

Texts

**Slide 4**

This is a fingerprint. It is commonly accepted as a symbol for personal identity. I will use it here to briefly discuss about my own identity but, more importantly, I will use it also to illustrate how Digital Humanities and this class will affect *your* identity as students of Intercultural Studies in Languages and Literatures. In other words, I will try to convince you about why attending this class is very useful for people like you.

I am a researcher in Computer Science, with a specialization in Artificial Intelligence, also known as AI. AI is a subfield of Computer Science born in the 1950s in the US, founded by a group of computer scientists with the aim of replicating and expanding activities that are traditionally attributed to human beings (e.g. reasoning, conversations, creativity, etc.) by means of computers. My first endeavors in AI were about modelling and executing reasoning and logical thinking by means of computers, but more and more I leaned more towards more creative efforts, and I started investigating questions about how computers can be creative, what does it mean for a human artist to work with a computer and, ultimately, whether computers can be artists themselves.

This is the main question around which many of the issues we will deal with in this course gravitate: is the way computers and digital technology work compatible with how culture (art, literature, music, in other words, the humanities) is conceived, created, produced and enjoyed by us?

This is where you and your academic career comes in. Languages, literatures, intercultural studies are an eminent cultural endeavor. Computers and digital technology in general have become ubiquitous: we are not talking about a small initiative by an elite group of academics in an Ivy League campus in the US; digital technology (also thanks to the incredible success of the Internet from the 1990s onwards) is on (as in on/off), everywhere and all the time. Its ubiquitousness is affecting our lives on so many levels that making an exhaustive list of these changes is impossible here.

However, one change is particularly relevant and it goes back to the above-mentioned question: how does digital technology affect culture? To be more specific and closer to this very class: how does digital technology affect humanities?

You have two ways to tackle this question:

- 1) by ignoring digital technology and sticking to traditional, pre-computer-era ways of working with humanities; the consequences of such approach are to be left out of everything that is happening with digital technologies and culture out there, which would be a pity, and to be accused of contradicting yourselves (after all, you are using digital technology while you are reading this), which would put you in a very difficult position to defend
- 2) by accepting the inevitable (and not necessarily positive) existence of digital technology and getting ready to analyze its effects on humanities and culture; something is definitely happening, and understanding what it is, or at least

developing the conceptual tools to try and understand what it is, is a very enriching experience that will make you a better scholar, professional, person in the humanities.

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What are the Digital Humanities?

Let's focus on the general question, "What are the digital humanities?"

First of all, a consideration on questions in general.

There are questions whose answer is generally fixed, immutable over time, unless some exceptional event happens. "What's your name?" "What is the mass of an electron?" "What is 2 times 2?" are questions of this kind. We can imagine very special circumstances in which the relevant answers change (e.g. gender reassignment, more precise measurements in subatomic physics, new mathematical theories about multiplication) but in ordinary situations those answers can be considered immutable.

There is another kind of questions, for which the answer varies over time, or it depends on the situation in which the question is asked. "How old are you?" is a trivial example of this kind of questions. "What are the digital humanities?" is a much less trivial one.

How do we understand the digital humanities, a term widely used in many fields, but rarely defined in any specific way?

Over the past two decades, everyone (at least in the English-speaking world) has written or said something about them, but only a few would offer a clear-cut definition, or know what experience or praxis in this field might entail. Many remain intimidated by the term and its acronym "DH".

What exactly do these two entities (the digital and the humanities) have to do with each other? Many people look at this coupling and have very different impressions from one another. Some see an idyllic coupling, some others a controversial relationship, some others a full-blown conflict.

Let's take a look at some of the questions that have been asked about DH (from Gardiner and Musto)

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Even the sources we need for our attempt at providing a definition of DH are many and varied, as Gardiner and Musto demonstrate.

They say they have found 21 possible answers in a recent debates on the definition of the term "Digital Humanities".

They are many (as in more than one) and varied (as in very different from each other).

The numbers 1 and 2 in this slide show a typical example: they both belong to so-called standard sources (the Wikipedia entry on the subject, and a textbook on the subject) and yet they seem to offer polar opposite definitions.

Here are the quotes by Gardiner and Musto. Let's take a minute to read the two definitions, or rather, part of the two definitions, and compare them.

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The first one is from the Wikipedia page on “Digital Humanities,” and it offers the following, categorical definition:

“Digital Humanities is an area of research and teaching at the intersection of computing and the disciplines of the humanities. Developing from the fields of humanities computing, humanistic computing, and digital humanities praxis, digital humanities embraces a variety of topics, from curating online collections to data mining large cultural data sets. Digital humanities (often abbreviated DH) currently incorporates both digitized and born-digital materials and combines the methodologies from traditional humanities disciplines (such as history, philosophy, linguistics, literature, art, archaeology, music, and cultural studies) and social sciences with tools provided by computing (such as data visualization, information retrieval, data mining, statistics, text mining, digital mapping) and digital publishing.”

It’s a clear-cut, simple and normative definition.

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By contrast, in definition #2, Anne Burdick and her coauthors provide a far more open-ended, inclusive definition in their book “Digital\_Humanities.”

[Digital humanities] asks what it means to be a human being in the networked information age and to participate in fluid communities of practice, asking and answering research questions that cannot be reduced to a single genre, medium, discipline, or institution. . . . It is a global, trans-historical, and transmedia approach to knowledge and meaning-making. The sharp contrast between the two approaches demonstrates the contested nature of the term, its ambiguous nature depending on point of views.

Perhaps this will be solved eventually by reestablishing the digital humanities and humanities computing as two different areas, each with its own perspective, methodologies, fields of investigations and tools.

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According to this definition, we are dealing with an encounter between two different entities.

One of the authors of the “Digital\_Humanities” book that provided definition #2 is Jeffrey Schnapp, a famous DH scholar.

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Jeffrey Schnapp is Professor of Romance Languages and Literatures in the Faculty of Art and Sciences at Harvard University.

More importantly for our context, he is the founder and the faculty director of metaLAB (at) Harvard University, one of the most interesting research centers on digital humanities out there.

Schnapp works in the domains of media, knowledge design, digital arts and humanities, and

curatorial practice. His works include examples not far from us, like the Trento Tunnels project —a pair of highway tunnels in Northern Italy repurposed as a 6000-sq.-meter history museum— or BZ '18-'45, a documentation center built under Marcello Piacentini's Monument to Victory in Bolzano. Here follows his brief but incisive talk on the subject.

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Video transcript

JEFFREY SCHNAPP: "Computational methods reflect the kinds of research questions that people ask in different disciplinary domains.

And even the humanities are certainly not monolithic.

They tend to ask questions that diverge from the sorts of questions that are prevalent in many fields of the social sciences and the natural sciences.

And I can give you a concrete example, because I think it's really illustrative of one of the ways in which digital humanities add something to the conversation around digital platforms and development and software and media, digital media practice that's unique.

And that is the attention to exceptions, to anomalies, to the long tail, rather than the large patterns that emerge when you analyze, you use analytical methods on large data sets or different kinds of digital corpora.

Much of the history of culture is the study of exceptions.

It's the, you know, to put it in very kind of traditional framework, it's masterpieces, it's the works that changed particular cultural practice, not the ones that were prevalent.

And so in the digital humanities fields, there is a bit of a split between work that's focused on the patterns, sort of what did the 19th century novel look like in England if you study all of the titles of the works that are in catalogs, versus what are those very, very small subset of works that actually changed the dominant patterns of narrative during the century.

And those are two very different sets of questions, and they have strong social and ethical and historiographical implications. So computational methods can be used to study both, but the methods in question are going to be different methods.

They're not going to make the same assumptions.

They're not going to ask the same questions, and they're probably not going to use the same tools."

How would you describe computational methods applied to humanities research?

Can you imagine applying computational methods to your own work in the humanities?

How do Jeffrey Schnapp's comments change or challenge your thinking about Digital Humanities? All of these ideas will help you get a sense of your and your colleagues' perspective at this starting point of our journey.

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If this is the core of Schnapp's view on Digital Humanities, the relation between the digital and the humanities appears to be a very conflictual one.

In any case, even if this couple may have problems, their offspring is often quite interesting: look at this series of images, made at Harvard, a bit self-congratulatory and sometimes too good to be true, but in any case an interesting cross-section of the discipline.

## Slide 14

### Video transcript

KELLY O'NEILL: There is a clear pleasure in the recitation of poetry or the study of a great painting. And there is a similar pleasure that one can take in mapping, and graphing, and modeling. Practicing digital humanities as a scholar is an innovative and engaging way of producing knowledge and interpreting the human experience.

SUZANNE P. BLIER: Digital humanities is about rethinking the world from the vantage point of a whole set of new technologies.

PETER BOL: It's about information and data. And it's about a large scale. And it's about computational analysis.

RACHA KIRAKOSIAN: Digital humanities forms part of a larger project, that of digital scholarship, which is inherently interdisciplinary and collaborative.

DEREK MILLER: I turned to digital methods in my scholarship and teaching because I wanted to get a sense of the larger picture around the works that I was studying. One thing that I've learned from this research is that designers are at the center of the network of people working on Broadway.

RACHA KIRAKOSIAN: Working with XML code made me rethink what a text is and understand all the metadata that is embedded in it.

PETER BOL: It's allowed me to start to work with what's called social network analysis, where I can start to see the connections between people and the kinds of groups that formed at a given moment in history.

VINCENT BROWN: Working across media, we think about several things at once. A, how do we interpret the history that we're trying to get across? But B, how does a platform for presenting something carry with it its own intrinsic meaning, which can be its natural distribution and reach?

KELLY O'NEILL: And I'm now able to incorporate a much broader range of material into my work. That includes tabular data, quantitative data, and cartographic material that I simply didn't know what to do with prior to incorporating digital materials into my research method.

DEREK MILLER: For someone new to digital scholarship, I would say, find some data that excite you and think about what questions you want that data to help you answer.

RACHA KIRAKOSIAN: Don't be afraid of it. Anything can be learned. You don't have to be an expert in everything. You pick one or two applications or languages that you find exciting, and you try it.

PETER BOL: Talk to people who've done something that you think is interesting, that you might want to make use of. And talk to the technical people that have been involved in that as well.

SUZANNE P. BLIER: For people new to digital scholarship, I would simply say do it. Have fun. Play with it. It doesn't have to take over from your other scholarship, but in many ways, enhances it, and challenges it, and makes it far richer.

DEREK MILLER: Digital methods have changed how people perceive the humanities, particularly in that you can see the scope of cultural work, how much there is out there of the humanities that we have yet to discover and uncover.

RACHA KIRAKOSIAN: Our material and the stories that we have to tell in the humanities have always been exciting. But now, we have more ways to share them. And sharing the research results that we have also means that more people can partake in our scholarship.

SUZANNE P. BLIER: The future of digital scholarship looks to me like just an amazing opportunity with new technologies to transform how we think about the world. And what I would love to see in it is the role of scholars from diverse disciplines engaging in the very construction of the technologies that we'll be using. That, I think, is the key, that we have to become part of that transformation process.

## **SLIDE 17**

This video reconstructs the lost buildings of the Franciscan and Dominican orders in medieval Oxford in a virtual environment and frames these ambitious building projects in the context of English religious literature.

In this video the content does not really matter: your focus should be on the way in which the content is visually told.

Jim Knowles (he works on late medieval literature, history and theology at NC State University) is the text's author and Michal Koszycki (an architect working at Princeton University) worked on the digital visualisation.

This long video is an intersection between medieval studies and digital humanities and it demonstrates how medievalists negotiate the "virtual divide" between the cultural artefacts they study and the digital means by which they spread their knowledge about those artefacts.

This video exemplifies what happens in the head of an architecture historian, or an art historian, after years (and kilograms of material) of study, in the light of digital technology.

Something has disappeared, an architectural object has disappeared, a religious and social dispute has to be reconstructed, has changed over time, and we have only indirect evidence, not even archeological evidence. There is a huge quantity of indirect evidence, in

the form of photos, maps, notes, notebooks, drawings, sketched timelines. A huge quantity of words and illustrations, but nothing to do with what the architecture historian has imagined in their research time.

Thanks to the virtual reconstruction of mendicant architecture, we have visual shapes that look more like the architecture historians' mental imagery, and that is one of the pleasures mentioned earlier.

#### Video transcription

[00:24] In 1538, King Henry the Eighth ordered the dissolution of England's religious houses. For much of the previous three centuries, the most prominent of these buildings in Oxford had belonged to the Dominican Order, or Blackfriars, and to the Greyfriars of the Franciscan Order

[00:45] On this late sixteenth century map of Oxford made by land surveyor Ralph Agas, almost no trace remains of the friars' churches and conventual buildings. So little was left for the mapmaker to see, in fact, that he misapplied the label "graie friars" – attaching it instead to the site of the Blackfriars next door.

[01:08] Where had they gone? What had become of these "vast houses" that English writers of the previous centuries had so loudly railed against? What had become of the churches, cloisters, and great libraries that were once upon a time the daily haunts of such eminent Oxford friars as John Duns Scotus, William of Ockham, and Robert Holcot?

[01:30] In order to tell this story, we need to go back to the beginning, to the time of the friars' first arrival in this small university town – back to a time, as the poet William Langland puts it, when Charity himself wore a friar's frock.

[01:46] As our narrative moves back into the previous centuries, this three-dimensional model of the Agas map will provide a visual backdrop for our hypothetical exploration of the friars' medieval settlements.

[02:03] The first party of Franciscan friars arrived in Oxford in the Autumn of 1224. They lived in borrowed lodgings, and erected their first small chapel just inside the city wall, close to the parish church of St. Ebbes. There was probably a simple schoolhouse adjacent to the chapel

[02:21] The Dominicans had arrived three years earlier and settled closer to the city center, near St. Aldate's church and a stone's throw from the later site of Christ Church cathedral. Here they built a small chapel dedicated to the Virgin Mary.

[02:37] No archaeological evidence remains for these earliest structures

[02:44] The friars' first modest buildings were soon outgrown. By the end of the 1230s, both orders had acquired parcels of land on the outskirts of town. In a short time they would expand these holdings to enclose churches and conventual buildings of extraordinary size.

[03:01] But this expansion posed a problem. From their earliest years, the friars of both orders had displayed a deep ambivalence towards architectural growth.

[03:10] On the one hand, St. Francis had founded his new order on the basis of a divine mandate to rebuild the church.

[03:19] St. Dominic, meanwhile, had expressed grave concern about the risks that such building posed to the mendicant ideal: “Do you wish to give up poverty so quickly,” he asked his brothers, “and build great palaces?”

[03:37] Now settled at the edge of the city, the Greyfriars built their second church directly into the city wall. This was a simple stone structure with no aisles and a wooden roof.

[03:56] Just to the south of the Franciscan site, on swampy land bordered by the river Thames, the Blackfriars began work on their second church and an adjacent complex of residential and academic buildings. Work on this complex would continue throughout the 1240s and 1250s.

[04:14] By this time, though, the friars’ own anxieties about architectural excess were beginning to be accompanied by critical voices from outside the mendicant orders. Writing in 1243, the Benedictine monk Matthew Paris complains:

[04:30] In enlarging their sumptuous edifices and erecting lofty walls, [the brothers in England transgress] the limits of their original poverty, and [violate] the basis of their religious profession.” (1243: *Chronicon Angliae*)

[04:43] We cannot say for sure whether the “lofty walls” described by the monk were in Oxford or elsewhere. But our reconstruction of Blackfriars suggests that he was not exaggerating about the scale of these “sumptuous edifices.”

[04:58] The models you see here are based on archaeological evidence gathered from excavations in the 1960s and 70s.

[05:09] Back at the Franciscan site, the Greyfriars were embarking on their own series of expansions. In the 1260s they completed a major addition to the north and west, incorporating the existing church as the friars’ choir. A central bell-tower was erected, and the main cloister was likely added at this phase.

[05:30] Next, the friars expanded the nave on its western end, and added heavy buttressing on one corner, presumably to support a larger tower.

[05:44] Probably early in the 14th century the crossing of the church was reconfigured. A new larger northern nave was constructed, including seven private sepulchral chapels along the eastern wall. By mid-century, the friars had added three more chapels, bringing the total to ten. The cloisters were expanded again, both here at Greyfriars and at the Blackfriars next door.

[06:16] The model as shown here represents the Franciscan complex at its largest. Along with the neighboring Blackfriars, its development corresponds chronologically with the happiest hundred years of the friars' lives in medieval England. In this period the fraternal orders had grown from a small reform movement within the church to a position of unprecedented influence and prestige. As confessors to the kings and queens of Europe, they had seats at the centers of political power. In the universities, they had led an intellectual revival, doing pathbreaking work in theology, philosophy, and the physical sciences.

[06:55] But darker times were approaching. Building on earlier critiques, by the second half of the 14th century the anti-fraternal voices in England were growing louder.

[07:06] Preaching in London in the spring of 1357, Archbishop Richard Fitzralph, onetime chancellor of Oxford university, is both explicit and detailed in his disapproval of the friars' buildings:

[07:21] They have churches finer than our cathedrals, their cellars are full of good wine, they have ornaments more splendid than those of any prelate in the world, save only our Lord Pope. Their belfries are most costly; [and] they have double cloisters in which armed knights could do battle with lances erect.

[07:40] By the 1380s, the Oxford-based followers of the reformist theologian John Wycliffe were expressing their distaste for the friars' buildings in even stronger terms. One such text, written in vigorous Middle English prose, argues that "great housis make not men holy" and links the costliness of the friars' buildings directly to the decay and abandonment of local parish churches—churches like St. Ebbes, which stood in the shadow of the Franciscan complex. I'll read a portion of this text in the original language:

[08:16] Frerris bylden mony grete chirchis and costily vast housis, and cloystris as it were castels... whereby parische chirchis ben impayred and in mony placis undone ... For by this new housinge of freris, though hit rayne on tho altar of tho parische chirch, tho blynde people is so disseyved that thei wil rather gif to waste housis of freris then to parische chirchis.... And if men seyn that in these grete chirchis God is feyr served, certis grete housis make not men holy, onely by holynesse is God wel served.

[09:00] Other criticisms of the friars went well beyond complaints about their buildings. For some anti-fraternal writers of this period, the friars were nothing less than walking, talking, overfed signs of the end times...they were pseudo-apostles, pharisees, and agents of the antichrist.

[09:18] By the start of the 15th century, there are signs that this animosity was beginning to take its toll. New building projects appear to have ceased completely, and there is some evidence that the friars' buildings were already in a state of decline. Regardless of the buildings' actual condition, however, the critique of the friars and their architecture flourished well into the sixteenth century. Henry the Eighth's Reformation opened the way for the friars' enemies to conclusively suppress the mendicant orders in England.

[09:50] As the Agas map shows, their buildings disappeared with them.

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Let's get back to our still unresolved questions and let's focus on the grammatical structure of the term "Digital Humanities."

"Digital" is an adjective and "Humanities" is a noun. Simple as that, but it hasn't always been this way.

The field was previously known as "humanities computing", closer to the Italian expression "informatica umanistica", which is still adopted in some textbooks in Italian.

The terminological change from "humanities computing" to "digital humanities" is attributed to John Unsworth, Susan Schreibman, and Ray Siemens, editors of the anthology *A Companion to Digital Humanities* (2004).

Is this different definition a change of paradigm in this kind of studies?

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We have to make room for an hybrid term with at least two possible interpretations:

- we can use the methods of contemporary humanities in studying digital objects
- we use digital technology in studying traditional humanities objects

Each interpretation leads to very different theories and practices.

For now let's consider the two terms separately and let's try to understand the relationship between them.

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From a metaphorical chromatic point of view, we have to consider this intersection, the relationship in between, even if not so clear cut as a defined colour, as the real identity of this research field.

However, whatever the gradient that characterizes this intersection, if we have to consider the two terms separately, with their own methodologies and languages, let's start from the top with DIGITAL.

## SLIDE 21

Starting from a technological field to a sociotechnological one, that is from physical properties of computer components to their management in a society, we have to reflect on the success of the "Digital turn", that is the DIGITAL of Digital Humanities, instead of now obsolete terms like "computing humanities".

Here I summarize some quotations from *The digital in digital art*, Mario Verdicchio, Studi di estetica, anno XLVI, IV serie, 3/2018, DOI 10.7413/18258646060

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By "technological" I mean characteristic of computers that depend on the physical properties of their components, which can be analysed in isolation. Instead, by

“sociotechnical” I refer to those aspects of digital technology that derive by the fact that these artefacts are conceived, designed, built, and deployed in society, and thus their working is based on agreements, conventions, contracts and, more in general, all sorts of relations holding within the human society.

p.52

Every aspect of digital technology, from the most basic and physical (e.g. the electric pulses inside a circuit) to the most elaborated and abstract (e.g. the visual interface of a Web browser), are based on agreements between organizations.

I will argue against the traditional chasm between the “analog” and the “digital” by showing that not only the two technologies are not in opposition, but they coexist, and that digital technology is predominant because it allows for easier storage and transmission of data, which lead to two key aspects: memory and connectivity

p.33

Indeed, if we observe digital technology up-close, we notice that analog and digital instruments have more shared features than differences. In electronics, although analog signals are treated as a continuous and dense series of voltage values and digital signals as a discrete sequence of voltage pulses, from a physical perspective they are the same phenomenon, that is, they are all electromagnetic waves.

digital signals are much easier to store and transmit over long distances than analog signals—This is the key difference that determined the success of digital technology over the analog. It is a matter of practicality rather than an actual ontological distinction: most systems now rely on digital signals because they are less affected by disturbances and this makes them easier to store and to transmit.

p.36

Another success factor for digital memories derives from the versatility of the binary code, which enables computer designers to easily create encodings, that is, mathematical correspondences between finite sequences of 0s and 1s and entities in the physical world. This was the great intuition that brought digital memories to the centre stage of computer science mid-20th century: the possibility to store not only the data to elaborate, but also the instructions by which such data were to be elaborated.

Thus, digital memories with the stored program concept allowed, for the first time in the history of technology, for the storage of data and the operations to perform on those data. This was the birth of automated iteration, that is, the possibility to program a machine to perform complex sequences of different operations,

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#### 4. Connectivity

While the first digital artists were showing their works to the public, in a very different setting, other computer scientists were looking for ways to exploit digital technology in the field of telecommunications. In 1969, the first version of the Internet was born: ARPANET (Advanced Research Projects Agency Network) connected three universities and one research centre in the USA (University of California Los Angeles, University of California Santa Barbara, University of Utah, and Stanford Research Institute) to enable the sharing of the computational power of the machines on all these premises (Roberts 1978).

The idea was rather simple but extremely clever: since digitized data are a sequence of electric impulses, instead of sending them from origin to destination preserving the sequence, it is possible to spread them over different channels, and then rebuild the sequence once all impulses reach the destination. This wouldn't be possible with analog

signals, because one continuous wave cannot be broken down in parts, and the advantage is that the transmission is more robust, since if one route is not working, the data packets can be sent over other alternative routes. Moreover, since digital data are easy to regenerate in case of decay, noise, and drift, the signal at destination is identical to the signal initially sent.  
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The technical advancements between the 1990s and the 2010s in terms of the contents that a browser can show are obvious: in little more than a decade we go from text and digital photographs to fullfledged videos, superpositions of computer-generated graphics and photos, computer-generated graphics interacting with user-generated drawings on the fly, and so on. These enhancements, which are theoretically made possible by the digitisation of the contents, are made practically feasible by the technological evolution of digital devices, comprised of circuits that are every year more miniaturised and denser with transistors, which increases the number of operations that a computer is able to perform per unit of time.

If art is about ideas, and we are looking for new ideas about this ever-changing world, we should let digital technology be an incredibly sophisticated backdrop to the artists who are able to use it to express themselves more effectively, and not the other way around.

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Starting from these new assumptions, the term “Digital” is more than a technical question. So, even if the adjective DIGITAL is in some way referring to something measurable and predictable, now we arrive in another world that is NOT SO MEASURABLE and probably NOT SO PREDICTABLE. We are going to the bottom part of the topic: HUMANITIES.

This state of indeterminacy could derive from the fact that we are talking about humanities ...like Gardiner et al. outline in chapter 2 :

“Humanities study the world created by humanity ... Humanists study human culture as created and manifested IN and BY individuals as opposed to the natural world or the broad patterns on human society”.

It’s only a part of the the real world model, with physical and social sciences, but it is nevertheless a significant part with its own particular identity.

It is a type of study always anchored to the materiality of the objects investigated, be they books, artistic objects, sounds, or any other source. It’s a founding principle for Humanities, digital or not.

Furthermore, to be examined, objects must be placed in relation to each other, in relation to a context, even if only to establish an autograph, a date, a reason why, a meaning.

Could you imagine the necessary effort to establish the five Ws (I mean What, Who, When, Where, Why) of an unknown and anonymous object?

And then how would we have to manipulate the body of evidence investigated? Because we have to select, communicate, use for a contemporary meaning, and it’s obvious to any scholar that the universe of facts, events and materials that we study can never be presented in its entirety. It’s beyond any doubt that “all humanistic communication is only a representation of a world irretrievably past and lost to full understanding” (Gardiner, Musto, 2015, p.19) and, I would add, impossible to recreate fully.

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Do you remember Schnapp's talk? The exceptions instead of the rules, and then the impossibility of exactly recreating the world one studies. A REPRESENTATION ONLY, in the etymological sense of re-presentation, to make something present (again), to see something once again.

"Seeing" should not be here interpreted as mere subjectivity, it depends on the scientific rigour of the methodology, on experimental sources and data analysis, on argued developing of a conclusion, based on proved assumptions.

If DIGITAL belongs to the hard sciences, formerly known as "exact sciences", with HUMANITIES we are dealing with soft sciences, but not at all less accurate.

## SLIDE 25

Returning to the problem of humanities studies.

Here's an Italian quotation, in which the key point is the meaning, the provenance and the year. A soft manner to reflect.

...ma il fatto è che le discipline umanistiche non sono la medicina o la tecnica dei materiali, non sono cioè scienze nelle quali ogni sforzo parziale è subordinato a un fine che sarà... la risoluzione di un problema medico e di un materiale migliore di quelli che già esistono...sono invece scienze morbide nelle quali il percorso è più importante del punto di arrivo, cioè fuor di metafora, nelle quali il contributo più interessante non è quello che scopre cose nuove, bensì quello che anche senza aggiungere niente all'inventario del noto, apre nuove prospettive sulle cose, ci fa pensare ai problemi a cui non avevamo mai pensato o dimostra inadeguato un risultato che si pensava acquisito senza necessariamente sostituirlo con uno nuovo...

Probably the process instead of the results or, rather, I would suggest, the process WITH the results, is more intriguing.

Hard sciences or soft sciences? Probably AND instead of OR, we are no longer faced with a contrast of two cultures.

Stem or STEAM? The new acronym "Science Technology Engineering Art and Mathematics" is really significant. It's a rebirth of Humanities in a digital era. And it's an intriguing one.

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Scott Hartley first heard the terms 'fuzzy' and 'techie' while studying political science at Stanford University. If you had majored in the humanities or social sciences, you were a fuzzy. If you had majored in the computer sciences, you were a techie. Scott Hartly, a Google venture capitalist, has written a brilliant book in 2017, concerning the revaluation of Liberal Arts in the Digital World:

*The fuzzy and the techie: why liberal arts will rule the digital world.*

It seems that now managing data with high profits requires ethics, sense, questions, issues, more than bare technical solutions.

It finally seems that also humanists can find not only a job, but also well paid one!

Regardless of whether it is true or not, what is notable is the revaluation of the necessity of a discipline concerning the interaction of human beings and their unpredictable behaviours.

Now probably the intelligence of *techies* and *fuzzies* depends on the degree of uncertainty they can face together. The DH are a good meeting point.