Bridging Boundaries:

Mobile technology as a tool
for delivering new user-centered services
for researchers in the Humanities

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- **The context: a Reference Room and its catchment area**

- Behavioural models of individual communities and cognitive attitude landscapes

- The Cross-reference project statement

- Methodological framework

- Collected evidences

- Value drivers & Lessons learned

- The Library of the Catholic University in Milan has an high-status Reference Room, with about 85,000 volumes.

- An observatory was established in this hall during the 2011 with the aim of mapping the user's behaviour.

- For most researchers in Humanities, mostly literary scholars, historians and philologists, study couldn't be carried out without access to physical objects.

- Following these needs, a team of librarians was instructed to set up a detailed enquiry to make clear the relations between scientific methods, personal attitudes and behaviour patterns.

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- **Linguists and languages**

- **Historical and Classical studies**

- **Art historians**

- **Philologists, Philosophers and Literary scholars**

Linguists and Languages

Activities

- description of languages (phonetics, morphology and semantics)
- studies on the origin and historical development of the languages (glottology and diachronics)
- crosslinguistics investigations
- study of terms and labels of concepts (terminology)
- data analysis and investigations on language structure by written, spoken or signed sources (corpus linguistics)
- deal with the statistical or rule-based modelling of natural language from a computational perspective (computational linguistics)

Needs

- programs for typing characters with diacritics
- programs for the creation of lexicons or corpora
- writing programs for concordances
- tools for the management of electronic texts
- tools for phonetics analysis of speech
- solutions for morphological and syntactic analysis
- acoustic testers
- interactive dialectal maps
- video recording for oral sources

Approach

- semantic aptitude
- comparative resource consulting
- conventional teaching methods

Activities

- studies on ancient artifacts (e.g.: coins, excavation remains, paintings, inscriptions, papyri, etc.)

- philological or literary analyses of classical texts (epic, drama, or philosophy)

- survey on documentary sources (inventories of heritage properties, correspondence, etc.)

- collection and organization of evidences (to be examined from many points of view)

- verification of the authenticity of information and its sources

- statistical and demographic analysis (cliometrics)

- development of a theory or hypothesis

Needs

Availability of primary sources:

- digital archives of facsimiles (plans, maps, iconographic sources, coats of arms, etc.)

- inscriptions, memoirs and diaries

- archival descriptions

Findability of secondary sources:

- database full-text for bibliographical search

- archives of oral sources (interviews, dictums, popular songs, etc.)

- open archives and institutional repository (doctoral dissertations, conference, proceedings, etc.)

- web publication of cartographic data

Tools:

- Geographic Information Systems (GIS) for management of data excavation

Approach

- information retrieval tasks
- indexing of information

Art historians

Activities

- diagnostic analysis of cultural heritage
- attributions and datation of the paintings
- museology and museography
- exhibitions organization
- guided tours to historical monuments

Needs

- copy protection techniques for still images
- digital mediatheques
- digital photo libraries (Riproduzioni con modifiche e possibilità di interazione)
- database for the management of archive documents concerning the history of the restoration
- virtual museums (RFID technology, QR, AR, pyramidal TIFF)
- iconographic repertoires
- art terminology dictionaries

Approach

- analysis of form
- specialized vocabulary
- requirements for geographic research

Activities

- textual criticism and textual analysis

- reading and decoding ancient writings

- textual bibliography

- critical and comparative analysis of the literary and historical sources

- exegesis of literary and philosophical works

- creative writing

- design and management of cultural activities (e.g.: publishing, theatre, reporting

Needs

- programs for the online publication of critical texts

- database with special tools for the analysis of literary texts

- software for editing critical apparatus (layout of text and notes, etc.)

- tools for textual collation

- programs for synoptic comparison of multilingual texts

- creative ways to select and organize documents

- digital archives of facsimiles (manuscripts, ancient books, bookbindings, writing instruments, etc.)

Approach

- writing: hypertext changes the structure of argumentation and articulation of discourse

- reading: different ways to approach the text according to specific purposes of study

- sharing: readiness of spreading contents and bibliographies is an achievement for teaching

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- Cross-reference is the interaction of different methodologies related to information resources usage. Its main scopus is the enrichment / improvement of the overall knowledge set made available to users.

- Cross-reference should be considered a (possible) answer to information overflow and to the increasingly difficult task – facing all kind of knowledge workers – selecting the correct content AND the correct format.

- Library and information professional should focus on cross reference, as a growing part of their time could be spent in the future in advising patrons about such topics.

- This kind of expertise should be used also at the very beginning of the acquisition / collection development process.

A panel of 30 users has been selected, including five different roles spanning across various Humanities disciplines:

- librarians

- PhDs

- researchers

- full professors

- contract professors

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Reference sources

- Année Philologique
- ARTbibliographies Modern
- Bibliografia dantesca internazionale
- Bibliografia generale della lingua e della letteratura Italiana
- Bibliographie der deutschen Sprach- und Literaturwissenschaft (1985-1995)
- Bibliography of Linguistic Literature Database
- Bibliography of the History of Art
- Britannica Online Academic Edition
- British Humanities Index
- Classical Music Library
- Design and Applied Arts Index
- Foro italiano
- MLA International Bibliography
- New Pauly
- Philosophers Index

Electronic books and texts

- Allgemeines Künstlerlexikon
- Analecta Hymnica Medii Aevi Digitalia
- Archive of Celtic-Latin Literature
- Aristotele Latinus Database
- Corpus Thomisticum
- Corpus TLIO OVI
- Database of Latin Dictionaries
- Dictionary of Old English
- Digital Library of Catholic and Protestant Texts
- In Principio
- Library of Latin Texts
- Monumenta Germaniae Historica
- Patrologia latina
- Regesta Imperii

Electronic journals

- Giornale storico della letteratura italiana
- Jstor
- Riviste elettroniche di F. Serra Ed.

The following devices were provided to patrons as a tool for practicing with new mobile tools:

- Apple iPad 2

- Samsung Galaxy Tab 10"

- Samsung Galaxy Tab 7"

- HTC Flyer

- Samsung Galaxy Note

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From the methodological point of view, special attention has been put human factors and to Users Experience Analysis (UX).

That's why we chose three different tools / methods:

- group presentations

- two focus groups of 15 users each one, splitted into:

    - historians (history, arts and classical studies)

    - philologists / linguists

- individual anonymous online surveys

- Four different aspects has been investigated:

  - access to information resources

  - user behaviour and use cases

  - format comparison

  - resource evaluation and testing

- The survey has been based upon multiple choice questions. Whenever possible, multiple answers have been allowed.

- The very high redemption rate (27 out of 30 panelist) is the living proof of the interest of users on this topic.

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- Even most skilled users have appreciated a didactic approach as well as the opportunity to frame the several available resources into clearly structured thematic clusters.

- It is worth noting the persisting difficulty for users of understanding the proliferation of different and heterogeneous search interfaces.

- It is therefore not surprising that users advocate the widespread adoption of multi-resource platform for easiness of training and search

- The focus group model has been greatly appreciated by the panelists.

- Several ideas and suggestions have been harvested about the value concept. They may be collected into three main areas:

  - information resources value is increasingly tied to training services provided by librarians

  - research networking is considered of great value but still not fully feasible, due to the current lack of proper technological platforms

  - a bibliometric approach is considered desirable (and of great value), provided that all types of documentation is included into citational databases

- Most of users (80%) are familiar to both formats (paper and electronic).

- The most relevant information channels are:

    - the Library staff (55%)

    - the OPAC (50%)

- The technological dimension is still old fashioned: almost every user (95%) is using a desktop, with a significant shift to notebooks (65%).

- Abstract is cited as an evaluation criteria by 80% of total respondents.

- Collected data reflects the heterogeneous universe of Humanities scholars:

  - for bibliographic databases, advanced search functionalities are routinely used by 85% of panelist, with a special attention to subject browsing (45%)

  - for digital text collections, browsing by author is a must (75%), with an interesting 55% for lemmatized corpora and a stable percentage (40%) for subject searching

  - for e-journals, browsing by years is mainstream (70%) as well as common features (mostly keyword search)

- Satisfaction level for electronic resources is usually good, but there is still room for improvement:

  - "Quite Good" for 50%

  - "Really Good" for 45%

- Only 30% of panelist routinely use bibliographic software, mainly Refworks (50%).

- Mobile technology seems to be still in its infancy:

  - no apps are used up to now

  - only 10% of panelist use e-book readers, but its usage is widespread across home (100%), travel (50%) and office (50%)

- The book-like universe (monographs, textbooks, literary texts) are still well anchored to the paper format (an average of 70%), with an interesting shift the literary texts (40% for compared / simultaneous usage of paper / electronic versions).

- A completely different situation is showing for other multi-contributed and database-like resources: catalogues and dictionary / encyclopedia, with a significant rise of comparative usage (50%).

- Very specific resources follow their own usage pattern: commentaries are still mainly used in paper format (70%), while photographs show an interesting 50% of electronic only usage.

It was offered to patrons the possibility to indicate a single resource. Following is the resulted listing of top resources:

Reference sources

- Année Philologique
- Bibliografia generale della lingua e della letteratura Italiana
- Foro italiano
- MLA International Bibliography
- New Pauly
- Philosophers Index

Electronic books and texts

- Analecta Hymnica Medii Aevi Digitalia
- Aristotele Latinus Database
- Corpus TLIO OVI
- Digital Library of Catholic and Protestant Texts
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Thanks to this qualitative approach, it was possible to aggregate the responses in a simple strenghts / weaknesses schema, according to each format taken into examination:

	Paper version	*Electronic version*
strenghts:	content completeness	findability; content completeness; text collation / comparison
weaknesses:	internal navigation tools; advanced search features	images visualization (for some high quality or precious resources only)

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- Findability: an **expert advice for research** is still perceived as essential. **Reference** and other research support activities are significant.

- **Cross-referencing** stands out as the most appropriate way to work in an hybrid environment.

- **Learning opportunities in technology** is a valuable asset, especially for a target age group of users.

- **Training services**: it is possible to plot a synthetic landscape showing major behaviors and offering a portrait of two targets:

Traditional users	*Skilled in technologies*
linear learning	multitasking learning
reflective attitude	communicative attitude
priority for reading	main concern for browsing
confidence in authoritative source and formats	advanced practice with multimedia environment
emphasis on writing	delight for discovery and investigation

- Tayloring services for scholars proved to be the most important task for the Academic Library, in compliance of peculiarities of the different types of users

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