of data concerned also poses a problem. It is estimated that the Internet features 1 billion pages whose average lifespan is extremely short, estimated at between forty-four days and two years.

The enormous volume of data to be sifted in order to select what is worthy of preservation is staggering. The world's total yearly production of print, film, optical and magnetic content would require roughly 1.5 billion gigabytes of storage. This is the equivalent of 250 megabytes per person for each man, woman, and child on earth, according to a recent study by the School of Information Management and Systems at the University of California at Berkeley. Most of this material, i.e. data that is interactive, cannot be preserved by simply being printed out and archived, it needs to be preserved on digital storage media, such as magnetic tapes and discs, which are far less durable than acid-free paper or microfilm.

Another complex issue concerns copyright, including copyright of software required to access digital files. A dazzling array of rights may be associated with websites combining mixed materials from various sources and agreement on the principle of 'the right to copy for preservation' still has to be developed worldwide.

UNESCO has been examining these issues with a view to defining a standard to guide governments' preservation endeavours in the digital age. During the meeting of the Organization's Executive Board in May, Member States agreed on the need for rapid action to safeguard digital heritage. The debate was largely inspired by a discussion paper compiled for UNESCO by the European Commission on Preservation and Access (ECPA), an Amsterdam-based non-profit foundation, which outlined the issues involved in digital preservation.

While valuable initiatives have been undertaken in many countries to preserve digital heritage, including websites, the ECPA points to the limits of these efforts, arguing in favour of

international standards. Co-operation, guidance, leadership and sharing of tasks are all key elements for preservation of digital heritage. The complexity of the problems involved means that the task of preservation must involve producers of digital information, including software, who should take conservation into consideration as they design their products. ECPA argues that the days are gone when preservation was the sole responsibility of archival institutions. Cultural institutions need the co-operation of creators of information and of software producers.

Based on the above findings, UNESCO has developed a strategy for the promotion of digital preservation. This strategy is centred on: (a) a wide consultation process with governments, policy-makers, producers of information, heritage institutions and experts, the software industry as well as standard-setting organizations; (b) dissemination of technical guidelines; (c) implementation of pilot projects; and (d) preparation of a draft charter on the preservation of digital heritage for adoption by the General Conference at its thirty-second session in 2003.

While the technological challenges of the preservation of the digital heritage are considerable, the organizational challenges and responsibilities will be decisive for the future of the digital heritage.

Conclusion

A surge of solidarity is required, and responsibilities and activities must be reorganized in order to reduce disparities in levels of cyberspace access and to preserve its content. In a world that evinces daily its need for benchmarks, co-operation between states through multilateral structures and reliable and efficient international organizations is an effective and balanced means of meeting that need. This is all the more so because no national solution to problems of an international character and scope such as illiteracy, access to information and sources of knowledge, trafficking in cultural property, famine, AIDS, water, migration flows, organized crime, etc., is possible. International solidarity should thus become the positive side of globalization.

NOTES

1 By way of example, public domain information may embody: (a) certain anonymous works (provided there is no infringement of any other stakeholder's interest in that information); (b) facts; (c) deposits, collections and catalogues in public libraries, archives and museums; (d) information in which there are no intellectual property rights, or on which these have expired; (e) official information produced and made available by government or international organizations; (f) information disclosure (that which is in the public interest and for the public good), information intended to be made publicly available by its author, owner or custodian; and (g) metadata (data on data) within the previous categories. To avoid any doubt, even though information may be in the public domain, it cannot be assumed to be free of all other interests or control.

2 See for example the European directive on the legal protection of databases or of computer programmes, the two WIPO Treaties adopted in 1996 (WIPO Performances and Phonograms Treaties and the WIPO Copyright Treaty), the Digital Millennium Copyright Act or the Sonny Bonne Copyright Term Extension Act adopted in October 1998 in the United States, and the Agreement on Trade-Related Aspects of Intellectual Property Rights, contained in Annex 1C of the Agreement Establishing the World Trade Organization.

| UNESCO'S PROGRAMME: ACCESS TO INFORMATION AND KNOWLEDGE

	REGULAR BUDGET $6 001 300	EXTRABUDGETARY $10 300 000
LINE OF ACTION: FORMULATING PRINCIPLES, POLICIES AND STRATEGIES TO WIDEN ACCESS TO INFORMATION AND KNOWLEDGE		
Establishing an international framework for narrowing the digital divide through the "Information for All" programme	$320 300	$1 200 000
Addressing ethical and societal challenges of the information society	$718 000	$500 000
Global portals and tools	$959 000	$5 500 000
LINE OF ACTION: DEVELOPMENT OF INFOSTRUCTURE AND BUILDING CAPABILITIES FOR INCREASED PARTICIPATION IN THE KNOWLEDGE SOCIETY		
Promoting wider access to information in the public domain and Memory of the World	$1 202 000	$700 000
Strengthening public broadcasting	$340 000	$300 000
Reinforcing the role of libraries, archives, information services and networks and community multimedia centres	$1 077 000	$500 000
Developing human resources and capabilities	$1 385 000	$1 600 000

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| UNESCO'S CROSS-CUTTING THEME RELATING TO ICT AND KNOWLEDGE SOCIETY

Budget: $3 290 000

A SELECTION OF PROJECTS	
Empowering the underprivileged through the use if ICT	$400 000
The contribution of ICT to the development of education, science and culture and the construction of a knowledge society	$2 890 000
To promote multilingualism on the Internet (Initiative B@bel)	$100 000
Preserving our digital heritage	$295 000
Virtual universities	$295 000

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List of Statistical Tables

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Book Reviews

by Zahra Asgharzadeh and Isabelle Vinson

Bruno S. Frey, *Arts and Economics, Analysis & Cultural Policy*, Springer, 2000.

The birth of art economics as a discipline in its own right within modern economic science can be dated exactly: it occurred with Baumol and Bowen's book, *Performing Arts – The Economic Dilemma*, published in 1996. Since the economic approach of Arts has made clear the positive external effects produced by Arts on the society at large. These externalities are called 'non-users benefits'. Building on the acquired knowledge in the field, Frey proposes his personal view of the question. His thought on the financing systems of the Arts is based on a new methodology that goes beyond the existing limits of the neoclassical behavioural model in considering psychological aspects such as behavioural anomalies and human motivation. He also challenges the specific belief that a public support of culture is needed to maintain high quality in arts in proposing a constitutional contract ensuring, above all, freedom of expression and direct participation of citizens. Although the markets for art as they exist in reality are far from ideal, one of the market's advantages is that it permits and fosters variety, such as being able to care for minorities' preferences including those with high artistic tastes. Museums have an important place in the book with many comparative studies including one on the current hot issue of de-accessing collections.

Joan Martin-Brown, Ismail Seregeldin, and Ephim Shluger (eds.), *Historic Cities and Sacred Sites*, Washington D.C., The World Bank, 2000. 420 pp. (ISBN 0-8213-4904-X).

The preservation of historic cities and their built heritage seems necessary for the improvement of urban environments in this age of economic globalization. Traditional and contemporary cultures have an important role in the process of social and economic development. For this reason the World Bank and other international organizations have chosen new approaches in considering the economic value of cultural heritage in their developmental projects. *Historic Cities and Sacred Sites* is the culmination of considerable research and meticulous analysis. The study brings together exhaustive surveys of historic cultures and holy sites, with special attention given to urban development in the context of religious tradition and cultural identities. With special reference to case-studies in Brazil, Japan and the Netherlands, the authors attempt to assess the importance of cultural awareness and intergenerational continuity in the transmission of traditional values. The role of institutions and local and national governments cannot be neglected; their policies and financial investment are essential to the preservation and future continuity of ethnic and popular culture throughout the world. *Historic Cities and Sacred Sites*

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is a comprehensive collection of articles about a very interesting subject, but it remains evident that the material is studied merely from an institutional point of view. Readers will appreciate the numerous photographs which offer intriguing glimpses into diverse cultural and historic site

Terrain, a bi-annual review, published by the Mission du Patrimoine Ethnologique, Ministère de la Culture et de la Communication (France), Momun, Editions du Patrimoine.

Terrain is a high-quality bi-annual review, published by the French Ministry of Culture and Communication and its Mission for Ethnological Patrimony since 1983, devoted to encouraging the development of ethnological research concerning France and Europe. Each issue is composed of well-documented essays and treats one specific theme from different perspectives. Contributing specialists represent diverse fields such as ethnology, sociology, history and anthropology. Also noteworthy is the rich and varied iconography which accompanies the texts. A section entitled '*Repères*' takes additional topics into consideration and a column '*Infos*' provides information on current events related to ethnology in Europe.

Essays are based on scientific field research and develop each theme from different perspectives. Some of the recent themes studied include the concept of 'Beauty and the Shaping of Aesthetic Criteria' (Issue 32), of 'Authenticity in Cultural Pursuits and Practices (Issue 33) and 'The Relationship between Music and Emotion' (Issue 37). The review also addresses social topics such as the integration of foreigners in French society, the emergence of nationalism in Europe, as well as how former colonized countries perceive France, are also analysed from different perspectives. In addition, *Terrain* provides a place of discussion for ethnologists and creates a possible forum with other social sciences such as anthropology, sociology and history.

The reviews can be purchased in Paris at the CID bookshop, 131, Boulevard Saint Michel, 75005 Paris, or by sending an e-mail to *dorinne.Bertrand@culture.fr/*.