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Name of the course:	Technological change and digital transition: transdisciplinary perspectives			
Teachers:	Collective course by COSTECH lab members from different disciplines (see below)			
University / organisation:	Université de technologie de Compiègne			
Language of teaching:	English			
ECTS:	3			
Semester (S1, S2, S3 or S4):	<input type="checkbox"/> S1	<input type="checkbox"/> S2	<input checked="" type="checkbox"/> S3	<input type="checkbox"/> S4
Teaching method(s):	<input checked="" type="checkbox"/> Lecture courses		<input checked="" type="checkbox"/> Flipped classroom	
	Other:			
Type(s) of evaluation:	<input type="checkbox"/> Sitting exam		<input checked="" type="checkbox"/> Written report	
	<input type="checkbox"/> Oral defence		<input checked="" type="checkbox"/> Group project	
	Other /		Group project (2-4 students) leading to a report and a defence.	
Expected deadline(s) for the evaluation(s)	Report to be issued by the end of January.			
Expected date of final results:	By the end of February.			
Summary of the content:	The objective of this course is to gather experts from different academic fields and provide a multidisciplinary perspective on the digital transition. It is based on the contributions of researchers from the COSTECH research lab at UTC.			
Indicative list of lectures	Lecture 1 - The “Anthropologically-based technique” thesis (Pierre Steiner, philosopher)			
	Technologies, techniques, human intelligence and culture are entangled. One specificity of humanity does not lie in the fact we make and use tools (non-human animals also do it), but in the way techniques and technologies deeply modify the ways we live, think, and desire. Technology - not only digital - enables and constrains what we are. The aim of the lecture is to present this idea and its scope from a philosophical and historical point of view.			
	Lecture 2 - Evolution and history of technology (Guillaume Carnino, historian)			
	Evolution of paradigms in history of technology, from the naïve and heroic vision of the industrial revolution, through the social construction of technology, to nowadays multicausal history. Is “Industrial revolution” a			

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useful concept? Adaptation and exaptation in the history of technology: the example of energy

Lecture 3 - Technology as a substitution or supplementation tool? (Charles Lenay, cognitive scientist and philosopher)

Is it possible for new technologies of digital interfaces and artificial intelligence to substitute human cognitive activities? Using examples of sensory substitution systems or cognitive aids, we will see that human intelligence is always artificial (because it has to rely on tools and environments) but that artificial intelligence (as a technique of symbol manipulation) is not human.

Lecture 4 - The digital transformation of bureaucracy and the platformization of the State (Clément Mabi and Anne Bellon, information and communication scientist)

This session discusses the introduction of digital tools in public administrations and its effect on bureaucratic practices and organizations as well as government/citizens relationships. It focuses on the model of “Government as a platform” and on programmes that foster new forms of collaboration between administrations, agencies, private firms and citizens around data-sharing, policy design and/or consensus building.

Lecture 5 - Platform regulation and algorithm governmentality (Clément Mabi and Anne Bellon, information and communication scientist)

Because of its distributed architecture and international development, the internet challenges national political powers with their traditional tools of regulation. This session explores forms of governance specific to the internet with an attention to the technical and infrastructural dimension of digital regulation. It also discusses the emergence of new regulations addressing the development of big platforms and algorithmic control.

Lecture 6 - Social movement and the digital public space (Clément Mabi and Anne Bellon, information and communication scientist)

The development of the web has been hailed as favouring new forms of expression and communication as well as offering a new space for collective action. Conversely, an increasing number of studies has revealed dynamics of polarization and brutalization on the internet that could jeopardize democracy and the freedom of expression. This session confronts these different works on the digital public space to provide a better understanding of the social dynamics that shape online participation.

Lecture 7 - Centralisation and decentralisation of the Internet (Stéphane Crozat, computer scientist)

Internet was originally designed as a decentralized infrastructure, with no central control. The Web, which is one of its main application, is subject to a centralization process since a few large companies concentrate the majority the uses. This situation leads to issues concerning the possibilities for the citizens to control their digital environment (privacy, free expression, autonomy...). The re-decentralization of the Internet is

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an attempt to promote alternative software and medias in order to preserve the possibility of making choices (and deciding how and with whom we are using our computers).

Lecture 8 - Skills in the digital area: the meritocracy renewal? (Michaël Vicente, sociologist)

Since the 2000s, among the promises announced by the emergence of technologies, the most highlighted one is certainly the idea of a true meritocracy, in the sense of a perfect match between skills, merit and social position. This session will propose a discussion of this founding myth and a review of the recent history of technological developments, with a focus on social and political issues at stake.

Lecture 9 - Digital creation: stakes and perspectives (Serge Bouchardon, information and communication scientist)

For several decades, authors and artists have produced digital born creations by exploiting the interactive and multimedia characteristics of devices (PCs, tablets, smartphones) and networks (internet). Nowadays, creators are active on online video platforms (YouTube), microblogging platforms (Twitter) and social media networks (Facebook, Instagram, Snapchat), sometimes for the purpose of detournement. How do they address societal issues, in particular the question of digital and ecological transitions?

Lecture 10 - Managing technological innovation: the TATIN interactive table case study (Thierry Gidel, management scientist)

Based on the case study of the design of an interactive tactile table and board supporting collaborative work, this lecture analyses key aspect of innovation management. Starting from the research project to the market through design, development and start-up creation, we analyse what are the steps and pitfall of an innovation journey. We identify the conditions that could make innovation happen.

Lecture 11 - The design of physical-digital workspaces to support globally collaborative work (Thierry Gidel, management scientist)

Designing physical-digital workspaces to support collaboration require understanding first what is collaboration. Then it requires understanding the enactive process at work when the user's needs co-evolve with technology. This lecture starts in ancient time when collaboration took place around a fire and analyse the impact of technology on our way of working together, on our capacity to think and solve problems.

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	<p>Lecture 12 and 13 - Crowdsourcing, network sciences and socio-economic perspectives (Pascal Jollivet-Courtois, economist)</p> <p>Digital Humanities have changed the way to do sciences in several disciplines, coming from history - the first mover - to psychology and sociology. Not only in providing new materials for research (crowdsourcing digital traces in the social web for ex.) but also in providing new methods and heuristics (network sciences, cluster analysis...) (Kitchin, 2014). However, economics seems to remain indifferent. Until 2015 when four economists from the bank of England published a methodology report on text cluster analysis (Bholat & al., 2015). We will first explore some scientific breakthroughs provided by network sciences (Watts, 2004) and textual Big Data (Kitchin., op cit), then examine some methodological development as text cluster analysis (Bholat, op. cit.) and conclude by an application with a prospective study (on “collective bargaining”) with crowdsourced materials from Reddit (Jollivet, 2018)</p>
<p>Short bibliography:</p>	<p>Lecture 1 - The “Anthropologically-based technique” thesis</p> <p>Steiner Pierre. “Philosophie, technologie et cognition : État des lieux et perspectives”. In Steiner Pierre & Stewart John (Eds), “Philosophie, Technologie et Cognition”, <i>Intellectica</i>, 53-54, (pp.7-40) (2010), link.</p> <p>Ihde, Don, Malafouris, Lambros. Homo faber Revisited: Postphenomenology and Material Engagement Theory. <i>Philosophy & Technology</i>. 32, 195-214 (2019), link.</p> <p>Hodder, Ian. Entangled. <i>An Archeology of the Relationships between Humans and Things</i>. Wiley-Blackwell, 2012.</p> <hr/> <p>Lecture 2 - An example from the history of science</p> <p>Liliane HILAIRE-PÉREZ, “‘What Is Technology?’: An Enquiry into the Science of the Arts at the Dawn of Industrialisation”, in Kristine Bruland, Anne Gerritsen, Pat Hudson, Giorgio Riello (dir.), <i>Re-inventing the Economic History of Industrialisation</i>, McGill-Queens University Press, 2020, p. 44-58.</p> <p>Guillaume CARNINO, “Vers une épistémotechnique”, <i>SHS web of conference</i>, 2014, link</p> <p>Vaclav SML, <i>Energy and Civilization. A History</i>, Cambridge: MIT Press, 2017.</p> <hr/> <p>Lecture 3 - Technology as a substitution or supplementation tool?</p> <p>Lenay, C., O. Gapenne, S. Hanneton, C. Marque, et C. Genouel. “Sensory substitution: Limits and perspectives”. In <i>Touching for Knowing, Cognitive psychology of haptic manual perception</i>, Y. Hatwell, A. Streri, et E. Gentaz (eds), 275-92. Amsterdam/Philadelphia: John Benjamins Publishing Company, 2003.</p> <p>Lenay, C., et M. Tixier. “From Sensory Substitution to Perceptual Supplementation: Appropriation and Augmentation”. In <i>Living Machines: A Handbook of Biomimetic and Biohybrid Systems</i>. Oxford University</p>

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Press, Tony J. Prescott, Nathan Lepora, and Paul F.M.J Verschure Eds., 2018, pp. 548-555.

Lenay, C., D. Aubert, “Technical Innovation in Human Science : examples in cognitive technologies”, *Theoria*, Vol. 34/3, septembre 2019, pp. 313-471.

Lecture 4 - The digital transformation of bureaucracy and the platformization of the State

Main readings:

- Cordella, A., and Tempini, N. (2015). E-government and organizational change: Reappraising the role of ICT and bureaucracy in public service delivery. *Government Information Quarterly*,
- Brown, A., Fishenden, J., Thompson, M., & Venters, W. (2017). Appraising the impact and role of platform models and Government as a Platform (GaaP) in UK Government public service reform: Towards a Platform Assessment Framework (PAF). *Government Information Quarterly*, 34(2), 167-182.

Further References:

- Anne Bellon (2020) “Goodbye Minitel, welcome to the internet”. The Hourtin speech as a turning-point for French internet policy, *Internet Histories*, 4:4, 373-389
- Fountain J. (2001) *Building the Virtual State*
- Coleman S. (2011). *Connecting Democracy: Online Consultation and the Flow of Political Communication*. Cambridge, MA: MIT Press
- Dunleavy, P., Margetts, H., Bastow, S., & Tinkler, J. (2006). New public management is dead—long live digital-era governance. *Journal of public administration research and theory*, 16(3), 467-494.

Lecture 5 - Platform regulation and algorithm governmentality

Main readings

- Gillespie, T. (2010) ‘The politics of ‘platforms’’, *New Media & Society*, 12(3), pp. 347-364
https://www.researchgate.net/publication/258173728_The_politics_of_'platforms'
- Laurer, M. and Seidl, T. (2020). Regulating the European Data-Driven Economy: A Case Study on the General Data Protection Regulation. *Policy & Internet*. DOI: <https://doi.org/10.1002/poi3.246>

Further readings:

- Souto-Otero, M., & Beneito-Montagut, R. (2016). From governing through data to governmentality through data: Artefacts, strategies and the digital turn. *European Educational Research Journal*, 15(1), 14-33.
- Badouard R., Mabi C., Sire G.,. Beyond “Points of Control”: logics of digital governmentality. *Internet Policy Review*, Alexander von

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Humboldt Institute for Internet and Society, 2016, 5 (3) :
<https://hal.archives-ouvertes.fr/hal-02432780/>.

Lecture 6 - Social movement and the digital public space

Main readings:

- Benkler Y., Faris R., Roberts H. Zuckerman E. (2017) Breitbart-led right-wing media ecosystem altered broader media agenda, *Columbia Journalism review*.
- Tufekci, Z., & Wilson, C. (2012). Social media and the decision to participate in political protest: Observations from Tahrir Square. *Journal of communication*, 62(2), 363-379.

Further readings:

- Schradie J. (2018) The Digital Activism Gap: How Class and Costs Shape Online Collective Action, *Social Problems*, Volume 65, Issue 1, p. 51-74, <https://doi.org/10.1093/socpro/spx042>
- Rossini, P. (2020) 'Beyond Incivility: Understanding Patterns of Uncivil and Intolerant Discourse in Online Political Talk', *Communication Research*. [Beyond incivility: Understanding patterns of uncivil and intolerant discourse in online political talk](#)
- Wright, S, Graham, T and Jackson, D (2017) *Third Space and Everyday Online Political Talk: Deliberation, Polarisation, Avoidance*. In: The 67th Annual Conference of the International Communication Association, 25-29 May 2017, San Diego, CA, USA. (Unpublished) <http://eprints.whiterose.ac.uk/119308/><

Lecture 7 - Centralisation and decentralisation of the Internet

Fred Turner, 2006. *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism*, University Of Chicago Press.

Tim Berners-Lee, 2014. "Tim Berners-Lee on the Web at 25: the past, present and future", *Wired UK*. <https://www.wired.co.uk/article/tim-berners-lee>

Mozilla Foundation, 2019. *Internet Health Report*. <https://internethealthreport.org/2019/issue/decentralization>

Lecture 8 - Skills in the digital area: the meritocracy renewal?

Christian Fuchs, *Digital Labour and Karl Marx*, New York, Routledge, 2014.

Daniel Bell. *The Coming of Post-industrial Society: A Venture in Social Forecasting*. 1973

Jo Littler *Against Meritocracy: Culture, power and myths of mobility* 2017.

Christopher A. Paul. *The Toxic Meritocracy of Video Games* 2018.

Lecture 9 - Digital creation: stakes and perspectives

Andersen, C. and Pold, S. (2018). *The Metainterface. The Art of Platforms, Cities and Clouds*. MIT Press.

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Bouchardon, S. (2019). “Mind the gap! 10 gaps for digital literature?”, Electronic Book Review, <http://electronicbookreview.com/essay/mind-the-gap-10-gaps-for-digital-literature/>

Lecture 10 - Managing the innovation with the TATIN interactive table

Brown, Tim. 2009. Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation. New York: HarperBusiness.

Hatchuel, Armand, and Benoit Weil. 2009. ‘C-K Design Theory: An Advanced Formulation’. Research in Engineering Design 19(4):181-92.

Dorst, Kees, and Nigel Cross. 2001. ‘Creativity in the Design Process: Co-Evolution of Problem-Solution’. Design Studies 22(5):425-37

Lecture 11 - The design of physical-digital workspaces to support globally collaborative work

Tucker, Andrea, Thierry Gidel, and Cédric Fluckiger. 2019. ‘Designing Physical-Digital Workspaces to Support Globally Collaborative Work’. in Proceedings of the 22nd International Conference on Engineering Design (ICED 19) 5-8 august 2019, Delft, The Netherlands.

Turkle, Sherry. Alone together: Why we expect more from technology and less from each other. Hachette UK, 2017.

Lecture 12 and 13 - Crowdsourcing, network sciences and socio-economic prospectives

Bholat, D. M., Hansen, S., Santos, P. M., & Schonhardt-Bailey, C. (2015). Text Mining for Central Banks. SSRN Electronic Journal. <https://doi.org/10.2139/ssrn.2624811>

P. Jollivet. (2018). Has “Collective Bargaining” evolved through time? An experiment with text-network analysis and topic modeling with big data from Reddit. Proceedings of EcoMod18 (https://editorialexpress.com/cgi-bin/conference/download.cgi?db_name=ECOMOD2018&paper_id=418)

Kitchin, R. (2014). Big Data, new epistemologies and paradigm shifts. Big Data & Society, 1(1), 2053951714528481. <https://doi.org/10.1177/2053951714528481>

Watts, D. J. (2004). Six Degrees : The Science of a Connected Age (Reprint edition). W. W. Norton & Company.