doi:10.5477/cis/reis.190.43-62

Digital Society as Seen through The Work Experiences of Software Developers

La sociedad digital a la luz de las experiencias de trabajo de los desarrolladores de software

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Key words

Digital Society
- Lived Experiences
- Analysis of Experiences
- Digitalisation
- Sociology of Work
- Digital Transformation

Abstract

Software developers, most of whom are young and male, play a key role in the digital transformation of our societies. They translate and transfer traditional analogue operations into their corresponding digital counterparts. Despite the importance of this socially creative process, it often goes unnoticed or remains hidden from the eyes of the general public. Applying the analysis of lived experiences method, the study analyses the digital transformation process through the work experiences of software developers. Their life stories shed light on key structural aspects of the digital society and reflect the tensions inherent in this transformative process. At the same time, they reveal the dual or Janus-faced nature of every individual's life experience during a period of profound socio-digital transformation.

Palabras clave

Sociedad digital
- Experiencias de vida
- Análisis de experiencias
- Digitalización
- Sociología del trabajo
- Transformación digital

Resumen

Los desarrolladores de software, en su mayoría jóvenes y varones, desempeñan un papel clave en la transformación digital de nuestras sociedades. Ellos son quienes traducen y transfieren las operaciones analógicas tradicionales a su correspondiente versión digital. A pesar de su importancia, este inmenso proceso de creatividad social suele pasar desapercibido o permanece oculto a los ojos del público en general. Aplicando el método del Análisis de Experiencias de Vida (AEx), el estudio analiza el proceso de transformación digital a través de las experiencias de trabajo de los desarrolladores de software. Los relatos de sus vivencias revelan aspectos estructurales clave de la sociedad digital y reflejan las tensiones inherentes a este proceso transformador. Al mismo tiempo, muestran la naturaleza dual o jánica de la experiencia de vida de todos los individuos en una época de profunda transformación sociodigital.

Citation

Bericat, Eduardo; Acosta, Julia (2025). «Digital Society as Seen through the Work Experiences of Software Developers». *Revista Española de Investigaciones Sociológicas,* 190: 43-62. (doi: 10.5477/cis/reis.190.43-62)

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INTRODUCTION

From the 1960s onwards, philosophers and social scientists observed that modern society could not be explained by its opposition to traditional society alone. This gave rise to new theories of society, such as post-industrial society (Bell, 1973), post-modernity (Lyotard, 1979; Jameson, 1984) and liquid modernity (Bauman, 2003). The new information and communications technology (ICT) emerged as the great transforming forces of that era, leading to the concept of the "information society" (Castells, 1996), which eventually became established as the reference standard for the emerging social system (Bericat, 1996). There also seemed to be close affinity between ICT-based societies and the cultural, social, economic and political features attributed to post-modernity (Bericat, 2003).

However, ICT has continued to evolve, leading to what we now call "digital society" (Lupton, 2014). The first three books published under the title *Digital Sociology* (Orton-Johnson and Prior, 2013; Lupton, 2014; Marres, 2017) saw the light of day approximately a decade ago. In her book, Deborah Lupton (2014: 1) flatly stated that "life is digital", that "we live in a digital society", and that new digital technologies profoundly alter everyday life, social relations, government, commerce, the economy, and the production and dissemination of knowledge. She also noted that "we have reached a point where digital technologies' ubiquity and pervasiveness are such that they have become invisible" (Lupton, 2014: 2).

Digital society has been extensively studied by scientists such as Carr (2010), who analysed the impact of the Internet on cognition, and Schwab (2016), who explored the consequences of robotics and artificial intelligence. Other studies, including those by Pariser (2011) and O'Neil (2016), have focused on the social and ethical implications of algorithms and personalisation on the Internet. Within this new configuration, digital capitalism (Schiller, 1999; Fuchs, 2014) and platform capitalism (Srnicek, 2017) have emerged as systems in which data and digital information processing have been the main economic resources that have transformed both consumption and labour relations (Casilli, 2021; Abdelnour and Medá, 2020). Much recent research on work in the digital society, such as that on the deployment of algorithmic management and workers' resistance to it (Dupuis, 2024; Floros, 2024), has adopted these approaches. There are also many discourses against the fate of social digitalisation, such as Morozov's (2015) criticism of technological solutionism, a discourse that naively claims that technology can solve all our problems by itself.

This study aims to make a specific contribution to the field of digital society research by analysing the work-life experiences of a group of mostly male and young professionals who play a key role in the functioning and digital transformation of organisations and society at large. Coders, computer programmers and software developers are deemed to be the architects and builders of this new society (Thompson, 2019; Himanen, 2004). They are, in effect, in charge of translating and transferring all traditional analogue operations and action systems into their corresponding digital counterpart; this is the essence of digital transformation. It is our understanding that digital transformation is a process that reconfigures social and work structures, and as such, it can be understood through the experiences of these workers.

To visualise this process of analogue-to-digital translation which is weaving the infrastructure of the new society and enabling digital transformation,

a study was required that extended beyond a mere analysis of the objective conditions of work activity. It was necessary to study the nature of this work as seen through the experiences of the workers themselves. The analysis of their experiences would provide objective and subjective parameters to be combined within a single view. It would also make it possible to see the worker not only as a passive subject exposed to multiple external constraints, but also as a subject with agency who incorporated their own subjectivity into their work. Ultimately, the narratives emerging from their experiences would capture the meaning and emotional content implicit in their work tasks and practices, and would enable us to outline a prototype or character of an individual in digital transformation.

While the analysis of the lived experiences of software developers was the first objective of this research, it was not its ultimate goal. The selection of these professionals was justified because, given their key role in this process of social transformation, an analysis of their personal experiences could reveal some key structural features of digital society. In other words, we aimed to analyse the process of digital transformation as seen through the experiences of these professionals, and to provide a sociological reflection on it.

The article is organised in several sections. The first section provides a detailed description of the lived experiences analysis method. This is followed by an ideal-typical synthesis of the work experience of software developers. The third section engages in sociological reflection on the digital society based on the eight experiential foci revealed by the analysis. After proposing three key features of digital society for academic discussion, the article offers some conclusions that link the findings to the current process of social digitisation.

The method: analysis of lived experiences (AEx)

The central argument that Wright Mills made in his classic work *The Sociological Imagination* (1959) was that individual (micro) experiences are inextricably linked to the sociohistorical (macro) context, and therefore, knowledge of individual experiences necessarily leads to knowledge of social structures. Using his terminology, private personal *troubles* are connected to public social *issues*. In short, for Mills, the fundamental task of a sociologist is to make the links between the two levels of reality intelligible.

Although experience as an ontological and epistemological category has given rise to much philosophical reflection, as well as to endless debates motivated by its inherently polysemic nature (Jay, 2005), this is not usually the explicit and primary object of sociological research. So far, with some exceptions, it has not been the focus of important methodological debates in the field either.

The analysis of lived experiences that was used in this research presupposes that the observation and understanding of the experiences of specific individuals offers a distinctive way of understanding social phenomena. This method is inspired by the idea of experience that John Dewey developed in *Art as Experience* (1934). Instead of referring to human existence in general, he referred to “an experience”, i.e. to specific life experiences, lived by specific individuals. Examples included going on a journey, solving a problem, enjoying a work of art, undergoing an illness or having a job interview.

The lives of individuals do not consist of an undifferentiated, continuous and chaotic flow of facts and events without unity, order or meaning: human beings wrap our lives into experiences. As we do when moving to another house, we organise all our

things into boxes containing a diverse set of items that bear a relationship to each other within our life. Each experience, that is, an individual experience, includes facts, objects, people, relationships, ideas, emotions, memories, actions, judgements, accidents, desires, places or dreams that subjectively configure a unified and coherent life space, a timeline that can be captured by a narrative or a story, and a meaning reflected in the emotional content of the experience.

The key methodological features of the analysis of lived experiences are as follows:

- It gives primacy to subjectivity. It studies social reality as it is lived, perceived, thought about, felt, imagined, evaluated or desired by individuals (phenomenological perspective).
- It is based on the observation of concrete social realities, of facts or events that happen to specific people (empiricist principle).
- It considers human experiences as complete and complex life processes, whose nature and dynamics depend on the set of elements they contain (holistic approach).
- It does not approach or prejudge the nature of the phenomena under study using a closed system of pre-established ideas or theories (principle of openness).
- It focuses on those aspects of the world that the subject considers emotionally relevant (individual-centred view).

Many social sciences and sociology researchers have focused their work on the individual and collective study of experiences. Paradigmatic examples include Thompson's (1978) analysis of experience in the formation of the English working class; Collins' (1986, 1990) epistemological value of experience in the empowerment of African American women; Dubet's (2010, 2011) studies of the social experience of young people in the French suburbs; and Rosa's (2019) critical sociology, which places resonant in contrast to alienating experiences. In the field of work, a variety of workers' experiences have been investigated. A classic study is that by Burawoy (1979), who analysed how workers consented to or resisted the labour conditions imposed by capital in factory processes. Similarly, Floros (2024) examined how domestic cleaning platform workers experience and resist algorithmic management. Although our study on work experience is more limited, we believe it is still relevant.

The analysis of lived experiences, inspired by pragmatist and phenomenological approaches, combines methodological orientations from narrative analysis, grounded theory and life history theory. However, it is a distinctive approach, as it brings the focus of sociological research onto the study of specific experiences. Unlike life histories, which usually take a biographical approach, the analysis of lived experiences does not take the life of an individual as its object of study. The article by Charriez (2012) provided an excellent synthesis of the life history method. This method seeks to understand a person or persons by compiling each and every one of the changes that have occurred throughout their lives, combined with an analysis of their own interpretations and life narratives. However, unlike life histories, which are part of the biographical approach, the object of study of the analysis of lived experiences is not people or individuals, but the experiences themselves, whether lived individually or collectively. Although some practical areas use the study of specific experiences, such as consumer experiences (Caru and Cova, 2007) or empathy maps (Gray, Brown and Macanufo, 2010), the analysis of lived experiences does not pursue a commercial or utilitarian purpose, but rather contributes to

the knowledge and understanding of relevant social phenomena.

The methodological design followed included three phases: 1) selecting, contacting and interviewing professionals; 2) constructing a work experience narrative for each worker from the material collected from these interviews; and 3) subsequently analysing these lived narratives in order to extract both an ideal-typical synthesis of their experience and their key experiential focuses.

In total, fifteen IT professionals involved in software development were interviewed and their work experiences reconstructed. Most of them were engineers, programmers or software developers, who had work links with companies of different sizes in Spain and abroad, mainly in the United States and Germany. In this first study, men aged twenty-three to forty were selected. The choice of this type of sample was due to the predominant demographics in this technology sector, where the majority of workers are young men. According to data from the 2023 Stack Overflow Developer Survey, 84.6% of developers were under 44 years old, compared to 49.3% of the total working population in Spain, according to INE data (Q2 2023). In addition, the Stack Overflow Developer Survey in 2022 revealed that 91% of developers in Spain were male. This choice therefore made it possible to accurately capture the typical experiences of this group, which currently lies at the operational core of digital transformation.

Recruitment was carried out via the LinkedIn platform. The Sales Navigator version enabled us to select the sector (software development) and geographic location (Spain). The semi-structured interviews, which lasted between fifty and seventy-five minutes, focused on work experience. They took place between 6 and 22 February 2023.

The working experience of the software developers

In the book *The Corrosion of Character,* Richard Sennett (2000) argued that a mere change in the articulation of time in the new capitalism, compared to the preceding industrial capitalism, has important personal consequences. From a society based on the long term, which made it possible to implement stable personal projects, establish solid social ties and develop a sense of ethics that could be transmitted across generations, there has been a shift to a society built around the short term, in which people are at the mercy of changing winds, weak social ties, lack of trust, lack of commitments, multiple uncertainties, generalised vulnerability and a radical contingency that affects all areas of existence. By contrasting the life experiences of Enrico, a humble cleaner in an inner-city office building, with those of his son Rico, an electrical engineering graduate who enjoyed more than acceptable professional success, Sennett presented the thesis of the corrosion of character. In the temporal conditions of the new capitalism, it is almost impossible to feel or believe that personal experience, now composed of a mere aggregation of disjointed episodes, can articulate a complete and coherent biographical narrative that gives sufficient meaning and consistency to life.

Following Sennett, and recognising the central role they play in the operational core of digital transformation, we analysed the work experiences and personal qualities of software developers. This was based on the understanding that the tensions they experience may reveal some elements of the ethos that characterise contemporary individuals. Therefore, we outline below the ideal Weberian type of work experience of these professionals. In general, given their high qualifications, their high market power, the demand for their services and the high

intellectual content of their tasks, the interviewees' narratives provide an idealised view of the profession. However, beneath the idyllic tone of their aesthetic experiences, major problems and job dissatisfaction loom large.

The ideal-typical experience

The lived work experience of software developers essentially revolves around the task of designing software by using appropriate languages and logical structures, the *code* that underpins the operation of applications[1].

This goal is unattainable by merely performing routine tasks, as there are no recipes or protocols applicable to the design and construction of the software that each customer demands. In general, they have *to create something from nothing*, which requires a great deal of effort, intellectual capacity and ingenuity.

They must find solutions and solve problems (*solution-oriented job*). These tasks are usually as difficult as they are complex, and continuously facing these *challenges* puts them under constant stress.

As the technologies they work with are constantly changing, they need to keep up with new developments literally on a daily basis. They must be self-taught and learn as they go along. The sword of Damocles hanging over their heads is both professional and personal *obsolescence*. The speed of change is such that the fear of being left behind, or stranded, causes them intense uncertainty and anxiety.

[1] This section provides a very concise synthesis of the full analysis of the lived work experiences of these professionals. In order to focus the reader's attention appropriately, all terms referring to conceptual categories or key parameters of this ideal-typical experience are included in italics.

However, their computer skills, as well as their ability to design code using the most advanced technologies, give them *considerable market power* and a great deal of satisfaction derived from the *social utility of their knowledge.*

Achievements are a key element of their experience. The passion they bring to their work, the enthusiasm with which they tackle their tasks and the enjoyment they find in their profession are partly fuelled by the self-esteem and emotional energy 'boosts' they experience from the success of their projects. Achievements drive the commitment and *intrinsic motivation* that is critical in their professional roles, as these occupations demand strong engagement from the worker's subjectivity.

Software developers deeply admire colleagues who have been able to create very complex, yet elegant, simple and functional structures. They feel a kind of awe and devotion to a job well done. They *value excellence.*

The logic of software is an incomprehensible *mystery* to the users of their programmes, but they know very well, and see on a daily basis, that the magic is effective and works. Thanks to apps, digital society citizens can perform a multitude of extremely complex tasks in a simple or quasi-automatic way. When their customers or users recognise the *practical usefulness* and good functioning of their codes, they feel special, important, useful and fulfilled, both personally and professionally.

Being appreciated by customers is a priceless emotional reward. It is also evidences that they understood and addressed the customer's exact requirements successfully, proving that their programmed creature has come to life and operates in the real world. In this way, they feel like *true creators.* Work, far from consisting of the mere performance of a series of instrumental and objective tasks, is transformed into

an authentic *aesthetic experience* (Dewey, 2005), the consummation of which provokes immense joy.

The successful completion of their projects depends strictly on this *mutation* of their work, which now takes on a personal and subjective nature. Software developers approach their work projects from a strong, involved, free, creative and self-determined *I*.

Companies, large or small, encourage the subjectification and individuation of workers by granting them broad *autonomy* over their means of labour, but only provided that they apply them to the ends exogenously set by them. The codes they create must serve the purpose set by some boss or customer (power principle), and they must predetermine sets of operations that fit and function in objective reality (reality principle).

Judging by their accounts, developers are not very aware of the contradiction between worker subjectivity (*autonomy of means*) and external, objective constraints (*heteronomy of ends*). Although they feel they are scientists and artists, they do not enjoy the same freedom in their choice of goals.

Developers assume that, like mathematics and logic, the codes they create are pristine, pure and perfect. But their work experience repeatedly confirms that they are not without *error*. Code failures that can cause serious malfunctions and dire consequences for customers and users are known as incidents. These are urgent problems that need to be tackled immediately and cause them a high level of work-related stress.

These professionals feel like they are *demiurges*. But, like the rest of the gods, they never imagine that they will have to face the *evil* that they themselves, albeit unknowingly, bring into their creatures. The ideal world to which computer codes aspire, like genetic, moral or legal codes, exists only in the mind of their creator.

Despite the strength of their "self", and the hegemonic discourses underpinning job individuation, developers are acutely aware of their *personal limitations* and their inability to tackle projects alone. Hence the appreciation they show for colleagues in their *work team* and for the members of their *professional community*.

Projects are the basic functional units of their socio-productive system. They support their aesthetic experiences, keep intrinsic motivation alive and serve business purposes as an individualised mode of labour market entry that allows the fragmentation of this powerful professional group.

While software developers tend to enjoy good *objective working conditions*, they attach great importance to the *subjective nature of work performance*, which must be in line with their values, desires and demands. The job must offer them the opportunity to experience the work as an aesthetic experience.

Flexibility at work, the sense of freedom, the option of working from home, of feeling respected, of doing truly useful things, the balance between work and personal life, the opportunity to travel, the ability to choose projects they like and are interested in, and the search for meaning are some of their work demands, which they identify as being *life demands*.

In addition to the value they place on work teams, they have a deep *sense of belonging* to a global, open, free and collaborative community of programmers. These individualised workers find in this community the *instrumental support* they need to overcome their professional challenges, in the form of guides, knowledge, techniques and ways of doing things.

In the face of the unease generated by the construction of a world moving towards an unknown destination, this imagined

and ideal community, with its rules, struggles between worldviews, gurus and even prophets, instils in them a *collective sense of mission.*

The weight of *responsibility* that these professionals assume as architects of the new digital society is also palpable in their accounts of their work experiences.

Foci of experience in digital society

Eight foci were identified in the accounts made by the software developers about their work experiences. These can be a starting point from which to sociologically reflect on digital society. The foci of experience are locations where life energies converge from various fields and sources. They emit enough light to illuminate aspects of reality that might otherwise go unnoticed or remain hidden. This is why Dubet (2010) called for a fruitful dialogue between experienced reality and sociological knowledge. Collins (1986: 29) argued that experiential reality provides as a valid source of knowledge for critiquing sociological facts and theories, while "sociological thought offers new ways of seeing that experienced reality". For them, experience and sociological theory are on the same level and complement each other.

The principles of empiricism and openness that characterise the lived experiences method made it possible to capture contradictory elements of experience simultaneously within the same point of the research process, thereby revealing its fundamental duality. The four foci shown on the left in Figure 1 belong to the domain of subjectivity, agency and individuation, and each of them is placed in opposition to each of the four foci on the right, belonging to the domain of objectivity, structure and collectivity. Each subjective focus is appears in opposition to an objective one, and both are constitutive parts of the experience.

The experience of individuals in societies that are experiencing a digital transformation has a *Janus-faced nature*. The metaphor of the god Janus, the god who gave his name to the beginning of the year (January), the two-faced god, the god of doors through which one enters and exits, the god of changes, steps and transformations, the god of beginnings and endings, makes total sense here because all individuals, including software developers, participate and play a role of builders in the creation of a new world.

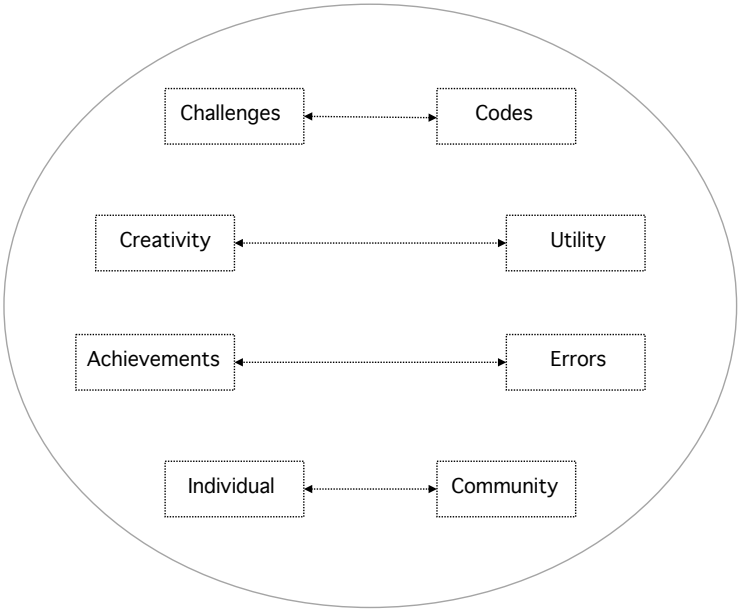
The personal experience of the challenge and the algorithmic code as a new social institution

The Dictionary of the Royal Academy of the Spanish Language (RAE) defines challenge as "an objective or undertaking that is difficult to carry out, which therefore constitutes a stimulus and a test for the person who faces it". Software developers find overcoming a challenge very stimulating; in their case, this takes the form of finding programming solutions that make it possible to implement a predetermined chain of operations (*job-oriented job*). Luis[2] (12/16) "likes challenges the most", "overcoming them gives him complete satisfaction". Juan (11/16) defined his work as "constantly facing new and different challenges". And Alex (5/22) compared his work to mathematics: "there is a problem and you look for a solution".

Without challenges, both life and work slide dangerously down the slope of meaninglessness, monotony, boredom and te-

[2] All names are fictitious. The data in brackets correspond to the coding used in the narratives. The first digit is the code allocated to the respondent, and the second digit to the paragraph number.

FIGURE 1. *Foci of experience of software developers*



Source: Prepared by the authors.

dium. Meeting challenges mitigates the disenchantment of the world denounced by Weber (1905) and masks the destruction of experience anticipated by Benjamin (1973). It aligns with the system's need to foster intrinsic motivations that wholly engage the subject and promotes the exploration of innovative approaches during the socio-digital transformation phase. Overcoming challenges is a key focus of contemporary experience. According to Dubet (2010), the decline of institutions means that individuals have to personally articulate multiple logics of action and face the ensuing challenges. In the same vein, Martuccelli and Santiago (2017) rethought the contemporary individual from the perspective of the sociology of social challenges.

The objective, structural and collective dimension of experience appears as soon as we focus our gaze on the product of work. Codes (algorithms, programmes, platforms) pre-order and predetermine infinite chains of operations of the social system. Software appears to be intangible, but it paradoxically becomes materialised as an extensive and dense network of codes that make up the infrastructure of digital society, a kind of underground sewage system. The overflowing subjectivity of the challenge is poured into the unappealable objectivity of the code, which weaves coercive structures into a peculiar iron cage.

Not only well-known apps and platforms like Netflix, TikTok, Uber, Spotify, Tinder, Photoshop and ChatGPT, but also thousands of other digital operators we use daily in specific activity environments, organise available options, predetermine possible actions, and subtly influence our decisions without our being aware of it. Each of these digital operators, be they algorithms, applications or platforms, introduce changes in

our ways of doing, thinking, feeling, relating, working, consuming, enjoying or suffering.

Applications pre-order and automate complex tasks in order to make them simple. These are the keys to their success, and to the threats they pose. Following Simmel (1911), we would argue that the tragedy of digital culture is that the code, objectively, does things for us that we are personally or subjectively incapable of doing. Algorithms, like so many other social institutions (habits, mental frameworks, stereotypes, socialisation, laws, norms, etc.) regulate our behaviours and operations. For this reason, and also because they remain hidden in veritable black boxes, they should be subject to public scrutiny and social criticism (Gabelas-Barroso, García-Marín and Aparici, 2023). For the time being, only the interests of power penetrate the codes at the time of their creation. Timid social regulation almost always operates *a posteriori*.

The pleasures of the creator and the servitudes of utility

Software developers essentially consider their work to be creative. Alex (5/34) felt that "he is an artist in the computer world", what he does is "an art form because he is creating something from scratch". Pedro (3/19) defined programming as "pure creativity". And Mauro (7/23) confessed that he "doesn't know why creating new things gives him such an intense pleasurable feeling". Pure creativity, that is, producing something totally new out of nothing, provides quasi-mystical experiences and epiphanies comparable to the *aesthetic* experiences characterised by Dewey (1934), the *flow* described by Csikszentmihalyi (1990), or the *resonances* portrayed by Rosa (2019). Developers bring to life previously non-existent logic creatures, codes and algorithms that work in reality. They are right to think of themselves as demiurges, Platonic gods who organise the world.

We understand the pleasures of creativity because research, development and innovation (R&D&I) is an inherent part of the contemporary experience. All vectors of change (technological, cultural, demographic, etc.) make creativity both a functional prerequisite of the system and a moral imperative for citizens. It is not that individuals can be creative or that our creativity is rewarded. The decisive fact is that we are obliged to be creative (Reckwitz, 2017) in all areas of life, including work, leisure, school, social relations, consumption and love.

Creativity is absolutely essential in societies marching towards an unknown destination, such as those undergoing digital transformation. However, in individuals' experience, as explicitly stated by the participating software developers, the need to keep up with the very fast pace of change, and to ensure that their knowledge is continuously updated, causes fear of obsolescence, of being left behind, obsolete, stranded.

Raúl (8/15) articulates this anxiety by using a metaphor: going around a racetrack at full speed in a car that we are building at the same time. It is a double jeopardy. We are not, as Azorín narrated, peaceful cows that indifferently observe a train that crosses at full speed in front of them. We are on that train, in a world that is changing, and we have to change with it. As we do not know its final destination, we have to transform ourselves day by day along with the world, discovering ourselves while forging an adaptive, mobile and non-normative identity.

The *Janus-faced* character of contemporary experience is also manifested in the value and utility that computer knowledge acquires in these times of digital transformation. This knowledge is appreciated pro-

portionally to people's need and ignorance. As developers provide true utility, they are constantly thanked by many social actors, something that makes them feel very good. But it is the peremptory need for their expertise that leads to their knowledge being ultimately subjugated . Utility makes them servants because power is very interested in experts submitting to its requirements and demands. In David Riesman's (1964) terms, they cease to be internally driven and self-piloted (*inner-directed*) and become subject to external goals set forth by others (*other-directed*). The obsession with putting all personal and professional creativity at the service of the customer is the basis of this type of work alienation.

Personal achievements and errors in digitisation processes

Personal achievements are a fundamental focus of the experience of software developers. Matías (6/30) mentioned that:

> It involves building an abstract machine, and when the time comes to see if it works, and all the gears start to turn, and the little ball goes in one side and comes out the other, you say, I've got a little ball to go in one side and come out the other: Hell, my circuit works perfectly!

They experience successes as rituals that recharge both their emotional energy (Collins, 2004) and the passion, commitment, involvement and high degree of self-demand associated with a vocational job. When realising their achievement, these workers are particularly satisfied and proud, and have a sense of inner growth and self-realisation.

For Ruoppa (2019), the idea of a "consummatory overcoming of meaningful challenges", i.e. the perfect completion of an experience, serves as a simple but essential summary of Dewey's aesthetic theory. We argue that, following challenge and creativity, achievement is the third focus of an aesthetic experience. But while job enthusiasm can be very positive, it is also a double-edged sword (Zafra, 2017). For Sebastian:

> There is a mix of what he likes and what he is paid for. He is very happy with what he does. But he thinks that with passion you go out of your mind. In the end, your life is your work.

This is precisely the aim of greedy companies and institutions, which unjustly demand total commitment and involvement from workers.

Each achievement is exactly the same as a breakthrough, one step further in the process of the digital transformation of society. But it would be inappropriate to mistake the logical and functional perfection of the code for goodness, for social, ethical or moral perfection. Developers conceive of errors as incidents because in their experiential context they constrain the evaluative horizon to the issues that emerge when code fails to meet its functional purpose. These incidents, which require urgent intervention because a malfunctioning code collapses the foundations of digital society, come as a great surprise, but also causes them deep disappointment, sadness, shame and guilt.

The errors appear against the backdrop of an implicit axiom that presupposes the perfection of the digital world. The code is a pure mathematical system, fully coherent, seamlessly integrating a set of working operations. However, the stubborn reality of error shows that "evil" also exists in digital society. Beneath the utopian social and institutional consensus lies a digital dystopia. Rafael, a software developer, finally realised that "things can fail, that not everything can be perfect", and comparing his work to that of doctors, he said: "they do what they can, but people die".

In *The Malaise in Culture* Freud questioned himself about the sources of suffering and unhappiness. In addition to its many achievements, beyond operational malfunc-

tions, computer viruses or hackers, the digital transformation is undoubtedly sowing many ills and problems to which we must be alert. We are increasingly aware of, and paying more attention to, the dysfunctions of digital society. But the task of surveillance and control ahead of us is so great that any effort is insufficient.

Individual, group and community: the reality and the illusion of social individuation

The job of software developers is to find computational solutions to problems or challenges that involve the creation, *ex nihilo*, of code that institutes a predetermined structure of processes and operations geared towards fulfilling a pragmatic function.

Developers attach great importance to the character and virtues that make a person an excellent worker. Work is not the mere performance of a series of externally imposed activities, but a personal commitment that the individual acquires by making the task their own. The "I" is closely engaged with both the activity and its outcome.

Alex's statement could serve as a reference, when he compared his work logic to being an hydraulic pickaxe, the demolition hammer used by construction workers: "try it, it doesn't work, try it, change it, try it, change it until it works". Like Don Quixote, they not only face the challenges of the world from a strong "I" and an intense subjectivity, but they themselves invoke the challenges and recreate the experiences with their imagination (in stark contrast to the attitude of his squire Sancho Panza). This power of the individual, characteristic of romantic genius is the fourth component of an aesthetic experience, together with challenge, creativity, and achievement.

We extracted from the software developers' narratives their ideal-typical character, akin to that of a model worker in digital society. This model worker is a pragmatic and versatile person when interacting with their productive and natural environment; helpful and collaborative when interacting with others in their social environment; and creative and enthusiastic in terms of their personal involvement.

At a time when subjectivity is making a comeback and seems to prevail over objectivity, the status of reality achieved by the individual and individuation should not be underestimated. Nevertheless, the experiences analysed show that the hegemonic discourse of a strong, self-determined, solitary, free and autonomous individuality is an illusion. Their experiences reveal three modes for entering the work market and becoming socially integrated: the individual, based on projects; the group, based on work teams; and the community, based on the professional community.

The project is the basic production unit of the sector. As a mechanism, it has the magical power of merging two dual elements that are in principle incompatible. It serves to undertake the objective organisational functions, while subjectively integrating the individuality of the worker. The link between workers and projects is a personal one. Projects have an objective or mission, a beginning and an end, a challenge and a meaning. The project adapts to the contemporary work *ethos*, which aims to turn work into an aesthetic experience shaped by individuality. But the success of this market entry mechanism is also due to the fact that attaching workers so tightly to projects, firstly, makes it difficult for them to become stably integrated into the production organisations for which they work and, secondly, prevents the formation of stable groups of workers, which provides greater control over their demands and performance.

However, the importance that workers attribute to work groups and teams contradicts the individualistic framework that un-

derlies projects. Mauro (7/64) held the collective in high regard: "one person alone is nobody, you know?" He emphasised that "in the world of software, teamwork is essential", "software is too complex to be done by one person". For Miguel (9/34), there seemed to be no room for "going it alone", "the potential increases if you know how to communicate and how to work in a team". Indeed, the work team is an essential instrument in order to meet the challenge that every project poses. It is also the main group in which developers work together, and in which they can share ideas, goals, values and emotions.

Finally, integration into an open, collaborative, generous, free, egalitarian, mutually supportive and open knowledge community is another focus of their work life experience. Guillermo (10/42) highlighted "the role of the knowledge communities that are generated in the sector, where people share their solutions". Sebastian (2/24) reported that he often relied on the open source community, where "code is shared or open licences are used". Mauro (7/62) felt:

> Supported by people who are just as crazy as you are, and who can change the world, who aim to somehow improve some aspect of people's lives.

It is a supportive community in the face of uncertainty, individuation, the speed of technological change and obsolescence. In the context of the moral vacuum surrounding digitalisation, its gurus and prophets offer worldviews, doctrines of salvation and a collective sense of mission linked to the advent of digital society.

Discussion: digital transformation and work structures in the digital society

From the analysis of the work experiences of the software developers, as well as from the narratives derived from the interview material, a framework emerged that could be used to think about digital society. This framework, which we propose for academic discussion, could be shaped by three fundamental parameters: transformation, creativity and performativity.

Although it is undeniable that "life is digital" and that "we live in a digital society", this has not yet been fully established. Digitalisation is advancing at an unstoppable rate, colonising more and more aspects of our existence. Far from being a static phenomenon, digital society is in a state of constant transformation that profoundly alters the social landscape. Global spending on technologies and services linked to digital transformation is estimated to reach USD 3.5 trillion in 2026, an increase of 354 % over 2017 (Rueda, Méndez and Collado, 2023). Computer programming, once limited to specific sectors such as the military or finance, is now an integral part of everyday life (Cocco and Vilarim, 2009). Moreover, digitalisation continues to generate broad social consensus. In 2021, the European Commission presented the *2030 Digital Compass*, which highlighted the potential of digitalisation to address a number of European challenges (EU, 2023). In short, we are in the midst of a vast digital transformation process.

The second parameter, namely, the creativity inherent in this process of social transformation, was clearly demonstrated by the great pioneers of computer programming (Thompson, 2019; Himanen, 2004). However, our analysis of experiences with "normal" programmers in a Spanish city also reveals that creativity is a central element in their work. According to Himanen (2004, 2012), the hacker ethic (in line with the name given to programmers by MIT in the 1960s) was not so much based on the culture of effort or valuing work for its own sake, as it was in the era of the Protestant spirit, but on creative passion. These individuals enjoy interact-

ing with others, striving for excellence, integrating their intelligence into the software and see their work as an art form.

The immanent creative drive of the digital transformation shows that society does not necessarily advance according to a technological determinism towards a predetermined destination. It also demonstrates that aspiring for digitalisation to be a technological solutionism capable of solving all our social problems by itself is a fallacy and an illusion. Morozov rightly pointed to the folly of technological solutionism. The fact that digital transformation as of itself requires human creativity also raises questions about the various proposals for accelerationism. Some, such as Land (2011), supported the intensification of digital capitalism by suggesting that accelerating capitalist and technological development to the point of reaching its limits could trigger a radical transformation that could even result in the dissolution of human subjectivity and the emergence of post-human forms of existence. Others, such as Williams and Srnicek (2013), have taken a more critical stance and proposed accelerating technological development to promote social emancipation and economic justice. Solutionism and technological accelerationism are therefore inescapable keys to the public debate on how to deal with the current momentum of digital capitalism (Jiménez and Renduelles, 2020).

Finally, the accounts of computer programmers' work experiences reveal that all software has a performative character. This means that software not only facilitates action, but behaves as an active agent that shapes and pre-determines social reality. The algorithms and instructions that compose it are constitutive, as they create operational and symbolic structures that organise life in digital society. Several studies have underlined the non-neutrality of algorithms (Bucher, 2018) and highlighted this performativity by demonstrating how they create and organise social realities. In addition to its performative character, technology has a pre-figurative character: digital technologies not only organise current realities, but also pre-figure possible futures, anticipating emerging social interactions and structures. Zuboff (2019) reinforced this idea by arguing that, in the context of surveillance capitalism, digital technologies not only predict but also modify human behaviour, anticipating and shaping future social scenarios. This pre-figurative character implies that technologies not only respond to present needs, but also impose a vision of the future, pre-structuring opportunities for action and social organisation.

In short, digitalisation is transforming society by changing the set of operations by which we conduct our activities. This is key to understanding how the work of software developers actively contributes to the creation and maintenance of digital society's infrastructure. Far from being passive subjects, they play an active role, integrating their subjectivity and creativity into technological development. This participation demonstrates that digital transformation is co-constructed by these workers, who influence the course of digitalisation through their practices and decisions.

In digital society, as in any other social configuration, a distinction can be made between infrastructure, operational core and superstructure. Infrastructurally, digitalisation works with encoded messages that can be instantly circulated over telematic networks; computed by powerful computers; and stored in vast memory media. Operationally, this new society processes information through the three mechanisms that form its central operating core: algorithms, applications and platforms. This core produces both artificial intelligence (AI) and virtual reality (VR). At the superstructural level, the incorporation of this new knowledge and digital representations of the world radically alters the *modus operandi* of both the

social system and the interactivity and intercommunication of all its members.

Since this operational core can work in any sphere of life, and in fact, is silently and progressively laying claim to all of them, sociology and sociologists must pay special attention to the social processes of digitalisation.

Conclusions

This final section will draw three conclusions from the analysis of the work experiences of software developers. This analysis provides an excellent perspective to understand the depth and complexity of the digital transformation process. It has allowed us not only to explore the internal dynamics of work in the digital age, but also to reflect on the wider implications for society as a whole.

Research has revealed that both the ethos and the life experience of contemporary individuals have a dual nature that is fraught with tensions and paradoxes. Thus, faced with the challenges posed by digital transformation, the "I" asserts itself as an agent subject who, through its action and struggle, is capable of changing the world. At the same time, however, the network of codes that the developer creates weaves a dense spider's web that ends up controlling its will through infinite imperceptible predeterminations. On the other hand, although in autonomous creativity people show themselves as imaginative and free beings, in heteronomous creativity, subjected to the principle of utility, even dreams end up being adjusted to the practical purposes of the social order instituted by power. We have also seen that the achievements of individuals in successfully completing the projects entrusted to them provide them with authentic aesthetic experiences. But unease, anxiety, stress, depression and panic come with the errors that are inevitably committed, which open the door to imperfection and can bring "evil" into the world. Finally, although individuation dominates the subjectivity of contemporary individuals, the requirements of the practical order force them to recognise the fragility of the "I", to join work teams and to seek the support of the community.

The fifteen narratives drawn from the experiences of these professionals, each of approximately two and a half thousand words, have demonstrated the value of lived experience analysis for sociological research, and in particular for work-related studies. Digital society not only generates new occupations and jobs, but profoundly transforms the conditions and nature of existing ones. In this context, giving the floor back to the workers themselves, and assuming that they are the only qualified informants capable of showing the true nature, content and meaning of the new jobs they perform, is an unavoidable challenge for knowledge. This study has highlighted subjectivity at work, the central role of projects and the motivating power of achievements and aesthetic experiences. Contrarily, it has also highlighted the stress caused by the imperative of creativity, the deception behind so-called individualisation, as well as the high personal cost that workers pay for their enthusiasm about work.

Finally, in contrast to the exclusively culturalist, informational and relational perspectives, through the analysis of the lived work experiences of the software developers, digital society emerges as a complete system of action that is being institutionalised by leaps and bounds. This new social system is underpinned by a vast and dense network of computer codes, algorithms, applications and platforms that predetermine both its systemic operations and the behaviours of all its members. Similarly to habits, customs, socialisation, norms and legal codes, which reduced contingency in the traditional social order, the web of algo-

rithms now constitutes the real institutional infrastructure of the new digital society.

The charm of digitalisation lies in its efficiency, as it allows very complex tasks to be carried out in a cost-effective, automatic and simple way. But the greatest danger comes from the fact that the black box at its operational core is outside public control and that it drastically and rapidly transforms the way we do everything. The social sciences must therefore redouble their efforts to understand and make clear both life in digital society and the social consequences of any digitalisation process. In short, we should encourage public attention and social alert mechanisms that allow for democratic and critical control to be placed over this profound social transformation.

Given the socio-demographic profile of today's software workers, this process of algorithmic creation is almost entirely dominated by young, male IT professionals, which results in women and older people being excluded from the digital configuration of society. The lived work experiences recorded in this study are therefore the experiences of the young, male developers that the system uses for its development. Regarding this blatant social exclusion, two fundamental tasks remain to be addressed. On the one hand, the work experiences of women and older people involved in the development of software should be analysed. On the other hand, the conditions that explain this occupational segregation should be investigated, as well as the educational and social policies that could eliminate it. In short, it is imperative to find ways of bringing women and older people into the operational core of social digitalisation.

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RECEPTION: February 12, 2024
REVIEW: May 27, 2024
ACCEPTANCE: October 11, 2024