Reflections on what it would mean for Barcelona to become the capital of technological humanism

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Introduction

> " Technique (...) with the mission to resolve man's problems, has suddenly turned into a new and huge problem"
>
> **Ortega y Gasset**

The term *Humanismo tecnológico* (technological humanism)[1] has become increasingly popular in Spain over the last three years, regularly appearing in media headlines, policy briefs and events, and also as the subject of panel discussion sessions. The phrase transcended beyond the realm of philosophical debate and into an increasingly notable public discourse in Barcelona in 2019. Since then, more and more actors, locally and nationally, and both in and outside of politics have embraced the term. For example, the city of Barcelona aspires to become the capital of technological humanism while the Spanish government uses the concept to frame the Digital Rights Charter and seeks to launch a communication campaign relating to the concept (Ajuntament de Barcelona 2021b; Horcajo 2021).

But what does technological humanism actually mean? Can the term help bring the social impacts of the 4th industrial revolution's technological developments and all related concerns to the forefront of the political agenda? And what would it mean for Barcelona to become the capital of technological humanism?

The purpose of this reflection piece is twofold. Firstly, it aims to provide an overview of how the concept came about, who uses it, how and in what contexts. The second objective is, using the Digital Future Society Think Tank's body of work, to offer some reflections on Barcelona's quest to become the capital of technological humanism.

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[1] The term technological humanism is not widely used in the English language except as a direct translation of the Spanish humanismo tecnológico. Digital humanism is more widely used in the Anglo-Saxon world.

Technological humanism: about the concept

The current use of the concept in Spain is closely associated with specific individuals from across the political spectrum. **Jose María Lassalle**, Secretary of State for the Digital Advancement of Spain in the *Partido Popular* (Popular Party) government from 2016 to 2018, and author of several books and articles on the topic, was one of the first public figures to start using it in a significant way. He has been the director of the Technological Humanism Forum at the Barcelona-based ESADE business school since January 2020.[2]

Another key promoter of technological humanism is **Laia Bonet**, Deputy Mayor of Barcelona for the 2030 Agenda, the Digital Transition, Sports, Territorial and Metropolitan Coordination,[3] and member of the *Partido de los Socialistas de Catalunya* (Catalan Socialist Party). The Barcelona City Council has included the concept 18 times in the recently published *Mesura de Govern de l'estratègia municipal d'algoritmes i dades per a l'impuls ètic de la intel·ligència artificial* (Government Measure for a municipal algorithms and data strategy for an ethical promotion of artificial intelligence) (Ajuntament De Barcelona 2021e). The government measure "will serve to implement this technology [artificial intelligence] respecting digital rights, fomenting technological humanism and promoting transparent, auditable and open models" (Punt.tic 2021).

While debating the role of cities in dealing with global challenges at the Smart City Expo World Congress in November 2021, the *Barcelona en Comú* (Barcelona in Common) Mayor of Barcelona, **Ada Colau**, and **Francesca Bria**, President of the Italian Innovation Fund and Former Chief Digital Technology and Innovation Officer of the city of Barcelona, discussed the role technological humanism can play in fostering a "technological, democratic and social agenda at the service of the common good as the way forward" (Smart City Expo World Congress 2021).
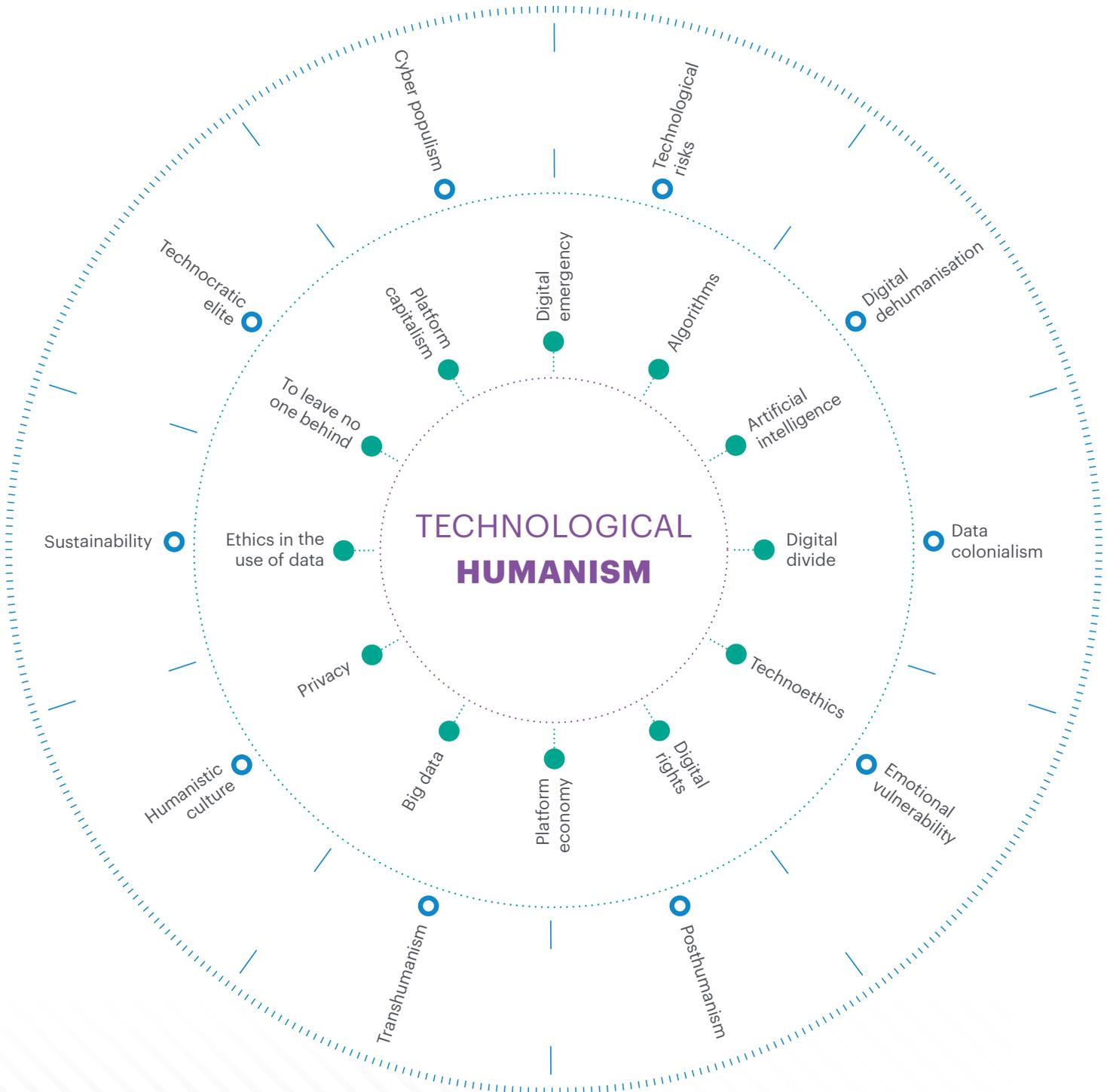
Other areas of local and state-level public administration have also embraced the use of the term, as have well-known political analysts and public relations experts such as **Antoni Gutiérrez Rubí**, a prominent political communication consultant (Gutiérrez-Rubí 2021).

The term is also taking hold throughout the Barcelona cultural and artistic scene. Nine university and cultural institutions have founded the *Barcelona Hub d'Art, Ciència i Tecnologia, Hac Te* (Barcelona Art, Science and Tech Hub) to implement "technological humanism through projects and programmes that accelerate the relation between arts and tech" (Puigtobella 2021). Also, Cibernarium 22@, a municipal technology training centre for professionals and companies, has recently organised several events under the title *Cicle d'Humanisme Tecnològic i ètica en la societat digital* (talks on technological humanism and ethics in digital society) (Barcelona Activa 2021).

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[2] The objectives of the Forum are to shine a humanist perspective upon digital transformation and to support its regulatory development. The ambition for setting up such a Forum was to explore through it how to situate people at the centre of technological development. The Forum has organised a number of events for this purpose. For more information visit: https://www.esade.edu/en/faculty-and-research/research/knowledge-units/technological-humanism-forum
[3] Position held since 2019 and current at the time of writing November 2021.

Figure 1. **Map of concepts related to Technological Humanism**

Image source: Digital Future Society 2022

⬇ The meaning

What does technological humanism mean? It is hard to find a concrete definition shared by all its current champions. Perhaps it is this ambiguity that facilitates its use by a broad range of stakeholders in and across the political spectrum and in a variety of contexts.

The origins of technological humanism

Philosophical debates around the relationship between "man and *la técnica*" (technique) date back to ancient Greece. Humanism, the major intellectual movement of the Renaissance, promoted the use of science and reason and upheld human dignity and values.

Technological humanism is perhaps best represented by the Spanish philosopher and one of the founders of the philosophy of technology, José Ortega y Gasset.

In line with his thinking in la Meditación sobre la técnica (written in 1939), humanismo tecnológico is a third way, an intermediate formula in the debate between apocalyptic dystopian thoughts and utopian posthuman narratives, it is about "making possible the development of scientific research and the advancement of new technologies, although without ever having to sacrifice dignity and liberty, which are inherent qualities of the human being" (Llano 2019).

The City Council's recently published Mesura de Govern de l'estratègia municipal d'algoritmes i dades per a l'impuls ètic de la intel·ligència artificial defines technological humanism as:

> ❝ **A model of technological development centred on the human being**, that reduces social inequalities and protects human rights, and in which technology is at the service of people and the general interests."

Ajuntament de Barcelona 2021e

At the state level, **Red.es,** the public corporate entity which belongs to the Ministry of Economic Affairs and Digital Transformation, launched a tender in September 2021 for the design of a campaign "to promote technological humanism". For the purposes of the tender, Red.es defined the term as:

> A **school of thought that promotes placing technology at the service of the human condition**, encouraging responsible use and fomenting innovation guided by ethical principles that facilitate the individual development of the human being, social harmony and the sustainable progress of humanity."

Ministerio de Asuntos Económicos y Transformación Digital 2021

Red.es recognises that "technological humanism, as a school of thought, **is a highly abstract, wide reaching concept**". Given the abstract nature of the concept, Red.es highlights the relevance of the Digital Rights Charter for framing the application of the concept of technological humanism in practical terms and grounding the discourse in specific rights that define the relationship between the individual and technology.

In this context, **Carme Artigas**, Secretary of State for Digitisation and Artificial Intelligence, and **Nadia Calviño,** Minister of Economic Affairs and Digital Transformation and First Deputy Prime Minister of Spain[4] have included the term in speeches given throughout the last 12 months.

Overall, technological humanism definitions refer to "technology" and "technological development", but technology is a very wide concept so technological humanism could be relevant to many different contexts. This lack of definition is both a strength and weakness of the concept.

In general, the term is mostly used as an umbrella term to encapsulate a variety of issues and is frequently followed by the motto *putting people at the centre of technological development* and developing *technology at the service of citizens*. This mirrors the current European discourse to have a "digital transformation that will benefit everyone" and which includes ensuring that AI "is developed in ways that respect people's rights and earns their trust" (European Union 2020).

The current use of the term points towards concerns arising from various technological developments, including the expansion of artificial intelligence, algorithms, the data economy, neurotechnology, and privacy breaches. In short, technological development could soon be beyond human control, mandating an affirmation that an "humanismo tecnológico" is needed that will place humans (and human control) at the core of technological development.

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[4] Nadia Calviño is Minister of Economic Affairs and Digital Transformation since June 2018 and Deputy Prime Minister of Spain since July 2021. Both positions are current at the time of writing in November 2021.

● The wider international context

In the English language, technological humanism is not as widely used as the related concept **digital humanism** (the use of which dates further back in time to the Anglo-Saxon world than the use of the concept **humanismo tecnológico** in Spain). Even if there is no easy translation, the rise of the concept of technological humanism in Spain and the discussion generated around the concerns encapsulated in the term, mirrors the rise of critical voices in other countries that are, with a sense of urgency, raising awareness of the risks related to current technological developments. Of all the exponential technologies, it is the expansion of artificial intelligence and certain applications, specifically the use of algorithms and automated decision-making systems, together with the vast financial power of the largest tech companies, and the rise of the data and attention economy across different spheres of our lives that have raised ethical questions and spurred critics to sound the alarm. This is illustrated by the significant body of academic literature, media reports, and initiatives relating to concerns over the impact technology is having on society. Digital surveillance, disinformation, and algorithmic injustice lie at the heart of many of the concerns expressed by critics.

On a micro level, as exemplified by the testimony of former Facebook worker, Frances Haugen and the Netflix documentary The Social Dilemma, which features former Silicon Valley tech employees, there are growing concerns over the impact social media has on individuals. For example, Instagram's impact on teenage girls' mental health or the design of apps to keep us endlessly "engaged" (Navarro 2021).

On a macro level, the Cambridge Analytica scandal sparked increased public interest in privacy and social media's influence on politics and elections, a concern which has continued to grow in recent years as more and more evidence of the rate at which disinformation and fake news spreads online has come to light (Lewandowsky et al. 2020).

Beyond the realm of social media, academics and activists have for years warned of the risks involved in using **algorithms and automated decision-making system**s in the public sector, particularly in sensitive areas such as policing, and the criminal justice and welfare systems, or in other contexts, such as the use of algorithmic management and control in the workplace (Digital Future Society 2021; Digital Future Society 2020b; Eubanks 2018; Algorithm Watch 2019; Mateescu and Nguyen 2019). Alarm at the impact technology has on individuals' rights are not new either. For example, renowned academic **Gus Hosein**, has worked at the intersection of technology, human rights, policy and ethics for over twenty-five years and runs Privacy International, a UK-based non-profit founded in 1990 (Privacy International n.d.).

In a dystopian scenario, public authorities in conjunction with powerful private actors can build **surveillance societies, manipulate voters, and control democratic movements and the right to protes**t. To a certain degree, this is already happening, across both democratic and non-democratic states. On top of the examples above, from New York to Delhi to Beijing, police departments are using facial recognition technologies in ways that Amnesty International and other organisations have denounced as forms of mass surveillance, which amplify racist policing and threaten the right to protest and undermine rights to privacy, data protection and freedom of expression (Amnesty International 2021)[5].

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[5] For more information on Amnesty International's call for ban on the use of facial recognition and remote biometric recognition technologies see: https://www.amnesty.org/en/latest/press-release/2021/06/amnesty-international-and-more-than-170-organisations-call-for-a-ban-on-biometric-surveillance/

Furthermore, a 2019 Oxford Internet Institute study warns of the rising numbers of governments and political parties making cynical use of social media algorithms, automation, and big data to **manipulate public opinion** at scale. The research found 47 countries used state-sponsored trolls to attack political opponents or activists (up from 27 countries in 2018). In the same year, 52 countries "used disinformation and media manipulation to mislead users". As one of the report authors, Philip Howard, Director of the Oxford Internet Institute says: "Government agencies and political parties around the world are using social media to spread disinformation and other forms of manipulated media. Although propaganda has always been a part of politics, the wide-ranging scope of these campaigns raises critical concerns for modern democracy." (Bradshaw and Howard 2019).

The power of transhumanism and other narratives

Critical and pessimistic accounts sit alongside powerful techno-utopian narratives, such as that promoted by the **transhumanist movement**. Transhumanism, like technological humanism, also places the human at the heart of technological development, but in order to transcend its limitations. Transhumanism started in the 20th Century but has gained traction as we've moved into the 21st century. The movement defends the development and use of technology and science (especially nanotechnologies, biotechnologies, cognitive sciences, robotics, artificial intelligence and biogenetics) to push beyond human limits and improve human capabilities in three areas which are central to transhumanist thought. These areas are: superintelligence (humans merge with artificial intelligence in a symbiotic relationship), super longevity (old age is defeated) and super wellbeing (suffering is minimised through the editing of our genes). The transhumanist movement is a step towards, a transition from the human to the posthuman. To be resistant to disease and impervious to aging, to have unlimited youth, to reach intellectual heights "far above any current human genius", and to explore the solar system and beyond are some of the aspirations of the movement. In short, the drive to go beyond "the shackles of our Darwinian brains" and "fundamentally revolutionise what it means to be human by means of technological advancement" (British Institute of Posthuman Studies 2013).

The World Transhumanist Association was created in the late 1990s and the relevance and influence the transhumanist movement has cannot be underestimated due to the financial and political influence some of its millionaire tech CEOs have in defining the research, development, and innovation agenda. Silicon Valley sits at the epicentre of the movement (Singularity Hub 2009). Google's Singularity University, which brings together entrepreneurs and business leaders from across the world for training in its **California** campus emerged out of the transhumanist movement and has transhumanism embedded in its values. Google has also founded the secretive company Calico, to research ways to lengthen human lifespans (Beebe and Zachary 2018).

One of the movement's promoters, Elon Musk, said to be the richest man in the world at the time of writing in November 2021, is co-founder of Neuralink, a neurotechnology company based in the United States that specialises in developing brain-computer interfaces (Haverstock 2021). Musk also co-founded SpaceX in 2002 with the ambition of making space travel easier and colonising Mars. Space colonisation is another ambition of the transhumanist movement (Bostrom 2001).

Billionaires Jeff Bezos and Larry Ellison have also invested vast amounts of money into researching anti-ageing treatments. Other major (male, white and wealthy) players in the movement include Ray Kurzweil, one of the tech industry's leading futurists, and director of engineering at Google and Peter Thiel, co-founder and former CEO of PayPal and multi-million-dollar donor to transhumanist causes (Beebe and Zachary 2018).

Across the world from California, in **China**, scholar of Chinese law Rogier Creemers provides an insightful account into the values and ideologies that are behind the country's technological development (Creemers 2020). Systems theory or engineering ("an interdisciplinary field focused on understanding the general properties common to all physical and societal systems and using that knowledge to exert control") is central to the Chinese Communist Party (Hvistendahl 2018). By applying systems theory to challenges, Creemers says the government aims to "not just understand or predict, but also to control, reality" (Ibid.).The Smart Cities Initiative and the social scoring system are two examples of projects based on systems theory philosophy.

China's **Smart Cities Initiative**, which started in the 1990s is as much about improving transportation and air quality as it is about "preserving social stability" (Ibid.). According to Samantha Hoffman, a specialist in the Communist Party's approach to state security, the programme "is tied to long-standing efforts to build a digital surveillance infrastructure and is specifically there for social control reasons" (Ibid.). The more recent **social scoring system**, formally announced in 2014 and still under development, is another example of a project that draws on systems theory. Initially, the system began with a focus on financial creditworthiness, similar to credit scores used in western countries. More recently, policy development for the social credit system has evolved beyond financial trustworthiness to also encompass a broader notion of "trust". Governmental bodies and private actors gather data on individuals, government officials and companies and then the parties are rewarded or punished according to behaviour-based scores. Based on regional pilots, a high score can entail individuals having priority access to finance for example, and low scores can result in people being blacklisted from travelling by train or plane (Donnelly 2021).

As Creemers argues "curiously, Chinese political leaders seem to share the typical Silicon Valley belief that Evgeny Morozov calls 'solutionism': that the right code, algorithms, data sources and applications can solve all of mankind's problems and make life 'frictionless' and problem-free. In both China and California there is a drive to use technology to eliminate imperfections in social life and make everything more efficient, through 'programming' the behaviour of individuals." (Creemers 2020).

Related regulation

The rise of the term technological humanism in political and public discourse is also taking place against a backdrop of regulatory developments and supra-national, state, and local initiatives to address some of the concerns raised by the 4th industrial revolution.

In the geopolitical race for AI, **Europe** strives to carve out a competitive position between the forces of the US and China and has taken the position of developing a "human-centric" AI (European Commission 2020). The Union adopted the General Data Protection Regulation (GDPR) in 2016 and implemented it in 2018 (European Union 2016). The European Commission

presented the Ethics Guidelines for trustworthy AI in 2019 and published a white paper on Artificial Intelligence in 2020 (European Commission 2019, 2020). The goal across the initiatives is to promote research and innovation into the development of new generation technologies while at the same time respecting fundamental rights and ethical principles such as accountability and transparency (European Commission 2018).

At the state level, in 2018 the **Spanish government** passed a new ground-breaking law on personal data protection and digital rights that included the right to be forgotten, a preamble of what was to come in the following years (Jefatura del Estado 2018). The state published the AI national strategy in November 2020 and the Digital Rights Charter in 2021 (La Moncloa 2020, 2021).

While at the regional level, in 2019 **Catalonia** published an updated version of its Digital Rights and Responsibilities Charter followed by the Catalonia.AI strategy in 2020 (Generalitat de Catalunya 2019, 2020).

In 2021, the City Council of **Barcelona**, following the lead of other cities such as Amsterdam, New York, Seattle, and Helsinki published the Estratègia municipal d'algoritmes i dades per a l'impuls ètic de la intel·ligència artificial, which provides a framework for the use of AI in the City Council's public services. Shortly after publishing the strategy, Barcelona, together with Amsterdam, London, and the think tank Barcelona Centre for International Affairs (CIDOB), launched the Global Observatory of Urban AI (GOUAI) (Ajuntament de Barcelona 2021a).

Beyond regulation in Spain and abroad, we are seeing a plethora of initiatives led by a broad range of actors including researchers, civil society, the public sector, or private organisations that aim to address specific concerns. For instance, there are now public algorithm registers being developed, observatories being set up, and companies starting to offer algorithmic auditing. The Barcelona City Council has pledged to build a public register of algorithms used by the municipal administration and the Spanish state has recently launched the Observatory of the Social Impact of Algorithms as part of its AI National Strategy 2021-2023 (Ajuntament de Barcelona 2021d; La Moncloa 2020).

What would it mean for Barcelona to become the capital of technological humanism?

Roughly 80% of the Spanish population lives in urban areas (i.e., areas that have more than 5,000 inhabitants). Large cities like Barcelona have been able to benefit the most from the digital revolution but they are also greatly affected in terms of the disparity and inequalities generated by the 4th industrial revolution.

Cities like Barcelona are playing a key role in building multistakeholder, transnational alliances and bringing key issues to the forefront of the political agenda. Barcelona also has a history of aligning with other cities to champion social causes and lead in the piloting of social innovation and citizen engagement initiatives. For example, Barcelona and New York came together in 2018 to sign a Declaration of Local Governments for the Right to Housing and the Right to the City and launched the BCN-NYC Affordable Housing Challenge, a call for innovative tools and technologies to make housing more affordable. (Smart Cities World 2018) In the same year, Barcelona created — alongside New York and Amsterdam — the Cities Coalition for Digital Rights, an alliance to protect the digital rights of individuals on a global scale: "born with the intention of proposing laws, tools, and resources to protect both residents and visitors." (Ajuntament de Barcelona n.d.b).

"Barcelona has Decidim Barcelona, the Open Data Portal, the first Data Director and takes part in the European DECODE project, which allows city residents to control their personal details. (…) The City Council is also committed to working towards technology sovereignty and has launched a Manifesto for the defence of digital rights." (Ajuntament de Barcelona n.d.b).

In addition to its history in establishing coalitions with other cities and championing the defence of digital rights, the Barcelona City Council, in this case mostly through Laia Bonet, offers **five reasons why Barcelona is an obvious candidate to lead in the promotion of technological humanism** (Cercle d'Economia 2020). The first is that Barcelona itself is already a tech hub: the city is rated as the third-best European city for setting up a start-up and is in the top five for digital talent. The second reason is that Barcelona has an innovation district (Barcelona 22@) and the city's tech firms, entrepreneurs and academic research centres make the city a point of reference in the European digital economy. Thirdly, Barcelona enjoys impressive technological infrastructure (Barcelona Supercomputing Centre's Marenostrum, Sincrotrón Alba, 5G technology) as well as being a vibrant hub for the international ecosystems articulated through the Smart City Expo World Congress and the Mobile World Congress. The fourth reason is that Barcelona, together with New York and Amsterdam is already leading the way in the promotion of digital rights. Finally, the fifth reason is that the city is already home to business schools, universities, and non-academic spaces for reflection and debate on the social impact of technology, for example, ESADE and Digital Future Society.

Becoming the capital of technological humanism: six key reflections

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Over the last three years, the Digital Future Society Think Tank has researched and published several reports on the impact technology has on society, specifically looking at the design, use, and governance of technology. The research has mainly focused on the future of work and the rise of digital platforms, algorithms and the public sector's use of automated decision-making systems, and the relationship between AI, emerging technologies and the climate emergency.

Building on our work, we would like to contribute to the debate on technological humanism and Barcelona's role in fomenting the philosophy behind it with the following reflections.

01

Technology is not a separate entity, external to humans and with its own agency

Ideologies; personal, collective, and cultural values; beliefs; and political and economic interests underlie, permeate, and drive technological developments and how individuals and society define, think about, and relate to, technology. Which technology is developed, and how it is used is not a neutral phenomenon. Likewise, the decision to promote and invest in a certain technology over another is not neutral. For example, investment in technology used in medical devices for women has suffered from a chronic lack of investment (Criado Pérez 2019).

Given the political, financial, and philosophical influence that ideologies such as the transhumanist movement have in the tech industry, what it means to put people at the centre of technological development needs to be unpacked as it will not mean the same for everyone. There is no one common view or understanding of "human". For instance, transhumanism also places the human at the heart of technological development, like technological humanism, but in order to transcend its limitations. Under this school of thought, humans in their current form have not reached their full potential and human wellbeing and flourishing are only attainable through technological transformation.

02

Technological development must be placed within the social, political, and economic context

As Shoshana Zuboff says: "Technology is not and never can be a thing in itself, isolated from economics and society. This means that technological inevitability does not exist. Technologies are always economic means, not ends in themselves" (Zuboff 2019). Technology is largely developed in the private sector, by private actors, with private (paying) user's experiences in mind. How the public sector views and uses technology has been greatly shaped by private sector narratives centred around making services more efficient and cheaper to run rather than to be better for citizens.

In other words, "the implementation of automation has mostly been a two-sided conversation between policymakers and technologists. We have seen how this approach has not taken into consideration the implications of digitising old ways of working and inherited social structures." (Digital Future Society 2020a). The public sector has both a mandate and objectives that the private sector does not have. The ambition, often expressed together or within the concept of technological humanism, of placing people at the centre of technological development, and putting technology at the service of people, comes up against (or clashes with) the economic capitalist system that places not people, but profit and shareholders' interests, at the heart of its commercial interests.
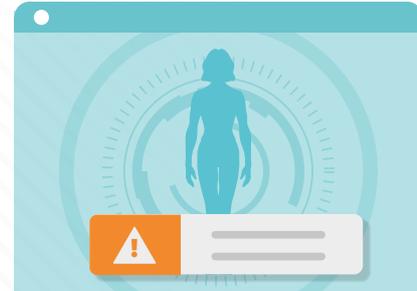
03

There needs to be a wider debate on the role technology plays in our lives and our societies and on the connection between technology, innovation, and development

Points of reflection one and two ask us to disassociate technology from progress to stop us from falling prey to the trap of techno-solutionism or slipping into dystopian fears. Furthermore, we need to ask the question of how technological humanism connects or relates to existing long-standing structural social problems in a city, such as the gap between average income and cost of living, poverty, and social and economic inequality. "Throughout history, free-market capitalism has led to the social issues that techno-capitalism now seeks to address." (The Consilience Project 2021).

Crucially, how does technological humanism, or putting people at the centre of technological development, connect with the social care crisis and other long-standing, complex, structural social problems that require political will, the redistribution of wealth, and non-tech short- mid- and long-term solutions? Technological development does not by default mean progress and innovation does not necessarily need to be technological.
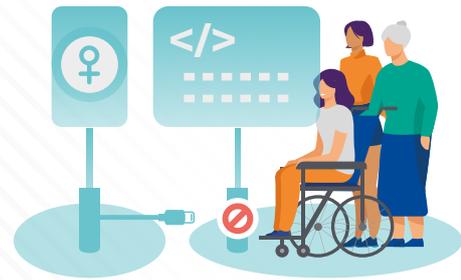
04

There is a need for caution when adopting human-centred narratives to promote technological development

The mandate and mission of the public sector differ to those of the private sector. When we think of the human in technological humanism, we must avoid falling into the trap of using private sector methodologies of user-centric design, based on a general user and intended, for commercial purposes, to provide universal one-size-fits-all solutions that override the diversity of needs and overlook the sources of structural social inequality. As seen in the Digital Future Society Think Tank studies exploring digital welfare systems from a gender perspective, "the emphasis on 'user' in digital government policies serves as a blanket term to ensure inclusivity and hardly, more like never, mentions the diversity of the populations they seek to serve." (Digital Future Society 2020a). Centring technological development around the "human" or "individual" could fall into the same pitfalls as "user" and become blanket terms that undermine the diversity found in the human experience.

"Design mediates so much of our realities and has a tremendous impact on our lives, yet very few of us participate in design processes. In particular, the people who are most adversely affected by design decisions — about visual culture, new technologies, the planning of our communities, or the structure of our political and economic systems — tend to have the least influence on those decisions and how they are made." (Costanza Chock 2020).

When we talk about putting humans at the centre of technological development and Barcelona becoming the capital of technological humanism we need to consider the wide range and diversity of human experiences and needs, based on gender, race, class, age, education, functional capacity, etc.

05

There is a consistent lack of feminist intersectional perspective in the investment, design, and production of technology, and debates around technology

The lack of diversity in the tech industry is well known. A significant proportion of start-ups need venture capital backing and 93% of venture capitalists are men, while research from 2018 found that, on average, female business owners receive less than half the level of investment their male counterparts achieve (Criado Perez 2019). The broader global tech industry, the largest AI conferences, and IT and computing university classrooms all have one thing in common: women are in the minority.

The impact of this lack of diversity is evident as reflected in Caroline Criado Perez's book Invisible Women; Data bias in a world designed for men. For example, women are 47% more likely to be seriously injured in a car crash because a male crash-test dummy (most commonly 1.77m tall and weighing 76kg) is still the standard for testing drivers' seats (Ibid.).

Barcelona City Council has already begun taking steps to close the gender gap in terms of women in the ICT sector. In Barcelona, women occupy only 26.5% of all jobs in the ICT sector with less than 10% of all technical roles being carried out by women (Barcelona Digital Talent 2020; Cercle Tecnològic de Catalunya 2020). To address this gap, the City Council has created a network of 50 female tech experts called Fem Tech, who contributed to the municipal *Mesura de Govern FemTech 2021-2023* (FemTech Governance Measure 2021-2023) (Ajuntament de Barcelona 2021c). In addition, the City Council has also launched Prizes for Gender Balance in the ICT Sector to support tech projects led by women. The municipality also supports other initiatives such as Girls for Change, Data and Women Hackathons, and Empowering Women in Tech (Ajuntament de Barcelona n.d.a). The Mobile World Capital Barcelona Foundation, through its Digital Talent Programme, has launched an initiative to help people at risk of exclusion, especially women, with over 850 hours of training in coding and then further support as they try to find a job at a tech company.

Quantifying and making visible the under-representation of women in the ICT sector and making efforts to address it is a crucial step. However, this approach alone is not enough to address all structural inequalities. "When gender inequality is only discussed in terms of numbers, and sex as a social category becomes too (apparently) easy to trace and target, the risk is of providing simplistic evidence of only one aspect of the reality of inequality, and more complex issues of gender inequality that have to do with less tangible gender norms and structures might be left aside." (Kantola and Lombardo 2017). Instead, we need an intersectional approach, that is, to understand the wider social structures that reproduce patterns of inequality. Or said in other words, to analyse the inequalities, marginalisations, and dominations that the interactions of gender, race, class, and other systems of inequality produce (Ibid.).

06

Start-up and tech hubs are a double-edged sword

Silicon Valley offers a good example of the impact a tech hub can have on a city or a neighbourhood. In Barcelona, the development of the innovation district known as 22@ Barcelona has been heralded as a sign of progress. The plan has transformed an industrial district into a start-up and technology hub that marks the centre of the metropolitan area's digital economy. The concentration of businesses, research centres, and entrepreneurs is considered to be a reference point for Europe. The 22@ Barcelona district is part of the City Council's narrative in support of the city becoming the capital of technological humanism. However, examples from other cities and areas, such as Silicon Valley, show how becoming attractive to start-ups and tech companies does not necessarily have a positive impact on local residents who see their neighbourhood becoming gentrified.

The City Council is making efforts to develop the neighbourhood in a more "inclusive, productive and sustainable" way, re-thinking the urban plan designed back in the year 2000. In 2017, the municipal authorities initiated a civic engagement process called *Repensem el 22@* (Let's rethink 22@) and the reviewed plan now includes more green spaces and twice the amount of social housing available compared to what the urban development plan originally proposed for the area in the year 2000. A transversal gender perspective has also been included in the urban planning design (Ajuntament de Barcelona 2019).

Some of these ambitions are yet to materialise and, even if they do, for some they will not be enough; the local community organised a referendum in June 2021, with 97% of the 3,250 participants rejecting the 22@ Barcelona development plans (Coll 2021). The residents claim the amendments made to the plan to make it *mas barrio* (more of a neighbourhood) are insufficient and they want a new plan created from scratch, with more houses and fewer of the offices and hotels that are at the core of the original plan (López 2021).

Conclusion

> "Local governments from around the world are already proving that national governments, international institutions, and international organisations will be able to **count on cities** as strong allies for achieving sustainable development, the ecological transition, the fight against inequalities, and the defence of human rights."

Ajuntament de Barcelona 2020

It is encouraging to see concerns relating to how technology is impacting society on the political agenda. The term technological humanism can be a useful umbrella term for this purpose as it is open enough to cover a wide range of concerns. It can be a useful political tool for bringing together actors from across the political spectrum and at the state, regional and municipal level, to build momentum around the city of Barcelona in its quest to lead in putting people at the centre of technological development, and technology at the service of people.

City Councils represent public administration at its closest to citizens and, accordingly, can effectively gain perspective on local challenges as and when they emerge while becoming aware of citizens' needs as they arise. However, cities don't exist in a vacuum and if Barcelona is to truly be the capital of technological humanism the significance must also be felt by those living in the 35 other cities that make up the metropolitan area of Barcelona, which are at least equally affected by technology's impact on society.

Furthermore, while currently the broadness of the term is an asset, caution is needed to ensure technological humanism does not become co-opted and emptied of meaning or merely remains in the realm of abstraction without materialising into concrete actions. Overall, definitions of technological humanism refer to "technology" and "technological development", but technology is a very wide concept meaning technological humanism could refer to seemingly endless possibilities.

For the concept to have true value it needs to be translated into actionable initiatives that truly benefit all people and Barcelona needs to lead in their development. Daily concerns and challenges revolve around access to decent work and affordable housing in the city; the social care crisis and burden of domestic and care responsibilities on women; gender-based violence; the feminisation of poverty; accessibility and inclusion for minorities and people with disabilities; digital inclusion; the availability and quality of urban transport; health; education and other services; access to funding and mentoring so entrepreneurship is not a privilege of few; and so on.

People need to be put not only at the centre of technological development but also at the heart of all social development and both individual and collective wellbeing. Let us not forget that technology and technological development is just one part, albeit an important part, of our lived experience. Many structural inequalities will not be resolved by technology — they may even be amplified by it — and so being the capital of technological humanism is also, and especially, about placing humans at the centre of policies that do not look for universal one-size-fits-all solutions but embrace diversity instead. If a technological humanism is to be effective, the needs of the most vulnerable groups in Barcelona need to be placed centre stage as it is they who are most vulnerable to the impact technology can have on society.

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Thank you to the following Digital Future Society Think Tank colleagues for their input and support in the production of this reflection piece:

- **Carina Lopes**, Head of Digital Future Society Think Tank

- **Tanya Álvarez**, Researcher, Digital Future Society Think Tank

Please cite this as:

Digital Future Society (2022) Reflections on what it would mean for Barcelona to become the capital of technological humanism. Spain, Barcelona

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Future Society