

# Challenges and Potentials for Sharing between Networks of Excellence (NERE/DSR and E-Culture Net)

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## Abstract

This paper explores nine challenges entailed in the creation of international cultural networks. These challenges centre around contextualisation. It is claimed that we need to explore common origins in belief systems (mythology, religion, science) as a step towards understanding differences in expression in various cultures. The example of Mount Meru is used to explore these relations. It is suggested that a combination of belief systems, cultural products (intangible and tangible culture) and attitudes can form the basis for a new model of culture that transcends Euro-centric or Asian-centric limits. The need to work towards a World Distributed Electronic Repository (WONDER) is outlined.

The Asian Network of Excellence for Research and Education on Digital Silk Roads (NERE/DSR), E-Culture Net and the American Digital Silk Roads project, under the auspices of UNESCO have an obvious rationale to share examples of digital culture. A deeper rationale for their existence lies in sharing ideas and developing methods concerning these more subtle challenges in order that the sharing of digital culture can reveal different expressions stemming from a common humanity.

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## Keywords

Networks, world-views, cosmology, mythology, religion, intangible culture, cultural models, cultural diversity, distributed repositories, virtual reference rooms, collaborative forums.

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## 1. Introduction

Most efforts today focus only on sharing things that are the same. This paper suggests that if we study more closely the underlying symbols that we share across cultures, there will be more incentives

to face a greater challenge that lies in learning to share differences. In this context, nine requirements for international cultural networks are explored. How do we translate differences: 1) of meaning into our networks; 2) in the role of collections; 3) in values between settled and nomadic cultures; 4) in the relative role of written versus oral communication; 5) in the interplay of theory of practice; 6) in the definition of originals and the role of copies and versions; 7) in methods of conservation; 8) in methods of writing history, and finally 9) in perceptions? Some practical first steps in addressing these challenges are suggested.

The Asian Network of Excellence for Research and education in Digital Silk Roads (NERE/DSR), E-Culture Net and the American Digital Silk Roads project (NSF/DSR/CGP) under the auspices of UNESCO can develop methods concerning these challenges.

## 2. Translation of Differences

Needed are dictionaries that bring to light differences of words which appear to be the same at first sight. Each of the participating countries/cultures in the network are already providing their own definitions of key terms relating directly to the silk roads, which can be shared in a common database. A next practical step will be to include fundamental theoretical concepts relating to cosmology and world views.

In a digital context there can be access via multiple world-views, classification systems and thesauri, with systematic mappings between terms in classifications, definitions, explanations, titles, partial contents and full contents through virtual reference rooms.

Digital repositories can lead to further distinctions within the concept of secondary literature, namely between 1) internal analyses of a given primary

Virtual Reference	
1. Terms	World Views, Classifications
2. Definitions	Dictionaries
3. Explanations	Encyclopaedias
4. Titles	Catalogues
5. Partial Content	Abstracts, Reviews
Virtual Libraries	Distributed Repositories
6. Full Content	Previous Owner 1
7. Internal Analyses	Previous Owner 2
8. External Analyses	Previous Owner n
9. Restorations	
10. Reconstructions	

Figure 1. Ingredients for networked access: virtual reference rooms, and virtual libraries.

text; 2) external analyses that place the text in a larger context; 3) restorations which trace how the text or cultural object has been altered through conservation and 4) reconstructions. These distinctions need to be integrated through virtual reference rooms in virtual libraries as distributed repositories (figure 1).

### 3. Production versus Collections

To compare cultural objects from a) (Western) cultures where there is a great discrepancy between production and collection with those from b) (Eastern) countries where the places of production often remain those of collections, special care is needed in order to achieve compatibility between very different data- structures, while at the same time assuring that the complexities of the original situation are maintained. This points to new metadata needs that include history of ownership as a basic dimension of our databases.

### 4. Settled versus Nomad

A related and yet quite different set of problems arises when one tries to compare settled and nomadic cultures. Settled cultures typically have museums and other memory institutions wherein they store and display their cumulative, collective memory. Such an emphasis on collective memory and tangible culture in the form of material monuments, buildings and objects is for the most part necessarily foreign to persons in nomadic cultures, who need to carry everything they have with them. By contrast, the collective memory of nomads is more deeply linked with intangible culture in the form of oral stories, songs, music, dances, and contests.

UNESCO, the International Institute for the Study of Nomadic Civilizations and the Commission on

Nomadic People are making us aware of many dimensions of these nomadic civilizations. Even so a major challenge lies in comparing the relative contributions of settled and nomadic cultures. When basic values are fundamentally different, one obvious possibility lies in exploring common narrative and musical themes in helping to understand how themes and motifs in one culture were conveyed to other nomadic and settled cultures.

How was it that most nomadic cultures remained literally wanderers while the Mongols combined nomadic and settled peoples to influence some of the most important cultures of the world?

Many cultural artefacts which were originally associated with a nomadic culture are now in museums fostered by settled culture. In such cases, contextualisation provided by reconstructions must help viewers to understand how the function of a given object shifted as it moved from its original nomadic to its subsequent settled context. We need eventually to move seamlessly between an object to the museum where it is now, to the places it was previously and trace the routes by which it moved.

Here a practical first step might be to choose select examples from each of the countries/cultures of the Silk/Spice Roads and illustrate a) their different functions in nomadic and settled cultures and b) the different interpretations that arise from these two contexts concerning the same objects.

### 5. Oral versus Written

The implications of shifting from an oral to written culture have been studied at considerable length by scholars in the West, departing from a general assumption that one leaves behind the oral when one “progresses” to a written culture. According to this model, one can divide the history of a culture into clear epoques, which have either oral, written or print culture.

The work of Giesecke has shown that Renaissance herbalists frequently continued mediaeval traditions whereby they referred to knowledge not described in the books themselves. In Japan, one of the standard books on gardening is written and printed. In the midst of this written description, there is a section called “oral transmissions on setting rocks.” In other cases, the phrase “there is an oral transmission,” is merely referred to in esoteric texts and a reader is expected to consult a (Zen) master who conveys orally secret instructions, which have deliberately not been written down. How should we reflect these

traditions on the Internet? Paradoxically, we have websites today with texts such as the following: “You must never show this writing to outsiders. You must keep it secret”.

Aboriginal cultures as in Canada or Australia, and elsewhere around the world typically have access restricted to a small group of spiritual and other leaders of the tribe. Oral traditions still play an important role. Should materials which have traditionally been available only in the oral tradition become available only as audio files?

The Internet already has a notion of different layers of users, distinguishing between the near-omnipotent systems operator (sysop) or administrator, those with special privileges and regular users. Should this approach be developed to include different layers of access to knowledge that respect and reflect cultural traditions? If so, the private knowledge of, say, the Blackfoot Indians or some other tribe would effectively constitute an Intranet.

Who will attain to the level of systems operators in the future? Will the ultimate control of Blackfoot Indian knowledge always lie in the hands of an individual chosen by the Blackfoot Indians themselves? Will there be special conditions when this prerogative could be threatened or overruled?

While no simple answer to these questions is likely to emerge soon, a practical first step might be to invite all cultures along the Silk Roads which have traditions assuming other than universal access to provide examples of layered access to their traditions. Such provisional models would help in deciding how to create new kinds of hypertext and hyperlink access systems that respect boundaries introduced through initiation, and rites of passage. This would take discussions of filtering systems into a realm far beyond prosaic questions whether the language and themes of a site are suitable for children, adults or both.

## 6. Theory and Practice

Sometimes intimately connected with these differing approaches to oral and written traditions, are different roles of theory and practice. In the Greek tradition, theory was given an especially exalted status such that the role of practice was frequently downplayed and sometimes even disdained. By contrast, in the Roman tradition the emphasis was often on practice even to the exclusion of theory. How can such differences adequately be represented on the web?

Every culture also develops world-views as frameworks to explain the universe. Some of these are purely religious or philosophical. Sometimes new facts and phenomena lead to a change in a world-view. Often these world-views serve as frameworks, while most of the previous, cumulative facts and phenomena remain unaltered.

Ever since Thomas Kuhn’s *Structure of Scientific Revolutions* (1962) there has been such fascination with so-called paradigm shifts and the study of frameworks as disjunctive events that scholars have focussed on isolated issues.

As a result, today’s Internet treats facts and phenomena as if the only framework for their comprehension were the contemporary one. Needed is a more comprehensive approach to these facts and phenomena. Alternatively, one would be able to see how a concept in one framework was treated differently in other frameworks.

Here a first practical step might be to include on the portal of the project a list of all the worldviews represented by the cultures along the Silk Roads, corresponding to the classification level in figure 1 and then choose a number of common concepts to illustrate how differently these are treated. Such an approach can simultaneously reveal what we share in common while making us aware of the diversity of expressions found in different cultures.

This quest to visualise cosmologies could be very much furthered by the use of augmented reality methods. Innovators such as Steve Feiner (Columbia University) have used special glasses to superimpose on the night sky the constellations of the Greco-Roman tradition. This process could be taken much further such that a viewer can switch to an Indian, Arabic, Chinese or Mayan constellation. Augmented reality would thus literally help us to see the world through different eyes.

## 7. Original, Copies and Versions

In the West, the Platonic tradition introduced the notion of an idea which served as a starting point for artistic creativity. This led to the notion of artist as a genius and in the neo-Kantian tradition to the artist as an intuitive visionary and precursor of scientific breakthroughs. As a result the original acquired a special allure that relegated all versions and copies into the background.

Throughout Asia there is an assumption that copies and other versions may be equally and in some cases even more important than the original. In

Japan, the emphasis is on the original form but not the original object. Hence, as we make ever more cultural objects accessible online, copies and versions will inevitably play a role, but these roles will change in cultures and over time.

Further problems arise in international art markets. Hence a Chinese vase or scroll painting, which enters a Western collection is valued and treated differently than in its original context. If both are subsequently shown together on a computer screen their similarity in shape is obvious. But what interfaces can we find to communicate such differences in their contexts?

Here a practical first step would be to choose items from each of the cultures in the Silk Roads project and design interfaces which reflect the specific aesthetics and values of that culture. While this will introduce new challenges of interoperability as one moves between these cultural interfaces, it will result in helping us to see a same object in the context of different value systems and world views.

## 8. Conservation and Preservation

Different aesthetics concerning originals and versions have profound implications for the domains of conservation and preservation. In Japan, the wooden buildings of the Imperial Summer Palace (Kyoto) look as new as ever. They are fully restored every ten years but there is no interest in conserving the original wood. The training required for this is completely different than the training needed to conserve an original cultural object. Indeed if an individual trained in the West were to impose their training on such a wooden temple there would be serious difficulties. Here a practical step is to offer special training courses that focus on the values of both approaches for conservators who are dealing with materials from both traditions.

## 9. Complementary Histories

Histories of culture are typically written from the standpoint of a given culture. Many of the most important sources of culture are cross-cultural in their influence. Here complementary, thematic histories would help us understand links between Greek statues, statues of Buddha in Northern India and Afghanistan, in China and Japan.

Sometimes the themes, which are exported to another culture, entail combinations quite different from their original context. For example: Japan is famous for its rock gardens with 66 named rocks

introduced during the reign of the Emperor Kagamiyama, a number that was later reduced to 48. This art began at Lake Manasovar in India where there are 8631 rocks. When this art went to China the number of rocks was reduced to 361. Experts know this and yet we lack histories to show just how the tradition was transformed as it moved via China to Japan. Hence, in addition to national and regional histories we need complementary histories to see transformations that occur as a cultural expression is moved to an entirely different context.

Rising above Lake Manasovar is Mount Kailas (or Kailasha), which becomes equated with the legendary Mounts Mandara and Meru, becomes a symbol of the universe and in accordance therewith, temples, monasteries and whole sacred areas are built.

Mount Kailas/Meru is pyramidal in shape and through *vastu* (i.e. the manifest) plays a central role in Indian sacred architecture (*vastu shastra*). For instance, Mount Kailas becomes the basis for Kailasa temple (Ellora, northeast of Bombay), the largest monolithic structure in the world.

Mount Mandara (Mandapa, Mondop) becomes the basis for pyramidal shaped libraries for Buddhist texts in Southeast Asia. Mount Meru (Sumeru) is the inspiration for some of the most famous Indian sacred architecture (e.g. Konark, Brihadeshwahr, Aurangabad), models and ornaments.

There are curious links between Mount Meru and symbolic versions of the Bodhi tree (*Ficus religiosa* or *ficus bengalensis*) in Bodghaya where the Buddha gained enlightenment. This connection leads to the Enlightenment stupa. Some versions of the Bodhi tree under which the Buddha sat resemble a pagoda. So another version of Mount Meru comes in the form of a pagoda, which is said to have reached China with the introduction of Buddhism in the first century.

The oldest surviving Buddhist structure is said to be the pagoda at Songyue (512 AD). There are over 3000 extant pagodas in China and they take many forms. In Bali, pagodas convey aspects of the Hindu hierarchy of gods unfamiliar to India itself. We have many studies pagodas in China, Japan and elsewhere and yet we have no typology of pagodas. Such a synthetic approach could be one of the challenges of the Silk Roads Project.

We have already noted a link between Mount Meru and the Stupa at Bodghaya. This is part of a larger phenomenon: Each of the eight major events in the

Events: life of Buddha	Stupas
1. Birth	Lotus
2. Enlightenment	Enlightenment
3. Sermon at Deer Park	Wisdom
4. Descent from heaven	Descent:Tushita
5. Great miracle	Miracles
6. Taming: wild elephant	Reconciliation
7. Gift of the monkey	Complete Victory
8. Death, nirvana	Paranirvana

Figure 2. Eight events in the life of Buddha and corresponding types of stupas.

life of Buddha, each connected with a specific geographical location, is also associated with a specific kind of stupa (figure 2), all of which, to varying degrees, reflect aspects of Mount Meru symbolism.

There are mandalas with stupas. There are deeper associations whereby all mandalas are seen as the equivalents of two-dimensional ground-plans for three-dimensional constructions in the physical world. On occasion, this link between mandala ground-plan and architectural elevation is literally shown. To understand the roots of this tradition we need to go back to the Indian tradition wherein the Vastu Purusha Mandala is seen as the basis for all temple design.

Another version of the two-dimensional mandala as a three-dimensional structure is the Kumbum (which literally means 100,000 Buddhas): e.g. Gyantse or Borobodur. There are tantalizing parallels between such structures, the vastu pyramids of the Indian tradition with their pyramidal, central Mount Meru like structures and pyramids elsewhere in the world.

All this becomes the more fascinating when we relate these representations of Mount Meru as mandalas and architectural spaces (pagodas, stupas and kumbums) to cosmological traditions. The stupa is a symbol of the lotus. It also the cosmos. In Nepal, Mount Meru is part of a complex cosmology, with hot and cold hells beneath and various heavens above. Variants of this cosmological vision are found elsewhere in the East, in the ancient Turkish cosmos and the cosmos in Dante's *Divina Commedia*.

Earlier we referred to parallels between Mount Meru and the Bodhi tree, under which the Buddha achieved enlightenment. The Mesopotamian creation myths have a central mountain (cf. Meru) from which sprouts a tree of life (cf. Bodhi or banyan tree).

East	
Eight	Notes in Octave
	Winds and Directions
	Petals of Lotus
	Wheels (Sanskrit = <i>Chakras</i> )
	Spokes: Wheel of Life
	Fold-Path
	Events of Buddha's Life
	Kinds of Stupas
Multiples (8x8=64)	Trigrams of <i>I-Ching</i>
	Sides: <i>VastuPurushaMandala</i>
	Sides of Chess game
West	
Eight Sides	Dome of Rock
	Cathedral at Aachen
	Baptisteries

Figure 3. Examples of number 8 symbolism.

This same configuration recurs in the Siberian myths about the primaevial tree of life, Yggdrasil, which recurs in the Scandinavian tree of life, which grows from a cosmic mountain and which invites parallels with the tree of knowledge that dominates Paradise in the opening chapters of Genesis in the *Old Testament*. Other versions of this same Yggdrasil tree represent it as the basis of the threefold worlds of the Scandinavian sagas as recorded in the *Eddas*, which subdivide into nine worlds. Some western representations of the tree of knowledge also depict it as growing both above and below ground.

If we stand back to look at the nine worlds of the Norse cosmos we see that they entail three basic worlds: the highest, middle and lower levels, which the Christian tradition has translated into Heaven, Earth and Hell. It is striking that Odin in the Norse legends went to the underworld and returned, just as Christ did in the Christian tradition. The three basic levels of the Norse legends also have parallels in Indian, Georgian and other traditions. Other versions link this tree of life with the *chakra* positions of a meditating yogi.

In 1805, the British scholar, Francis Watford, attempted a fascinating synthesis by linking Mount Meru as the polar paradise in the centre of a lotus flower. In this version Mount Meru was not only the centre of the Indian cosmos, but the origin of the four great rivers of the world and conflated Mount Meru with Meros, the birthplace of Dionysius. If, in retrospect, this synthesis was overenthusiastic, the parallels that link creation, the tree of life (and knowledge), Mount Meru with the eight-petalled lotus flower deserve further attention.

The Australian aboriginal path to knowledge (*noonghaburra*) entails an eight sided star. Eight is the number of the octave. In Indian, sacred architecture, the *vastupurusha- mandala* has sides of eight squares. The chess board has eight sides of eight squares (cf. figure 3).

In Indian mythology, the eight-sided lotus is intimately connected with the act of creation and by association with the tree of life. The Sanskrit word, *chakra* means, wheel. In Kundalini yoga, there are eight chakra wheels and the Indian wheel of life also has eight spokes. The Buddha sits under the tree of life to achieve nirvana via the eightfold path. His life has eight defining moments in eight places, which lead to eight kinds of stupas, of which the enlightenment stupa also has eight sides.

Another version of the *vastupurushamandala* has nine squares. In Indian astronomy there are nine planets (i.e. the 7 planets and two shadow planets, Rahu (i.e. *serpens caput*) and Ketu (*serpens cauda*), which determine eclipses of the sun and moon). Nine is also an important number of the *I Ching*, where it is associated with the Creative power. In Nature there is a cycle of nine waves. There are also nine great serpents in India. In China, the Buddha is believed to have been protected by nine dragons at birth. A famous wall of the Forbidden City has nine dragons.

Nine is also the number of worlds in the Scandinavian cosmos, the number of the Greek muses, and the number of the Christian orders of angels and there is a cloud nine. Hence, whereas the West focussed on symbolism of the number 7, the East focused on symbolism of 8 and 9.

The links between the lotus flower, Mount Meru and architecture are much more than a simple metaphor. They entail a series of associations at a number of different levels. One set of these associations entail cosmic eggs, golden eggs and golden apples. Another set of these associations links cosmology, trees, and medicine.

The banjan tree (*ficus bengalensis*) with its roots above and below the earth is a corporeal form of the tree of life and Yggdrassil. At the level of the flesh, there is a Freudian interpretation, which takes us to the biblical sense of knowledge. At a more complex level, the Sanskrit word *linga* (cf. *lingam*, linked with the phallus), means symbol. Hence, where the East has, in the beginning was the symbol that becomes flesh via the word, OM or AUM (which reflects in its three syllables the creation, preservation and destruction of the world); the West has, “in the beginning was the

word (*logos*) and the word became flesh”.

At another level, the same quest becomes spiritual and the banjan tree, as a bodhi tree leads to the eightfold lotus path of nirvana. At yet another level the tree of life, or world tree (*arbor mundi*), along the axis of the sacred mountain takes us directly into the sphere of astrology and astronomy.

In this context, the configuration of Indian temples is much more than an interesting terrestrial construction. They reflect harmonies of astronomy and the celestial domain which clearly played an important role in the Temple of Heaven in Beijing. The temple of heaven was, in turn part of a much larger scheme that linked it with at least three further temples: the altars of earth, sun and moon that surround the Forbidden City.

At one metaphorical level the banjan tree is Mount Meru is the phallus, is the tree of life, is the world tree, is Yggdrassil, is the tree of knowledge. At another level the tree of life is seen as separate from the serpent of creation in the Indian creation myth, the serpent in the tree of life of the Hebrew Sefiroth; the serpent in the tree of knowledge in *Genesis*; the sacred crocodile on earth and the serpent in the night sky of the Egyptians, Draco in the occidental constellations and the dragon in the heavens that determines the solar eclipses that has its head in Rahu (*serpens caput*) and its tail in Ketu (*serpens cauda*), Sesa the dragon of the universe, or the dragon of Heaven in the *I Ching*.

At the cosmic level there is a constant struggle to keep the dragon from eating the sun (the nearly omni-present flaming pearl of Chinese decorations): i.e. preventing Draco from removing all the sun's light before the winter solstice in the annual cycle and preventing the great dragon (linked with Rahu-Ketu) from eating the sun in eclipses. At the terrestrial level, this becomes the epic battle of the hero conquering a dragon or a serpent that dominates the stories of Ophiuchus (Aesculaepius), Perseus, Herakles (Hercules), Saint Michael, Saint George and his dragon, and Parsifal's quest for the Holy Grail. It is fascinating to trace the gradual transformation of symbols.

Hence the seven-headed snake of creation and Mucalinda, protector of Buddha becomes nine serpents in India, then nine dragons who protect Buddha and nine dragons of Chinese mythology (linked with Sese), which make their way via Lithuania as nine positive dragons, and become negative in the West. Hence, the sea serpent becomes Hydra, sometimes as a nine headed monster attacked by Hercules.

## Mythology, Astronomy, Cosmology

The above examples point to deeper patterns underlying all of the great cultures. The quest to make sense of the individual is inevitably linked with stories (mythology) and beliefs (religion) that link the individual with nature and at the same time connect the actions of individuals on earth (microcosm) with the harmonies of the heavens (macrocosm). To achieve this, earthly efforts in mythology and religion are invariably projected on the night skies through astronomy. The constellations are thus records, which project the collective imaginations of different cultures using the same underlying set of stars as star maps at differing levels of detail and complexity. Cosmologies and religions typically link and integrate these efforts “on earth as it is in heaven” into coherent world-views.

This implies that there is another dimension to intangible culture that needs to be taken into account, namely, that of mythology, astronomy and cosmology. In practical terms this requires working with astronomers to create a virtual (reality) night-sky and the cosmos, which shows both short-term seasons, middle-term phenomena such as eclipses and long-term phenomena such as the precession of the equinoxes. Onto this sky common to all humanity one can then use augmented reality to project the many different interpretations of the celestial motions and harmonies. This will offer a new means of helping persons literally to look at different world-views and at the same time a new means to illustrate the rich stories of folk tales, mythology, and literature.

For instance, in Japan, there is a tradition of the hare in the moon, which is also associated with eggs. If we turn to astronomy we find that the constellation *Lepus*, i.e. the hare, occurs at the time of the vernal equinox (c. 22 March). Thus the Christian feast of Easter, which occurs near the vernal equinox has a pagan remnant (Easter bunnies and eggs) which is recorded in astronomy. Similarly, the tail of the dragon (Draco) and the Phoenix are linked with the winter solstice (22 December) which helps explain the presence of dragon and phoenix together between a flaming pearl of the sun in Chinese art.

Understanding such links between astronomy, myth and religion can help us to accept more generously the diversity of cultural expressions of the human condition: an empirical means of exploring Jung’s important intuitions concerning a collective unconscious. Themes such as golden eggs and apples or serpents and dragons are found

in almost all cultures. Similarly a study of sacred trees reveals clear links between mythical trees of life and real trees. More importantly such study reveals links between sacred trees, in the religious sense and healing trees in the medical sense. Cosmology, astronomy, myth, religion, and medicine are linked in unexpected ways. This helps explain why the first systematic botanical garden at the University of Padua (1543) claimed to be modeled on the Garden of Paradise.

As noted earlier it would clearly be misleading to reduce all these complex myths and stories of eggs, serpents and trees to a single scrambled story. At same time, the intuitions that inspired Fraser’s *Golden Bough*, deserve to be taken up anew on a worldwide scale in order to understand their underlying roots. There is a challenge to identify similarities and parallels in order to recognize underlying structural dimensions shared by different cultures. This is almost in the footsteps of anthropologists such as Levy-Strauss in the early 20th century with one significant difference: it does not stop at the shared structures.

There are also significant differences in the use of these expressions that are essential in comprehending diversity of cultures. Hence, both India and Australia have a serpent of creation: but the Indian serpent is seven-headed, whereas the Australian serpent is rainbow-coloured. Both China and Japan have dragons associated with the emperor. In China, the dragon associated with the emperor typically has five claws. In Japan, the dragon associated with the emperor frequently has three claws. The Chinese dragon is frequently a single colour, or simply light or dark whereas the Japanese dragon may have very vivid colours. Just as a tree with common roots can have many branches, so too can culture’s underlying symbols have many different and distinct expressions.

## Towards New Models of Culture

Examples such as the cosmic egg, dragons/serpents; and the tree of knowledge make it clear that the such transformations need to be studied at a global level: not in global terms, but rather in individual terms such that the unique contributions and expressions of different local, regional and national cultures are fostered and continue their role.

A generation ago, the efforts of UNESCO made us aware that in addition to the important role of tangible culture in the form of the built environment (temples, churches, monuments etc.), intangible culture also plays a significant role. UNESCO’s definition of intangible culture was

Cultural Goal	Means
1. Connecting	1. Mythology 2. Religion 3. Philosophy 4. Literature
2. Ordering	5. Art 6. Mathematics
3. Imitating 4. Matching 5. Mixing 6. Exploring	7. Doing 8. Direct Expressing. 9. Expressing via Written 10. Translating Media 11. Transforming Media
	12. Making 13. Representing
	14. Building
	15. Publishing w. Tolerance 16. Sharing 17. Helping

Figure 4. Six goals and seventeen means as ingredients for a new model of culture

primarily in the context of cultural products especially in pre-literate or non-literate cultures: e.g. language, customs, food, music, and dance. The cluster of examples linked with Mount Meru which we have just considered, point to a wider definition of intangible culture. At one level, there is intangible culture in the form of mythology, religion, philosophy and (epic) literature. This generates a whole range of expressions in terms of both tangible and intangible culture.

If culture is defined as the cumulative, collective memory of a group of persons, then the range and complexity of these expressions becomes a measure of the richness and greatness of a culture. This richness is partly a function of literacy for the simple reason that oral traditions impose limits on the amount of collective memories which can be remembered by a group no matter how learned and clever their shamans, priests and people. Herein lies a basis for high and low culture independent of discussions of imperialism and colonialism. Oral cultures have myths and beliefs that are literally memorable (cf. 1-2 in figure 4). Pre-literate cultures have stories. Literate cultures have stories plus cumulative interpretations and commentaries. Literate cultures also have philosophy and literature that generate more complex cosmologies and stories (cf. 3-4 in same). These stories are not only more complex in themselves but also have a cumulative complexity that comes from citing previous literary sources. Hence, Milton and Dante are more complex than many earlier writers because they cite the *Bible* and many classical writings.

Oral cultures typically produce some forms of intangible culture a) in the form of organic or geometrical patterns (cf. 5-6 in same), b) in the form of doing (eating, drinking, customs, cf. 7) and c) in terms of expressing themselves directly (language, speech, cf. 8). Until ways and means are found of recording these expressions, oral cultures remain in a constant danger of extinction. Oral cultures typically also produce some forms of tangible culture in terms of making (pottery, ornament, cf. 11). Again, unless ways and means are found to conserve and preserve these products, they too remain in constant danger of extinction.

The shift from oral to written culture is thus much more fundamental than a simple translation exercise from one medium to another. Once myths and beliefs are recorded they can be developed into ever more complex cosmologies and stories, which can have their own national, regional and local variants. These cosmologies and stories can also generate an ever greater spectrum of expressions (cf. 9) ranging from the static arts (the so called fine-arts of painting, sculpture often favoured in the West) to the performance arts (e.g. theatre, dance, music, often favoured in the East).

In print culture, it is not only the range of expressions but also the complexity of interplay between expressions in different media (cf. 10), which plays a fundamental role: how, for instance, the Buddha can appear as a manuscript illustration, as a mandala painting, as a tiny hand-held sculpture, a life-sized sculpture, or as an enormous statue as in Yokohama or Hong Kong. In more advanced cases this process of translating from one medium to another is complemented by a process of transformation as one explores new possibilities (cf. 11). There are also new efforts at representing and building (cf. 12-13). Hence, print cultures foster the complexity and range of expressions in both tangible and intangible culture (cf. 9-14).

Cultural ideas (myths, beliefs) and cultural creations are not the only criteria for the sustainability, richness and quality of a culture. Anyone can produce images of their myths and beliefs, but such expressions are not always kind, benevolent or tolerant. The great religions of the world have had such an influence because their central tenets have expressed a greater deal of tolerance (cf. 15) than minor sects.

The test of a mythology, religion or belief system is not only in its ability to tolerate others, but also in its capacity to share with others. Cultures which have an isolationist policy may have a certain inherent value and coherence in themselves, but if

they are not willing to be open to others and share their expressions with others, this limits their value beyond the narrow limits of their original parameters. Hence another test of a serious culture is the extent that it remains intact when placed in the context of another culture (cf. 16). Cultures which ignore this criterion will ultimately find themselves endangered in a world of global villages.

Ultimately it is not only openness to other cultures but a commitment to help others. Everyone helps their friends. Not everyone helps others. The Christian story of the good Samaritan, although hardly followed by every Christian, is a universally appealing story because it points to helping a stranger, not just a friend. Thus a further criterion for a sustainable culture is the extent to which it reaches out beyond itself to help others (cf. 17).

These different means of expression are linked with a small number of goals of culture and art, which change from a pre-literate to a literate context. In pre-literate cultures an initial goal is typically in the form of 1) connecting a physical person or group with a metaphysical, magical world beyond. A second goal in pre-literate cultures, sometimes linked with the first, entails 2) ordering the world (i.e. bringing a sense of order to the world) in the form of regular patterns, often as organic or geometric forms. These goals continue after the advent of literacy. Indeed in the case of cultures with iconoclastic beliefs, the sense of ordering can evolve into an extraordinarily complex set of patterns: e.g. organic and geometrical patterns of Islamic culture.

The shift from oral to written culture typically brings a new goal of 3) imitation (mimesis). Hereby one compares a number of different examples and creates ideal combinations from these examples as in the famous story of Greek sculptors who combined the faces of beautiful ladies to create an ideal face of a goddess. The shift from written to print culture brought further goals of 4) matching in the sense of copying; 5) mixing in the sense of combining realistic and imaginary features and 6) exploring as in more recent modern art, in the sense of transforming images entirely to the point that no necessary link with physical reality remains.

These six goals and seventeen criteria offer ingredients for a new model of culture. The goals of connecting and ordering have consequences for expressing, making, representing and building, but how they do so varies from one culture to another. High cultures tend to require ingredients 15-17. To

be sure, there have been significant cultures which were cruel and unkind. Almost without exception they were replaced by cultures that were more kind. Being open expanded the boundaries of influence of cultures and typically made their original expressions richer.

This brings us back to the theme of silk roads. The sharing of myths, of religions, of literature, of cultural expressions, tangible and intangible took place along the silk and spice routes, which were often also pilgrimage routes. The example of a single mountain, Mount Meru, should remind us, that even things that seem simple are enormously, almost incredibly rich in their manifold expressions. Paradoxically these themes of most universal interest are precisely those which most elude the comfortable boundaries of any single discipline, any single religion, philosophy and of course any single -ology or -ism.

They stem from the profoundest expressions of the collective human consciousness and what Jung taught us to recognize as our collective unconsciousness, dispersed in our memory institutions. The Silk Roads project is thus something fundamental. In discovering the sources of our differences and the common humanity from which they spring we are uncovering something more powerful than the greatest show of physical force. For we are returning to the underlying spirit that makes possible expressions at all levels from the mere physical to the meta-physical. A first practical step may be to choose key examples and trace how these are transformed by the various cultures along the Silk Roads.

## 10. Interfaces for Perceptions

In today's Internet, a European painting, a Byzantine or Russian icon and a Buddhist image appear as if they were completely "the same." The way these images were intended to be seen is often very different. In the European West, art and culture are linked with a subject-object distinction and aesthetic distance. By contrast in Byzantine traditions icons play an intermediary role, while in the East there is a quest for unity between viewer and image or natural scene which is viewed. Needed are interfaces that help us to understand which level of commitment is assumed by a painting or work of art.

If the trends from a leisure class towards an experience economy continue, then there may in future be new professions and markets to create educational materials, courses for new kinds of tourism as suggested by Mr. Diene.

## 11. World Distributed Electronic Repository (WONDER)

In the past two years a number of steps have been taken in terms of formal agreements between: UNESCO, NERE/DSR, E-Culture Net and the US National Science Foundation's Digital Silk Roads Cultural Grid Project (NSF/DSR/CGP) to work together. It is essential that these projects be based on open-source software and not be tied in to the technological limitations of any company qua either software or hardware.

Meanwhile, E-Culture Net has outlined the need for a multilingual, Distributed European Electronic Resource (DEER) that would have a: 1) collaborative forum for creativity and research; 2) virtual reference room and 3) virtual library in the form of distributed repositories (figure 5) [1]. Needed is something such as the DEER on a global scale, which might be called a World Distributed Electronic Repository (WONDER). The Silk Roads project offers an ideal starting point for such a venture.

The NII's Global Multimedia Repository (GMR) forms the basis for Virtual Memory Institutions as Distributed Repositories. The Advanced Scientific Portal for Distributed Cooperation (ASPICO-DSR) is effectively a first step in the direction of a Virtual Reference Room. Meanwhile, the aim of the ASPICO-DSR to create a "daily co-operation and services platform" prepares for a Forum for

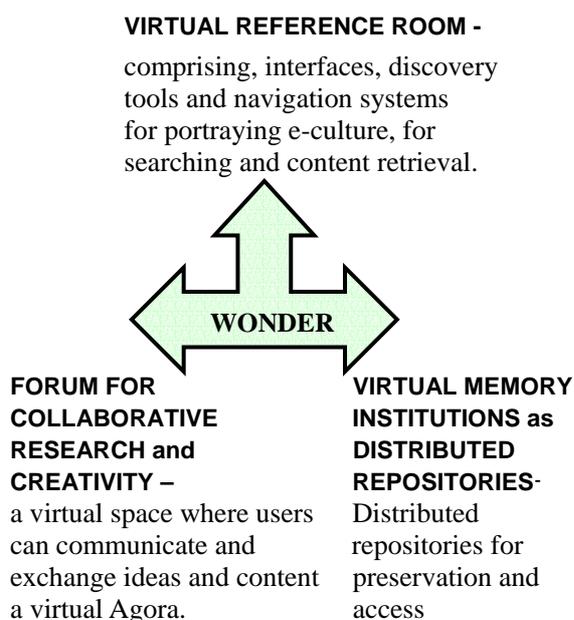


Figure 5. Elements of a future World Distributed Electronic repository (WONDER).

Collaborative Research and Creativity. In revealing underlying roots of our common humanity a WONDER will help us to understand more deeply the value and reasons for our different expressions.

## 12. Conclusions.

This paper has outlined nine challenges to share cultural heritage in an international framework and described practical first steps. We used the example of Mount Meru and its expressions to outline a new model for culture that transcends Euro-Centric and Asian-Centric limits while respecting cultural diversity. An understanding of symbolism helps to understand unexpected connections between temples, stupas, pagodas and a range of other cultural expressions. For Digital Silk Roads projects this approach can integrate UNESCO's local digital content oriented themes such as their religious architecture inventory and palaces and monument locations.

Our proposal links orientation in Warburg's sense, image and word electronically and multilingually in ways that transcend linear limitations of print. In this approach Cosmology, Astronomy, Religion and Mythology have unexpected links with Botany, Medicine and Architecture.

Finally we suggested that by combining the efforts NERE/DSR, E-Culture Net and NSF/DSR/CGP to integrate a number of international networks can lead towards a World Distributed Electronic Repository (WONDER), to foster awareness of uniqueness in every culture.

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[1] Cf. Suzanne Keene and F. Monti re: DEER: <http://www.eculturenet.org/FP5/publicPDF/deliverable11a.pdf>.