STATE OF THE ART IN BUILT HERITAGE INTERNET APPLICATIONS: WHICH TRENDS ARE LEADING THIS FIELD?

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ABSTRACT:

I propose with this paper a theoretical model for analyzing the State of the Art of Built Heritage Internet applications in order to define the actual and the future - or radical - theoretical trends leading the production of this kind of works. Studying the considerable variety of such applications we can go beyond the simply phenomenological reconstruction of typologies in order to attempt recovering the theoretical background that led to their design. This means, to recognize the approaches involved in each product instead of simply defining a taxonomy of both technological tools and design choices - such as performative, graphic, narrative or communitarian ones - that is usually used for explaining the Cultural Heritage's multimedia applications. The investigation's typology that I am proposing could be defined as hermeneutically or linguistically pragmatic because it points out the necessity of undertaking the analysis taking into account both from the products' implicit values as well as from their relations with the users. Through this investigation it will be shown that the implicit products' background should be conceived as a set of topics drawn from many theoretical approaches pertinent to the Cultural Heritage - notably the cultural / political, the aesthetic, the historiographical and the informational one - and that this heterogeneous theoretical synthesis could define trends, or streams as hinted before, that can replace the common phenomenological taxonomy's outcomes.

1. INTRODUCTION

1.1 The repertory – the last decade products

The State of the Art of Internet applications in Built Heritage which I am proposing in this paper is much more an inferential analysis than a traditional typological taxonomy. This theoretical approach is gathering together both structural and diachronic observations which shape the context which I am studying as a field of ideological negotiations and accomplishments which are mostly related with the history of western culture of the past two centuries despite the evident actuality of this applications. This wide spectrum of cultural theories becomes an unmanageable thesaurus of references if we try to undertake the study of all the digital products so far related both to the Web technology and to the Built Heritage conservation and interpretation. Indeed, without a clear coherence and demarcation of the repertory analysed, assured by criteria of necessity and sufficiency, the results of this kind of study could not be really consistent, for the diachronic observations could overwhelm the structural ones rendering a map of typologies quite unrelated to each other and strictly determined by an inductive interpretation.

Thus, I decided to narrow the present research to the field of the digital applications produced in the last, and still running, decade. Indeed the homogeneity of these works is widely demonstrated by their technological, political and cultural characteristics which gather all the field of digital applications to Built Heritage in a relevant repertory of analysis.

The technological coherence I am referring to is not intended here as a consideration about a common technological device or simply a common technology which associates these products - although these aspects could be relevant too – but should be individuated in the wider concept of "common technological apparatus" which is represented by the entire system of devices and social practices implied in a technological context. In such theoretical context, it is not the development or the exhaustion of the siliceous technology which determines the coherence of

our field of analysis but rather the planetary diffusion of a complex social system of economic relations based on this apparatus. It also appears clearly in the integration of the public institutions in such a system, in the social value projected in using such a system, in the integration of a monopolistic software market with both local industrial reactions and code activist oppositions, or in the affordability of the platforms for the integration in such a system.

These kinds of observations demonstrate that a political one closely related to this later could be easily appreciated too. In the first years of this last decade many initiatives have been inaugurated aiming at the development of digital products concerning the conservation - that is the registration and the reconstruction - and the diffusion of Cultural Heritage (CH). The more important examples of such institutional tendency are offered evidently by the actions plan of the European Community and by the 32nd UNESCO General Conference resolution of October 2003.

The European government launched the "eEurope" programme, after its inauguration during the Seville Conference 2002, aiming at concentrating cultural, administrative and economical contents in the Web; for this purpose a strategic plan was created for the implementation of the Information Society, 'i2010 – Europe in 2010", which affirms explicitly the ten-years perspective we are discussing here. In this way many projects concerning digital applications to CH, and especially to Built Heritage, have been funded through the five-year plans, which for example in the last Framework Programme were counting with a total amount of € 65 million (http://cordis.europa.eu/ist/so/learncult/home.html).

The UNESCO resolution of October 2003 marks a more complex point in the definition of the common policies dedicated to the digital applications in Built Heritage for - beyond the important consequences which determines in cultural and philosophical terms - it is defining a pan-institutional and globally shared interpretation of what is a proper set of preservation actions dedicated to CH in a digital operation context (UNESCO, 2003). Indeed, this charter

assigned the status of Heritage to the digital data involved in the reconstruction of the CH in order to guarantee the perpetual use of their databases; but, the Virtual Heritage defined in this document appears to be more a radical switch from the "auratic" (Eiland and Jennings, 2003) romantic interpretation of heritage rather than a reasonable observation on data conservation. So, here the importance of this document seams to lay on the one hand in having stated, through a global institutional resolution, that the technological apparatus based actually on siliceous technology is determining a radical world wide political and epistemological changing in the interpretation of the concept of Heritage, and on the other, in having asserted such an issue just at the beginning of this decade.

1.2 The pertinent taxonomies – emancipating these products from their Producers

The pertinent taxonomies so far produced did not present the same accuracy in defining their repertory of analysis and often provided classifications limited to the evident actuality of the studied objects or biased by unclear methodologies and by partial applications of theoretical resources. In spite of such a confused production it is possible to track some common attitudes toward the description of our repertory.

Avoiding here any consideration about the specific context in which these texts arose, we individuate a first conspicuous group of publications which is represented by texts constructing a *technical and cultural eschatology of the more recent works*. In such part of the pertinent literature appear classifications which deliberately confuse technical ontogenesis and cultural hermeneutics borrowing their tools principally from Media Studies; for example we can recognise there the influences of the Convergence Theory, and the partial conjugation of both technology's hermeneutics and incomplete diachronic approaches (Dave, 2006). We might outpoint too in this group the classifications which overvalue technical and quantitative aspects because of their supposed scientific neutrality, as is evident in the surveys on business models, in the funded projects presentations, or in both hardware's and software's presentations and surveys, (Ioannides et al., 2006).

A second important group, which is closely related to what we hinted before about the convergence of policies and technological apparatus, is the one represented by the *uncategorised accumulations of political actions devoted to the production of Virtual Heritage*. Such papers compile long series of projects' presentations reconstructing inductively a political panorama on Information Society's activities, as for example happens in the European institutional surveys or in the international organisations' reports (Niccolucci et al., 2006).

A third major theoretical attitude toward our repertory of analysis is the one which gathers implicit or explicit classifications which employ the study of the digital technology to verify themes and issues of particular disciplinary debate, such as for example in the case of the applications of Cultural Ecology Studies, Pedagogical Studies, Museum Studies, Cognitive Studies and Historiography debate (Champion, 2006; Di Blas et al., 2005).

It is easy to notice that this variegated ensemble of critical products is incredibly coherent in defining the role of the user of the digital applications we are studying, or to be more precise we can assert that the User experience actually is not a role considered regarding its specificity and independence. Indeed, all these classifications confuse the roles of the Users with the ones of the Producers for example not distinguishing among their tasks and aims, elaborating the Users' role through cultural general characteristics, proposing uncontextualised cognitive elaborations of the Users' experience, or simply overvaluing the Producers' role (Affleck and Kvan, 2006; McLoughlin et al., 2006). Furthermore, such texts often take in analysis the Users' performance for evaluating the efficacy of the Producers' choices, such as in the case of the pedagogical or economical evaluations, the technical surveys or the museum's economic studies (Haynes and Zambonini, 2007).

This brief State of Art of the critical debate concerning the web based applications to Built Heritage highlights the peculiar fragilities and defects of the literature produced on this field: on the one hand we can assert that our repertory of analysis has not so far been studied as a set of informative products, and so has not been studied giving prominence to its communicative relationship with the Users despite both the evidence of such phenomenon and the common, in other fields, theoretical resort to communicative analysis; on the other hand what appears to have been completely obliterated in this debate is the theoretical complexity of our repertory which has been neglected by the widespread lack of methodological clearness of these papers. Such critical defects regard evidently as much the semantic interpretation of the digital applications we are considering as the methodological forms through which they have been studied.

For this reason I am proposing here to differentiate on the one hand a Pragmatic approach defining the theoretical perspective from which to lead the interpretation of our repertory, and on the other, a linguistic methodology employed for rendering formally the cooperation of diverse hierarchical systems in the definition of such an interpretation.

These choices mainly state the necessity in the analysis of such products' repertory of both obliterating the Producers' role and considering the Users' role in its widest system of theoretical references and relationships.

The emancipation of our applications from the influence of the Producers' intentions allows to study the communicative function of these products using both the tools dedicated to the Text analysis and the theoretical approaches usually chosen in the hermeneutic of Communication's products. Indeed, such exclusiveness of the relationship between Users and Text in the process of negotiation of the meaning refers directly to the influences of the meta-semiotic field of Pragmatic on post-Wittgenstein Philosophy of Language and on post-Structuralisms, such as for example the opening of the textual analysis to cultural hermeneutics and the transcriptions of the message's content in systems of actions and competences negotiated between the receiver of the message and the message itself.

For rendering the complexity of these systems of relationships between cultural and performative interpretations of our analysis' repertory, I am proposing here not a traditional categorisation based on typologies but a taxonomic algorithm defining relationships' categories, such as for instance either in the case of a bundle of vectors examined on a given matrix or in the case of an individual described through his family ties within a community. In this way our repertory is analysed giving prominence to the relationships among the diverse hierarchical systems which coincide in its body, that is explaining the setting of multi-parental relationships which occur in its corpus; thus an object is studied in regard to the horizontal relations among independent systems which cross its body of contents, (such as for example a bike could be classified as vehicle, as children's toy, as sport tool, as mechanical object, as electricity engine, etc. depending on the methodology of the classifier). Such instrument refers explicitly to the componential analysis which in Linguistics have been

inaugurated by the work of R. Jakobson on the aphasia and which after have been highly complicated by the introduction of the concept of gradation through the system of fuzzy concepts of J. Lakoff.

As it is evident, the theoretical background of this research is articulated through texts of J.L. Austin and J.R. Searle - *How to Do Thins with Words* (1962) - of G. Deleuze and F. Guattari - *Mille Plateaux* (1980) - of P. Fabbri - *Istruzioni e Pratiche Istruite* (2005) – and of U. Eco - *Trattato di semiotica generale*, (1975).

2. THE TAXONOMIC ALGORITHM

2.1 Building the algorithm

As we have hinted above, this system of analysis is referring mainly to Pragmatics and particularly should be considered as an organised correlation of meta-pragmatic theories dedicated to our repertory.

As Charles Morris stated in his chapter on the fundaments of Sign theory in the *International Encyclopaedia of Unified Sciences* (Morris, 1938) Pragmatic is the perspective of study on the semiosis which focuses on the relations between signs and their interpreter. But, what is more interesting for this investigation is the definition which John Langshaw Austin and John Searle have given of Pragmatic as the theory on the pertinence conditions of enunciations (Austin and Searle, 1962): such interpretation concentrated the analysis of communication on both its contextual and circumstantial characteristics, that is both on the expectations of the communication's addressee in respect to the similar information received and on the setting where the communication takes place.

These contributions, giving prominence to the real competence - against the ideal one - of the Users of a Language in the study of its Communicative function, opened the speculations on the Communication on the one hand to Sociology and Anthropology, and on the other to Literary and Cultural Theory. Although the theory of Speech Acts by Austin and Searle estranged Pragmatics from the Philosophy of Language, it was recovered by Gilles Deleuze and Felix Guattari in their research on the epistemology of the actions in order to develop a performative interpretation of Communication Acts. According to this perspective of study, which its authors called "radically pragmatic" (Deleuze and Guattari, 1980), the information is constituted by actions either suggested or imposed to the addressee of the message by means of the actualisation of competences which this actor is accomplishing or not. Thus, the performance of Communication is comparable to an instructive action while its information to an instructed action which is given to the addressee of the message to be accomplished, in a similar way the handbooks for home repairing amateurs are giving instructions to be followed in order to fix the furniture, or the ergonomic objects are pretending a particular use (Fabbri, 2005).

In our repertory such performative characteristics of Communication are particularly evident from diverse perspectives: for instance the *technological apparatus* which "realises" our applications requires that the Users adapt their competences, their wealth and their institutional collocation in order to access their services (such as pretending to be a student, a worker, a user of a Museum, a subscriber of an Internet connection, a buyer of either software and hardware, etc.) - Lev Manovich compared the Web to a soviet popular block for rendering the social homologation involved by this

apparatus, (Manovich, 2001) - ; the *interfaces* which interpret the information of our applications request from the Users diverse kinds of cultural actions, such as the learning both of notions and of dynamic metaphors, (the User is instructed for being instructed); the *databases* which coincide with the informational corpus of our applications offer actions and competences to be accomplished or received by the Users as well, such as in the case of the competences offered for its operability, or in the case of the rhetoric and narrative instructions proposed for the actualisation of a specific ideology.

Thus, looking for the expressive levels which express the communicative function of our repertory through the performances requested to the Users by the typological and environmental codes, we recognise easily that the technological modules of these applications interpret such kind of meaning's negotiation.

Such ambits of our analysis are considered here through diverse methods of investigation depending on the more pertinent way for interpreting the performative characteristics which are implied in each of them. For example, a set of Media's theories will explain the Users' performance on the ambit of Technological apparatus, while expressive plans will be used on the others: cultural, literary, pedagogical and museum theories such as a rhetoric theory of the Interface and both an Ideological theory and Museological one of the Database.

The "adequateness" of the theories involved in such analysis is not the result of a deductive process stating the generality of its issues; rather, it depends on the inferential observations which I have conduced both on the evidence of objectives characteristics and on the interpretation of the performative aspects of the applications we are studying. The results of such a methodology is a sort of normalised hermeneutic comparable with an algorithmic string collecting the procedure of such an interpretation, that is the diverse considerations about performance of each expressive plan. In this way the hierarchical systems which are involved in this investigation are not to be considered as typological categories for they are just the determiners of the researched set of relationships which define the pragmatic taxonomy I am proposing here: each step of the model is put in relation with the others and trough the definition of such relationships we are going to identify typologies and tendencies of our repertory.

2.2 The technological apparatus' expression

Which performative characteristics could be individuated on the technological plan of the communication function of our repertory?

According to the theories of Speech Acts and of Instructed Actions the technological consistence of our applications triggers important performative actions which are redistributed along their technological modules.

Indeed, on this level the Database gives to the Users notions and competences on how it should be consulted or modified: such as for instance the example of databases consultable according to a specialised organisation of the metadata, that is specialised for and by determined groups of the Users, or in the case of operable databases which offer to the Users the possibility of modifying their descriptive metadata - like in Folksonomies and Wikibased extensible shared annotation environments - , their administrative ones - like do Semantic Web applications and diverse forms of feedback registration -, their structural ones - like in GIS based on Web serves - or the opportunity of integrating their data as well - as in the case of some communitarian applications.

The Interface and the Hardware propose on this level very different performative utterance: the first is communicating its variability, that is a system of competences requested to the Users in order either to specialise their navigation of database - like it happens in Google Earth and in Second Life - or to understand the model of exploration disposed by the Producers of the Information; the latter pretend that the Users actualise an economical performance in order to trigger the communication process with our applications, (this could be interpreted in terms of economical affordability of our repertory, like in the example of applications restricted to subscribers).

Thus, on this expressive level the performance of the Users depends on the *Database's Accessibility and Operability*, the first conceptually determined by {*generic organisation of metadata; specialist organisation of metadata*}, the latter represented by {*operability of descriptive metadata granted to Users; operability of structural metadata granted to Users; operability of administrative metadata granted to Users, operability of every level of metadata granted to Users; integration of data granted to Users; operability of data and metadata restricted to the Producers*}; and on the *Interface's Variability*, which is determined by {*specialisation determined by the Producers of the Information; specialisation operated actively by groups or by the singular User; no specialisation*}; and finally on the *Hardware's and Software's Affordability*, which is explained by {*affordability for institutions; affordability for Groups and individual Users*}.

2.3 The Interface's expression

The level of the Interface's performative expression of our applications is significantly constituted by the elements of a rhetoric theory which interprets the performance requested from the User in terms of *cognitive metaphors and of cultural metonymies*. Indeed, the forms of hyper-coding of Language (Eco, 1975) are connotative structures which perform substitutions and integrations in the semantic of expression, and so represent code which request many changes in the competences of the addressee of a message, such as for example in the case of the forms of the "elocution" (Groupe μ, 1970) - among them metaphor and metonymy - and of the semantic structure locally codified, (without such performances saying "to give someone a hand" could be interpreted in a macabre way…).

The interfaces of our applications are often related with systems which represent surrogate of concrete spatial environments through codified interpretations of their kinaesthetic and proxemic characteristics (Hall, 1990), such as in the case of VRML (Virtual Reality Modelling Language) applications. In this way, the immersive simulation of the navigation in such context can be compared to a metaphor which transfers the real semio-motory and synestethic experience of Space to its surrogated representation.

In such level of the communication of our repertory we find, often combined with the described cognitive substitutions, diverse narrative models borrowed from the traditional linear texts and to the hypertexts (Ryan, 2003). These models are cited in the interfaces in order to accomplish a rhetoric transcription of the communication process of the device rather than to interpret connotatively the notions of their database. So, while above we recognised a metaphoric transcription of physical reality in the use of surrogated Space, here we identify a metonymic relation between literary models and the interface expression, that is the correlation of the interface's shapes with the semantic of the literary works.

2.4 The database's expression

The databases of our repertory are often composed both by notions and by critical interpretations of BH which are offered to Users as texts, audiovisuals, audio tracks, images, spaces and objects transcribed in VRML, and as multilayered thematic Maps. Although such variety of communicative typologies seams to diversify the ambits of theoretical pertinence of each of them, from the radical pragmatic perspective which we adopted we can easily recognise that all the information transmitted to the Users consists of a set of ideological transformations of competences requested from the addressee of the message. Such observation depends as much on the epistemology of the action of Deleuze and Guattari as on the Cultural Studies' attitude toward textual analysis (Totosy de Zepetnek, 2002); indeed, if the first interpret communication as a negotiation of incorporeal transformations which affects the addressee of the message - such as for example in the case of a juridical sentence uttered in the right context which transforms a free citizen into a convict – the others specify such ideological mutations on the corpus of competences of the Information's Receiver in terms of social and sexual identity's negotiation interpreted by specific narrative, such as the historiographic one.

But of course, the narrative vehicle of such transformations consists of diverse rhetoric tools which go beyond the simple denotation of the contents and which are mainly related both to the "position" of the author in the account and to the typological genre driving the narration.

So, the historiographies composed within our applications imply {*ideological contents; negotiation of social and sexual identities; authorial and literary typologies*} which propose to the Users complex performative acts.

The ideological interpretation of the communicative process triggered by our applications do not complete the theoretical reconstruction of the performance requested from their Users; indeed the benefit obtained by such cultural analysis lays in the generality of its issues which involves our repertory in a wider set of cultural products, but in this way the specific and autonomous characteristics of our applications risk to be neglected.

Actually, the more visible part of the Users' performance implied by the communicative process of our applications depends on a specific Museum theory which combines museographic and museologic considerations. Indeed, the role of the Users of our repertory depends highly on the *Museum concept* which drives the museographic choices of these products - like in the case of the reference to a traditional, a parallel or a virtual model of collection's presentation (Deloche, 2001) - and so is strictly related as well with specific *pedagogical models* - like the Constructivist and the Rationalist Schools - and with *epistemological and aesthetical convictions* (Pearce, 2003).

3. ACTUAL AND FUTURE TENDENCIES

3.1 The actual main partition

The algorithm which composes this analysis is, according to its stricter application, a harvesting system which collects applications' groups with the same setting of performative characteristics. Such kinds of results are not in this context so relevant because they provide just quantitative issues which have to be related to other observations in order to provide organised observations. These latter kinds of considerations on

the performative categories of the products are mainly inferential for they interpret the relations between the groups and their categories in order to systematise such a performative mapping of our repertory. So, for analysing a group of applications with the same distribution of performative attributes from this perspective means to recognise which relations each attribute has in regard to the others, for example the implication between narrative forms of the information and rhetoric shapes of the Interface should be identified as a subset of the relation between affordability and operability of Database. This process could not be presented here in all its length for the several questions and speculations which rises, but can be presented synthesising its results.

Through these interpretations of the performative groups of applications we recognise that the performance of the Users is mainly determined by the more superficial, or evident, levels of their expression, the ones which involve the more aware intention of the Producers as well: indeed, our applications could be divided according to the cooperation of the performances requested from the user by their categories of instructed actions regarding the economical affordability and the Museographic conception of the product.

These two categories combine the applications expressing the role and the tasks of the Users according both to their institutional involvement and to the epistemological references chosen by the Producers of the application. Actually, talking of economical affordability does not explain that the distinction between individual Users and professionals hosted in either a cultural or administrative institution interprets a kind of intellectual affordability of the products as well. On the other, as Iro Maroević stated (Maroevic, 2004), the museum concept of the Producers can be simplified in two tendencies: one considering the collection - in this case the data collection – as the consolidation of scientific information addressed to specialists, the other dealing with the consolidation of cultural information addressed to the general audience. In this way we have isolated here two main tendencies of our repertory composed by applications addressed either *to Unspecified Individuals* or to *Institutional Professionals*.

The performative categories which are gathered under each of these "typologies" connote these groups determining other partitions. Indeed the kind of Database's operability granted to the Users determines a further distinction in the body of the products addressed to unspecified individuals. So, we recognise easily a further distinction of these products between systems which are either operable or not: in the first group can be found the Web Community's applications which could be related with Built Heritage, although this specification should be intended in the wider sense of both tangible and intangible heritage, such as the project leaded collaboratively by the Hong Kong University and by the local Fringe Festival entitled "Memory Capsule" (*http://www.23hq.com/Memory_capsule/story/343756*) which dealt whit the collection on "23hq", a free Photo Community, of cultural representative images of contemporary Hong Kong proposed and commented by its dwellers (Affleck and Kvan, 2006); in the latter we can found traditional Internet Exhibits, such as in the case of the "Temple Site" (*http://www.templeinstitute.org*) by the "Temple Institute" and the "Davidson Centre" (Greenfield-Gilat, 2006).

The group of applications which can be ascribed to the typology of the operable products addressed to the wide audience are characterised in the majority of the cases by an Interface modelled both by a topographic literary metonymy and by few semio-motory metaphors, while in the case of the wider granted operability their historiographic approach is continuously changing and debated by the Users. The other typology of products evidently collects linear literary forms, the more complete settings of cognitive rhetoric tools (especially synestethic) and historiographies showing clear ideological hints transcribed by means of tools borrowed from the literary genres.

Such partition is not blindly applicable on every application because often when in the first group the operability degree diminishes linear literary features and multimedia tools appear which interpret synestethic metaphors, while in the other group we can find often simple hyperlinked structures which seem to allude to a topographic organisation of the information.

The applications in the group of the main typology of Institutional Professionals present a rhizomatic structure of the information and some times a cognitive approach to the navigation of the database, such as in the case of the "ArchAtlas" project (*http://www.archatlas.org/Home.php*), but autonomously from the other typologies they maintain an historiographic approach which is comparable to the one of academic publications, such as in the case of the ECAI (Electronic Cultural Atlas Initiative) (*http://www.ecai.org/*).

3.2 The rising model

From this analysis it emerges that between these two typological groups which we described briefly, another group of applications is rising, not clearly assignable to the one or the other. I am referring here to a sort of hybrid group of applications which are born as products for a wide audience but now are involving tasks for the Users and topics very near to the applications dedicated to cultural professionals. Such group is characterised by the operability of the Databases limited to all the levels of metadata, and by the use of numerous cognitive metaphors articulated with diverse literary metonymies in order to accomplish an historiographic approach which can be defined as encyclopaedic. For example, "Google Earth" (*http://earth.google.com/*), which is representative of this model, offers a cognitive navigation of the satellite photos which is considerably dramatised by spectacular camera movements and by the emphasised thickness of the atmosphere, but, despite the fact that its geographical references and its 3D renderings are often inexact, it is being used by cultural professionals as a GIS tool and it has been fostered by the UNESCO too, which in a specific layer offers a wide set of geo-referenced information on Built Heritage. This application is not discriminating the Users in regards to their institutional pertinence but is offering to a virtually unspecialised audience a set of specialised tasks such as the individuation of archaeological sites. So, the verification of the information's reliability as well is not restricted to an editorial board but left to the communitarian debate of the Users.

The web application is in this case a platform which hosts several Communities which cooperate, within their interest fields, in order to specialise the data offered afterwards to the wide audience which is, any way, the main target of the service. Such a convergence of contents on the same platform defines a macro-institutional perspective in the performative analysis of the applications' expression which at the same time obliterates the main partition we hinted above and imposes to specialise the analysis on the other performative characteristics in order to analyse properly such a future set of applications.

4. CONCLUSIONS

This analysis demonstrated the relevance of a Pragmatic approach in order to produce conspicuous considerations on the

web based applications dedicated to BH. Indeed, this model offers on the one hand a complex set of quantitative data and qualitative observations which can be continuously updated for not loosing their actuality and on the other a meaningful and clear methodological background for scientific investigations. In particular, having interpreted the typologies in terms of relations between attributes, that is tendencies, we have considered the state of art in this field as a dynamic corpus of communicative functions. For this reason, the three tendencies we have individuated are not to be intended as a definitive result of this analysis but as an example of considerations which rise from a study that is a work in progress.

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