VOLUME 17 ISSUE 1

The International Journal of the

Humanities: Annual Review

Building Ecosystems of Innovation in Humanities and Education

DAVID ALONSO GARCÍA

COMMON GROUND

THEHUMANITIES.COM

THE INTERNATIONAL JOURNAL OF THE HUMANITIES: ANNUAL REVIEW
https://thehumanities.com
ISSN: 1447-9508 (Print)
ISSN: 1447-9559 (Online)
https://doi.org/10.18848/1447-9508/CGP (Journal)

First published by Common Ground Research Networks in 2020
University of Illinois Research Park
2001 South First Street, Suite 202
Champaign, IL 61820 USA
Ph: +1-217-328-0405
https://cgnetworks.org

The International Journal of the Humanities: Annual Review is a peer-reviewed, scholarly journal.

Common Ground Research Networks, a member of Crossref

Building Ecosystems of Innovation in Humanities and Education

David Alonso García,[1] Complutense University, Spain

Abstract: The adaptation of humanistic studies to Industry 4.0 and the volatility, uncertainty, complexity, and ambiguity (VUCA) environment that determines the twenty-first century societies constitutes a major epistemological and heuristic challenge. The redefinition of work patterns in humanities is understood in this article in terms of research and social impact, and in particular with regard to the educational system. This article explores the possibilities of innovation ecosystems in the humanities and analyzes the experience of the Living UniLab project developed and conducted at the Complutense University of Madrid between 2015 and 2017. This was a pioneering initiative in the Spanish university as it applies the ecosystem innovation idea to the Geography and History curricula.

Keywords: Humanities, Education, Innovation Ecosystems, Madrid

Introduction

What role and value will have the humanities in the future? What elements of humanist's assignments will change during the next decades? The world is shifting due to the advances in technology brought by Industry 4.0. We face exponential changes that prevent us from knowing exactly what future we face, although the works of economists, philosophers, and historians all agree that it will be different from what we have seen just a few decades ago. The future will be more technological, if possible, with the presence of machines that can even alter our very status as a species if we follow the discussions linked to transhumanism (Ferry 2017). This is where certainties end and uncertainties begin. Will it be a more insecure world? How will we deal with this uncertainty? What role will the state and supranational organizations play? Will we be able to meet the Sustainable Development Goals based on new criteria for action or will it not be necessary to redefine how we organize and approach our work? As is well known, Sustainable Development Goals has been defined by the United Nations (n.d) "to address the global challenges we face". Scholars in the humanities academic fields cannot remain out of this reality if they seek a real influence according to this new environment.

Obviously, this work cannot give a definitive answer to these complex questions, but they are important when formulating other questions that have more to do with social scientists: What role will the human factor play within Industry 4.0? What role will the transmission of knowledge and education play within the humanities? Under which conditions will they continue to have social value in a progressively technological world? Which changes will historians and philosophers have to make so that their work continues to be relevant? Do the humanities have a role in dealing with a global situation that requires working in the direction proposed by UNESCO (n.d.)? In our view, knowledge derived from the humanities will be essential in areas such as the generation of identities in a world that is different from the way it is today, where data and immediate access to information prevail over reflection (Cortina 2013). To do this, however, it is necessary to start from certain premises that are certainly not fulfilled today, or at least not completely. Awareness of emerging technologies, interdisciplinarity, involvement in technological development—and not just its simple implementation as users—learning cooperative work techniques, or thinking in terms of innovation and social entrepreneurship are just some of the keys to the future success of the humanities. We should insist upon the fact that

[1] Corresponding Author: David Alonso García, C/ Royo Villanova s/n, Department of Didactic of Experimental, Social and Mathematics Sciences, Faculty of Education, University Complutense, Madrid, 28040, Spain.
email: davalonso@ghis.ucm.es

The International Journal of the Humanities: Annual Review
Volume 17, Issue 1, 2020, https://thehumanities.com

ISSN: 1447-9508 (Print), ISSN: 1447-9559 (Online)
https://doi.org/10.18848/1447-9508/CGP/v17i01/1-13 (Article)

the humanities' disciplines have enormous potential as an indispensable element in dealing with the great challenges mentioned above.

Thus, the humanities will play an important role in the effort to face the uncertainty of our historical period. Given this substantially complex world of liquid modernity, as defined by Bauman (Palazzi 2011), where uncertainty, complexity, and technology mark some of the elements that define our reality, historians and other scholars in the field of humanities should be aware that the discipline is also in the process of being redefined at the risk of causing it to become irrelevant or even disappear. Humanities can go hand in hand with other sciences and grow alongside them depending on the new contexts. Consequently, the humanities, seen from their epistemology, deontology, and heuristics, are called on to play an important role in the world to which we are heading. To do this, however, some of its approaches, work methods, and definition must be reconsidered to place the teacher's work in the context of the twenty-first century.

The search for formulas that defend the social value of humanistic studies is not a minor concern. Therefore, this work focuses on exploring innovation models within the field of the humanities. In our case, through the Living UniLab project conducted in the Faculty of Geography and History of the Complutense University. In said project, an ecosystem was designed and partially tested where learning was performed in connection with external agents, applying the Design for Change methodology. In the following pages the analysis of the experience will be discussed by comparing tables of success factors in innovation ecosystems, which will also be analyzed as a means of action for the humanities of the twenty-first century.

Context in Movement: What Are the Humanities Today?

The world is in a process of accelerated change due to Industry 4.0, which is characterized by the emergence of artificial intelligence, 5G networks, robotics, and nanotechnology. Technology is present in all aspects of our daily work, which would already be reason enough to take into account its projection in the scientific world. Furthermore, we are already in a context defined by the acronym VUCA: volatility, uncertainty, complexity, and ambiguity. This refers to the lack of stability or permanence of change; insecurity regarding a future that is uncertain and constantly changing; the multiple scenarios that must be considered when making decisions; and, sometimes, the lack of precedents for understanding different processes or addressing problems (Mack and Khare 2016). Bennet and Lemoine (2014) have devised four paths to deal with this situation, which correspond to the terms mentioned earlier: 1) quick decision making; 2) increase in the value of information and knowledge as core elements so said decision could be as accurate as possible; 3) flexibility in organizations to undertake changes that allow them to adapt to technological, geopolitical, and other changes that are constantly occurring; 4) experimentation to test solutions not frequently implemented so far but that could be important in the future.

Beyond emerging technologies, the fourth industrial revolution implies systemic changes that humanity never faced before, which would be related to the volatility, uncertainty, complexity and ambiguity we discussed earlier. Changes in any subject or field have reached a speed unseen in other historic moments. R. Kurzweil (2005) and other thinkers have characterized the process as "The Law of Accelerating Returns" (Korotayev 2018), that is, the exponential growth of technology so that new devices rapidly replace other ones that have only been running for a short time. The same can be said for companies that grow at an unusual rate (Uber, Airbnb) under new formulas for work management and organization thanks to technology, with a serious risk of being replaced with the constant emergence of new technical solutions. The same could be said regarding arms, geostrategic situations, environmental challenges, etc. Instability is a characteristic of our time.

New formulas for the production and exchange of goods on a global scale allow direct interaction between users and companies or organizations. It has never been so easy to write to the President or Prime Minister of a country (Twitter) or to rent a room to a stranger from

anywhere in the world without the need for any intermediary. The social value of the expert, the link between knowledge and production and its target audience, has been declining, and it is even difficult for people to continue considering the intellectual or the humanists an important reference.

The existence of a real-time, hyper-connected world on a global scale, with a new sociability in a daily context dominated by the internet, allows access to information, articles, books, products of any nature, etc. from virtually any area of the planet with a good internet connection. We live in a hyper-connected world in the political, social, cultural, and environmental sphere which gives a polymorphic shape of the globalization (Beck 2000). Academia.edu is a good example of what globalization means for the academic world that includes an incredible number of scientific literature and, also, the possibility to increase reputation and influence by payment. Using Academia.edu, virtual libraries, and other solutions as online databases, a huge volume of scientific information and publications are immediately accessible (Pons 2013). The challenge is not to find information but to know how to select, analyze, and transform it into real knowledge. Sociologist as Bauman (2007) considers this point as a critical key in scholarly environments and the formation of new global citizens.

There are changes in classical factors of production defined by the classical economy and from Marxism theory. The "labor" factor has seen its importance reduced by technology itself, which has been performing tasks previously reserved only for human beings, or it has opened the door to a global world where the services of a professional can be contracted thousands of kilometers away. Solutions such as Skype, for example, allow us to teach the history of Spain—or of the United States, if you prefer—from the country itself and not only by contracting a local teacher. On the other hand, another factor of production with its own economic value has begun to boom. We are talking about data—personal, professional, and scientific information—that nurtures initiatives such as Academia.edu or that are present behind the citations received as a way of determining quality and impact. It is just as important to publish research results in journals or monographs, as it is to enable this work to be highly valued in terms of references, thus increasing the prestige of the publisher or the journal.

There is no lack of reflections on the current role of history and its future (Lukacs 2011). In this case, we propose a new approach using the VUCA categories and applying them to the world of research in the humanities, to its fields of definition, examples, and possible ways of approaching each of the features that make it up.

Table 1: A VUCA Approach to Humanities

	What It Is	*An Example Situation*	*How to Effectively Address It*
Volatililty	Relatively unstable change; information is available and the situation is understandable, but change is frequent and sometimes unpredictable	Technological changes alter the focus of research and its dissemination from time to time	Agility: knowledge of technology and new research, flexibility and adaptation
Uncertainty	A lack of knowledge as to whether an event will have meaningful ramifications; cause and effect are understood, but it is unknown if an event will create significant change	Increase in events, information, and bibliography	Information: systemic and efficient processing of information
Complexity	Many interconnected parts forming an elaborate network of information and procedures; often multiform and convoluted, but not necessarily involving change	Changes in research methods: team integration	Restructuring: integrated research teams and greater emphasis on networks (data)
Ambiguity	A lack of knowledge as to "the basic rules of the game"; cause and effect are not understood and there is no precedent for making predictions as to what to expect.	Transfer and interdisciplinarity: sometimes research is not transferred to society	Experimentation: work on the "frontiers of knowledge" and greater transfer; connect research, teaching, and society.

Source: Adapted from Bennet and Lemoine (2014)

Similar to what is being done in digital humanities, the processing of information will require efforts to adapt to the new VUCA scenarios. In contrast to the romantic vision of intellectuals who are only interested in their documents and who never leave their desks, working methods that require the integration of data provided by technology will certainly appear. Given the present increase in information, where the most obvious element is the constant, enormous, and continuous influx of publications, it is difficult to believe that a single teacher, however brilliant, can handle the enormous volume of primary and secondary information available. On the other hand, technology currently allows, and will allow even more in the future, real integration of data and information from multiple teams around the planet from networked databases. This has been possible since the end of the twentieth century (Dedieu 2000), and its use will increase in the future thanks to advanced programming languages. There are already several initiatives that also incorporate the participation of thousands of students in the transcription of medieval documentation as part of MOOC courses. This redefines elements such as space and time when dealing with basic research and teaching (Martínez-Dávila et al. 2018)

To organize a work agenda for research teams, it is possible that new work organization formulas that lead to greater team integration need to be tested. Along with this, marketing of the results of research teams will gain more and more importance. Teams will use a systemic

approach and dedicate more resources to disseminating the work in both academic and non-academic social networks to add greater value to their scientific production. Obviously, a balance between the quality of research and its dissemination must be maintained to avoid the inherent risk of confusing impact with scientific quality.

The latest strategy to deal with VUCA environments is related to experimentation. The objective in this section would be to address humanistic knowledge from perspectives that perhaps have not yet been explored, which would include basic knowledge and its application. This requires the incorporation of a new actor in the generation of knowledge: the target audience itself. Aronson (2003, 181) has defined it clearly: "In the traditional way, knowledge is not directed at anyone in particular, while the new one is specifically oriented towards those who demand 'useful' knowledge, be it industry, government or society." If research methods in the humanities used to revolve around basic knowledge without being too concerned over who the recipient was, the new approaches place their applicability (transfer) at the same level as the basic knowledge itself. This theoretical approach implies the application of new forms of communication between the different actors, producing knowledge based on the needs of agents that are not part of the academic world. The connection between research and society will be important from different points of view, which will enhance the role of the humanities and their influence in other areas outside the academic field from the responsible research perspective. It might also be possible to seek a greater economic impact of research in the form of entrepreneurship initiatives and contacts with companies.

R. Kagan defined and compared the following nine dimensions that characterize Natural Sciences, Social Sciences and Humanities:

Table 2: Comparison of the Three Cultures in Nine Dimensions

Dimension	*Natural Scientist*	*Social Scientist*	*Humanists*
1. Primary Interests	Prediction and explanation of all natural phenomena	Prediction and explanation of human behaviors and psychological states	An understanding of human reactions to events and the meanings humans impose on experience as a function of culture, historical era, and life history
2. Primary sources of evidence and control of conditions	Experimentally controlled observations of material entities	Behaviors, verbal, statements, and less often biological measures, gathered under conditions in which the contexts cannot always be controlled	Written texts and human behaviors gathered under conditions of minimal control
3. Primary vocabulary	Semantic and mathematical concepts whose referents are the material entities of physics, chemistry, and biology, and assumed to transcend	Constructs referring to psychological features, states, and behaviors of individuals of groups, with an acceptance of the constraints that the context of observation imposes on generality	Concepts referring to human behavior and the events that provoke them with serious contextual restrictions on inferences
4. The influence of historical conditions	Minimal	Modest	Serious
5. Ethical influence	Minimal	Major	Major
6. Dependence on outside world	Highly dependent	Moderately dependent	Relatively independent
7. Work conditions	Both small and large collaborations	Small collaborations and solitary	Solitary
8. Contribution to the national economy	Major	Modest	Minimal
9. Criteria for beauty	Conclusions that involve the most fundamental material components in nature inferred from evidence produced by machines and amenable to mathematical descriptions	Conclusions that support a broad theoretical view of human behavior	Semantically coherent arguments described in elegant prose

Source: Kagan 2009, 4–5

The adaptation of the world of humanities to VUCA environments will require action in at least three of the dimensions. First, number 6, "Dependence on outside world": the use of emerging technologies will require research in the field of technology that, in most cases, has not been explored yet. The use of resources to contribute to the development of artificial intelligence, the recreation of virtual worlds as an element of study in history and arts, artifacts such as drones, servers for the maintenance of online databases, etc. involve much higher costs than the simple use of personal computers, for example. The cost will not only be for the technology itself, but also to hire staff with the skills to use it and adapt it to the requirements of the twenty-first century humanist. The latter will continue to be interested, according to the table above, in the "understanding of human reactions," but will incorporate new technological solutions that allow

results and expressions adapted to our time. To achieve this objective, it will be essential to bring together the public and private sectors on equal footing, which will cause a change in dimension number 7—solitary work—that could also be revised or reconsidered. Current trends in science involve integrating and adding knowledge—not just juxtaposing individual results—in contact with other people from non-academic fields, who are important contributors of social and economic impact to research.

Dimension 8 ("Contribution to the national economy") should be an element of reflection. The humanities have always had a clear intrinsic value from the point of view of knowledge, critical thinking, and the enrichment of the population for a wider perception of life. In relation to history, H. Paul (2016) has defined five types of relations with the past: epistemic (basic knowledge, understanding); moral (good, justice); political (decision making); aesthetic (beauty); and material (social reproduction). Perhaps one more relationship should be added to the previous ones: the economic condition, a greater influence on local or national economies that allow transposing knowledge, aesthetics, morality, etc. to niches of interest such as tourism, the influence on local businesses, and the ability to influence technology itself. For example, the contribution of humanist categories, such as historical time, to the development of Geographic Information Systems (GIS) can later be transferred to other sectors (Wachowicz 1999). Collaborations already exist that demonstrate the feasibility of working together with major corporations. It should be highlighted, among others, the work of Franco Moretti and his role in IBM for the development of ManyEyes or Ben Schmidt and the software Google Ngrams Viewer, which allows semantic searches in the millions of books that have been digitalized by said almighty technological giant and constitutes a powerful research tool (Guldi and Armitage 2014). The Sustainable Development Goals (SDGs) can mark the path of interest for bringing together two fields—humanities and business—that have traditionally had a complex relationship.

Building Ecosystems of Innovation in Humanities and Education

The construction of innovation ecosystems is an interesting resource for linking different actors and scenarios in humanities and education. Ecosystems seek to transfer scientific production as well as to find new solutions and transform them into useful products for all citizens, primarily from the world of private companies (Durst and Putanen 2013).

The idea of an innovation ecosystem is well known from a technological point of view and is preferably applied to the link between research and development and the creation of a start-up or the improvement of existing market-oriented companies. The essential characteristics of these ecosystems would be the following:

1. The innovation ecosystem clearly has a cooperative approach. It is not a matter of a single actor, so its members must define a common language and attend to the different interests of their own niches (academic, market-based, institutional, etc.). Different analyses support the need to incorporate elements of cooperation as a central and differential factor in any innovation mechanism (Engler and Kusiak 2011).
2. The following actors would be involved in the ecosystem: infrastructures and material resources (funds, facilities, etc.), human capital (students, researchers, companies), and institutions (universities, business schools, investors, etc.; Durst and Putanen 2013).
3. The financing of the ecosystem depends on the commercial benefits that come from the link between technological development and innovation (Jackson 2015).

4. Innovation ecosystems are economically sustainable through the idea of the circular economy, where part of the benefits generated by the participating companies is once again reinvested in research (Jackson 2015).
5. These organizations are identified with a specific geographical location or with some particular technology (Durst and Putanen 2013).

The adaptation of innovation ecosystems to the field of the humanities does not imply a direct and non-critical transposition of these aspects, but includes common elements and differences. The matching and comparable elements will be valued first:

- Link with the emerging technology sectors, typical of Industry 4.0, and new infrastructures for research and teaching in the field of the humanities, although considering that these ecosystems are "divided from communities rather than technologies" (Anderson and Blanke 2012, 161).
- Collaboration through open innovation mechanisms with the business world and the institutions involved.
- Management systems that allow us to agree on objectives and search for ways to apply the research carried out in the ecosystem.
- Objectives and results that take into consideration scientific interests but which can also be measured in terms of company generation, patents, collaboration with large corporations or institutions, etc. Therefore, the publication of results would not be the sole objective of the researchers.

In any case, differences will exist between an innovation ecosystem in the humanities and a system focused only on economic transfer. First, the focus on the market should be qualified, since the production and scientific interests of the humanities does not initially focus on an obligation to generate new products or forms of commercialization (Ziman 2003). The humanities, in general, show a high potential in the field of ethics, critical thinking, problem solving, creativity, etc., which explains why innovation should not be measured solely in terms of technology and its economic efficiency. This element would be present, of course, but not in such a linear or focused way as it is in a pure ecosystem. Investments would not need to be as high as in other areas of knowledge, but it would help companies to enhance intangible assets such as brand value. There are significant examples such as banks like BBVA that include the humanities in their cultural schedule and research funding program (BBVA, n.d). One way of dealing with these elements could be to link the research of the SDGs and involve the academic world in pursuing the shared objectives of the entire species and reinforcing its effect and its value for society as a whole. The humanities could have an impact on the following Sustainable Development Goals: quality education; gender equality; industry, innovation, and infrastructure; responsible production and consumption; climate action; peace, justice, and strong institutions and alliances to achieve objectives (UNESCO, n.d.).

To date, innovation ecosystems in the humanities, in general, are linked to Digital Humanities. Initiatives such as Dariah (DARIAH-EU, n.d), Digital Humanities Oxford, or Stanford Humanities Center include clearly identifiable elements in an innovation ecosystem. The presentation of the project Cultures of Knowledge, which has been offering a semantic and network analysis based on the digitalization of correspondence between European intellectuals over several centuries, indicates: "Crafting digital tools that meet scholarly needs requires active dialogue between engineers, designers, and the community of researchers whose work depends on the development of those tools" (Cultures of Knowledge, n.d.). The technological element is, therefore, already fully present in some projects that have produced interesting results from a heuristic and epistemological point of view. Perhaps the next step is that link with other socioeconomic agents for the development of innovation ecosystems, which allow a transfer in line with the interests of the immediate environment.

From Theory to Practice: The Experience of Living UniLab Project

Between 2015 and 2017, a partial experiment of innovation ecosystem generation was carried out in the Faculty of Geography and History at the Complutense University of Madrid. The Living UniLab project was developed as a pilot test under the supervision of David Alonso and with the active participation of Caroline Jerôme, an expert in the field of social entrepreneurship. Ten professors from this center, as well as two scholars from the Faculty of Philology of the same university, participated in this project. Its main objective was to improve teaching methods to make them more practical, joining course content with expressions of interest of other public and private institutions of the city. Students had to respond to challenges or ideas from the Madrid City Council, prestigious non-profit organizations such as Doctors Without Borders, innovation entities such as Impact Hub Madrid, and companies such as Virtway or El Corte Inglés (in the latter case with the participation of the Business Forum Madrid). Around 150 students from different subject areas began to apply what they learned from the curricular contents of history, art, archeology and geography in connection with these entities.

Figure 1: Outline of the Living UniLab project, Presentation Details.
Source: Faculty of Geograpy and History, University Complutense, n.d.

The Living UniLab project introduced several principles from the innovation ecosystem idea: contact with companies and institutions and the formulation of objectives or strategies with them. It was a partial and pilot test project. Starting from methodologies that are close to Design Thinking, interesting results were obtained with students who were taken to companies such as Virtway (n.d.). where fourth-year Archeology students recreated the lost archaeological heritage of the city of Palmira in the context of the Civil War that is still being fought in Syria. We collaborated with Doctors Without Borders in a service-learning experiment to explain elements of current world history as part of the program of exhibitions and activities organized by said

NGO, also related to the Syrian conflict. We collaborated with important local companies for the development of products derived from projects presented by students. El Corte Inglés accepted the idea of board games focused on the history of Madrid for their subsequent commercialization or new ideas about shop windows that would provide the public with further knowledge of the city's heritage. The Madrid Council donated €15,000 for these types of projects, which were finally presented to the citizens in public innovation spaces. The initiative was presented at scientific events, received media attention in local radio and was part of the activities of the Impact Hub Madrid (n.d.), one of the major social innovation companies at a national and international level. To evaluate the experiment, the list of support and success factors in innovation ecosystems defined by Durst and Poutanen (2013) will be used.

Table 3: Factors Supporting Innovation Ecosystems and Living UniLab Application

Factors Supporting Innovation Ecosystem	*Living Unilab Application*
Resources	Complutense University Innovation Projects: €1000 Telefónica Foundation Support: €1500 Business Forum Madrid: €15,000 Impact Hub Madrid: €1,000
Governance	Management Committee composed by the Faculty of Geography and History of the Complutense University and Impact Hub Madrid.
Strategy and Leadership	Low: Prototype developed for two years
Organizational culture	Open innovation culture among different actors.
Human resources	Low: No administrative support
People	Students, teachers, companies, Madrid Council representatives.
Technology	Virtway: Virtual Reality Company
Partners	Madrid Council Rey Juan Carlos University Impact Hub Madrid Doctors Without Borders Telefónica Foundation
Clustering	Partially: Complutense University/Rey Juan Carlos University

Source: Adapted from Durst and Pountanen (2013)

The Living UniLab experiment was partial and incomplete, but interesting. Perhaps the area of funding was where the possibilities and limits of the program were best appreciated. In that regard, the economic outlays were insufficient in quantitative terms. On the other hand, it was a enlightening experience to involve private companies organized in the Business Forum Madrid and the Impact Hub itself, which actively participated in the definition of projects and facilitated contact between the university and the city's socioeconomic reality. Throughout the first weeks of the course, the companies sent senior managers to present them and propose challenges that linked geography, history, art, etc. to concrete projects and products that could be marketed. This proposal would be close to the service-learning background (Deeley 2015), but also focused on the economic world and entrepreneurship, which in turn resulted in competency-based learning for students. There was an element that greatly distorted the execution of the project: an insufficient budget to hire people for administrative support and, in particular, to facilitate contact between students, teachers, companies, and innovation entities. The government section included elements of an innovation ecosystem, such as democracy in decision-making or the use of internet platforms to improve contact and group management.

Despite the limits of the Living UniLab project, the experience and data extracted during two academic courses demonstrated the enormous possibilities that the application of innovation

ecosystem programs had. Students and organizations positively valued the possibility of collaborating to generate new forms of education and to disseminate humanistic knowledge in the social and economic fabric of the city.

Discussion

Uncertainties about the future of the humanities should not surprise us. We are going through a time of systemic economic, technological, and social changes defined in terms of Industry 4.0 and the VUCA environment. If we look around us, we will see that it is evident that the world of work has been going through a transformation regarding the criteria on which it was designed until not too long ago. The typical employer-employee relationship is being redefined due to technology. This includes work patterns, which can be conducted in multiple interconnected spaces. Numerous examples exist.

Therefore, the analyses presented here would be part of the necessary reflections on which paths need to be taken in order to project humanities toward a context that, even though uncertain, we know will be different from those that have brought us here. If we ignore discussion and reflection, then we would only be attending to ourselves and not the current world that needs answers. In each revolution, the Schumpeterian theory of "creative destruction" has been confirmed (Schumpeter 2003). The value of traditional activities—handicrafts, for example—is lost and gives rise to new niches and spaces for action (Susskind and Susskind 2015). Could this "creative destruction" also affect the humanities in its epistemological and functional senses?

The development of innovation ecosystems for the humanities could be one way to adapt to twenty-first century reality. The ecosystem concept implies several conditions that seem important when looking for new frameworks for an area of knowledge that must remain indispensable. Collaboration with other agents and sectors through a mechanism of open innovation would offer smoother contact with society and economic agents. The adoption and integration of emerging technologies in research or teaching will facilitate the transfer of knowledge to a world that cannot ignore the enormous contributions of humanistic thinking, provided that the latter also understands that it cannot remain alien to this exciting time in which we have had to live or suffer. There are studies that suggest a disturbing trend in the humanities toward neoliberalism during the last decades (Aibar 2018). Perhaps, paradoxically, increasing cooperation within innovation ecosystems with participation of academics, companies, and public administration could be a way to reduce this risk.

Acknowledgement

I appreciate all students, professors, and institutions that participated in the Living UniLab Project. Caroline Jérôme promoted this project in different universities and innovation companies. This article has been supported by Spanish Research Project: "Las ciudades de la corona de Castilla. Dinámicas y proyección de los Sistemas Urbanos entre 1300 y 1600." Ministerio de Economía, Industria y Competitividad. HAR2017-82983-P.

REFERENCES

Aibar Puentes, Eduard, 2018. "La transformación neoliberal de la ciencia: el caso de las Humanidades Digitales" [The Neoliberal Transformation of Science: The Case of the Digital Humanties]. *ArtefaCToS. Revista de estudios de la ciencia y la tecnología* [Artifacts. Journal of Science and Technology Studies] 7 (1): 13–28. http://dx.doi.org/10.14201/art2018711328.

Anderson, Sheila, and Tobias Blanke. 2012. "Taking the Long View: From e-Science Humanities to Humanities Digital Ecosystems." *Historical Social Research / Historische Sozialforschung* 37 (3) Special Issue, Controversies around the Digital Humanities: 147–64. https://www.jstor.org/stable/41636602.

Aronson, Perla. 2003. "La Emergencia de la Ciencia Transdisciplinar" [The Emergency of Transdisciplinary Science]. *Cinta de Moebio. Revista de Epistemología de las Ciencias Sociales* [Möbius Strip. Journal of Epistemology of Social Sciences] 18: 179–90. https://cintademoebio.uchile.cl/index.php/CDM/article/view/26136/27434.

Bauman, Zygmunt 2007. *Los retos de la Educación en la Modernidad Líquida* [The Challenges of Education in Liquid Modernity]. Barcelona: Gedisa.

BBVA. n.d. "Conocimiento. Resultados de investigación científica y humanística" [Knowledge. Outcomes of Scientific and Humanistic Research]. Accessed January 19, 2020. https://www.fbbva.es/conocimiento/.

Beck, Ulrich. 2000. *What is Globalization?* Cambridge: Polity Press.

Bennet, Nathan, and James G. Lemoine. 2014. "What a Difference a Word Makes: Understanding Threats to Performance in a VUCA World." *Business Horizons* 57 (3): 311–17. https://doi.org/10.1016/j.bushor.2014.01.001.

Cortina, Adela. 2013. "El futuro de las Humanidades" [The Future of the Humanities]. *Revista chilena de literatura* [Journal of Chilean Literature], 84: 207–17. https://revistaliteratura.uchile.cl/index.php/RCL/article/view/28515.

Cultures of Knowledge. n.d "Networking the Republic of Letters, 1550-1750." Accesed January 13, 2020. http://www.culturesofknowledge.org/?page_id=31.

DARIAH-EU. n.d. "Digital Research Infrastructure for the Arts and Humanities." Accessed January 10, 2020. https://www.dariah.eu/.

Dedieu, Jean-Pierre. 2000. "Un instrumento para la historia social: la base de datos Ozanam" [A Tool for Social History: the Ozanam Database]. *Cuadernos de Historia Moderna* [Journal of Modern History] 24: 185–204. https://revistas.ucm.es/index.php/CHMO/article/view/CHMO0000120185A.

Deeley, Susan J. 2015. *Critical Perspectives on Service-Learning in Higher Education*. Hampshire, UK: Palgrave Macmillan.

Durst, Susanne and Petro Poutanen. 2013. "Success Factors of Innovation Ecosystems—Initial Insights from a Literature Review." In *Co-Create 2013: The Boundary-Crossing Conference on Co-Design in Innovation*, edited by Ritta Smeds and Olivier Irrmann, 27–38. Espoo, Finland: Aalto University Publication.

Engler, Joseph and Andrew Kusiak. 2011. "Modeling an Innovation Ecosystem with Adaptive Agents." *International Journal of Innovation Science* 3 (2): 55–68. https://www.emerald.com/insight/content/doi/10.1260/1757-2223.3.2.55/full/html.

Faculty of Geograpy and History, University Complutense. n.d. "Proyecto Living Unilab." Accesed January 16, 2020. https://geografiaehistoria.ucm.es/proyecto-living-unilab.

Ferry, Luc. 2017. *La revolución transhumanista. Como la Tecnomedicina y la uberización del mundo van a transformar nuestras vidas* [The Transhumanist Revolution: How Tecnhomedicine and the Uberization of the World Will Transform Our Lifes]. Madrid: Alianza Editorial.

Guldi, Jo and David Armitage. 2014. *The History Manifiesto*. Cambridge: Cambridge University Press.

Impact Hub Madrid. n. d. "La Universidad, Palanca de Transformación Social: Living Unilab" [The University, an Instrument of Social Transformation: Living Unilab]. Accessed January 16, 2020. https://madrid.impacthub.net/noticia/la-universidad-palanca-de-transformacion-social-living-unilab/.

Jackson, Deborah J. 2015. "What is an Innovation Ecosystem?" Accessed September 16, 2019. https://www.researchgate.net/publication/266414637_What_is_an_Innovation_Ecosystem.

Kagan, Jerome. 2009. *The Three Cultures: Natural Sciences, Social Sciences, and the Humanities in the 21st Century*. Cambridge: Cambridge University Press.

Korotayev, Andrey. 2018. "The 21th Century Singularity and Its Big History Implications: A Re-analysis." *Journal of Big History* 2 (3): 71–118. https://doi.org/10.22339/jbh.v2i3.

Kurzweil, Raymond. 2005. *The Singularity Is Near: When Humans Transcend Biology*. New York: Viking Penguin.

Lukacs, John. 2011. *El futuro de la Historia* [The Future of History]. Madrid: Turner.

Mack, Oliver and Anshuman Khare. 2016. "Perspectives on a VUCA World" In *Managing in a VUCA World*, edited by Oliver Mack, Anshuman Khare, Andreas Krämer, and Thomas Burgartz, 3–19. New York: Springer.

Martínez-Dávila, Roger L., Sean Perrone, Francisco García Serrano-Nebras, and María Martín de Vidales García. 2018. "Deciphering Secrets of Medieval Cathedrals: Crowdsourced Manuscript Transcriptions and Modern Digital Editions." *Bulletin for Spanish and Portuguese Historical Studies* 43 (1): Article 2. https://digitalcommons.asphs.net /bsphs/vol43/iss1/2/.

Palazzi, Cristian. 2011. *Zygmunt Bauman. Reflexiones sobre la modernidad líquida* [Zygmunt Bauman. Reflections on Liquid Modernity]. Barcelona: UOC.

Paul, Herman. 2016. *La llamada del pasado. Claves de la teoría de la Historia* [The Call of the Past. Keys to the Theory of History]. Zaragoza, Spain: Institución Fernando el Católico.

Pons, Anaclet. 2013. *El desorden digital. Guía para historiadores y humanistas* [The Digital Disorder. Guide for Historians and Humanists]. Madrid: Siglo XXI.

Schumpeter, Joseph A. 2003. *Capitalism, Socialism and Democracy*. London: Taylor & Francis.

Susskind, Richard, and Susskind Daniel. 2015. *The Future of the Professions. How Technology Will Transform the Work of Human Experts*. Oxford: Oxford University Press.

Time Machine. n.d. "Time Machine Roadmaps Mapping the Future." Accessed June 03, 2019. https://www.timemachine.eu/time-machine-roadmaps-mapping-the-future/.

UNESCO. n.d. "UNESCO and Sustainable Development Goals." Accessed September 13, 2019. https://en.unesco.org/sdgs.

United Nations. n.d. "Sustainable Development Goals." Accessed January 13, 2020. https://www.un.org/sustainabledevelopment/.

Virtway. n. d. "Virtway Events." Accessed January 16, 2020. https://www.virtwayevents.com/ #section1.

Wachowicz, Monica. 1999. *Object-Oriented Design for Temporal GIS*. London: Taylor and Francis.

Wachowicz, Monica, and James B "Jack" Owens. 2012. "Dynamics of Trade Networks: The Main Research Issues on Space-Time Representations." *Journal of Knowledge Management, Economics and Information Technology*, Special Issue: Self-Organizing Networks and GIS Tools. Cases of Use for the Study of Trading Cooperation (1400–1800): 53–79. http://www.scientificpapers.org/special-issue-june-2012/.

Ziman, John. 2003. "Ciencia y sociedad civil" [Science and Civil Society]. *Isegoría. Revista de Filosofía Moral y Política* [Isegoría. Journal of Moral and Political Filosophy] 28: 5–17. https://doi.org/10.3989/isegoria.2003.i28.

ABOUT THE AUTHOR

David Alonso García: Coordinator of the Master's Degree in Teacher Training and Associate Professor of Didactics of History, Department of Didactic of Experimental, Social and Mathematics Sciences, Faculty of Education, University Complutense, Madrid, Spain

The International Journal of the Humanities: Annual Review provides a space for dialogue and publication of new knowledge that builds on the past traditions of the humanities while setting a renewed agenda for their future. The humanities are a domain of learning, reflection, and action, and a place of dialogue between and across epistemologies, perspectives, and content areas. It is in these unsettling places that the humanities might be able to unburden modern knowledge systems of their restrictive narrowness.

Discussions in *The International Journal of the Humanities: Annual Review* range from the broad and speculative to the microcosmic and empirical. Its overriding concern, however, is to redefine our understandings of the human and mount a case for the disciplinary practices of the humanities. At a time when the dominant rationalisms are running a course that often seems to draw humanity toward less than satisfactory ends, this journal reopens the question of the human—for highly pragmatic as well as redemptory reasons.

The International Journal of the Humanities: Annual Review consists of articles considered to be of wide interest across the field. Five thematically focused journals also serve this Research Network:

- *The International Journal of Civic, Political, and Community Studies*
- *The International Journal of Communication and Linguistic Studies*
- *The International Journal of Critical Cultural Studies*
- *The International Journal of Humanities Education*
- *The International Journal of Literary Humanities*

The International Journal of the Humanities: Annual Review is a peer-reviewed, scholarly journal.

ISSN 1447-9508