



# From liquid modernity to algorithmic-fluid modernity: Identity, artificial intelligence and human agency in contemporary society

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## Abstract

This article re-examines Zygmunt Bauman's theory of liquid modernity in order to assess its explanatory power in the context of contemporary societies shaped by artificial intelligence, digital platforms and algorithmic infrastructures. Although Bauman's diagnosis of instability, individualisation and the erosion of durable social forms remains highly influential, it does not fully account for the socio-technical mechanisms that are increasingly shaping social experience.

Building on this limitation, the article proposes the concept of algorithmic-fluid modernity as an extension of Bauman's framework. The central argument is that contemporary fluidity is no longer produced exclusively by the weakening of institutions and globalisation, but is mediated by infrastructures that collect data, distribute visibility, anticipate behaviours and influence access to opportunities. The theoretical model is articulated through five interdependent transformations: the shift from social fluidity to infrastructure-organised fluidity; the reconfiguration of identity as a process of continuous algorithmic calibration; the shift in power from coercion to anticipation; the differentiated distribution of vulnerability through algorithmic classification; and the reconceptualization of stability as a socio-technical function.

In response to these transformations, the article introduces the concept of "anchors" as resources of continuity that enable coherence to be maintained in conditions of accelerated change. Anchors are conceptualised across five dimensions: meaning, identity, symbolisation, relational recognition, and the socio-technical conditions of autonomy.

By integrating theories of late modernity, critical studies of the digital society and the literature on the governance of artificial intelligence, the article contributes to the development of a humanistic sociological framework for understanding contemporary transformations. It argues that the fundamental question of the age of artificial intelligence is no longer merely who we are, but under what conditions it remains possible to exercise human autonomy and coherence in an environment that constantly measures, anticipates and influences (perhaps even manipulates) behaviours.

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## 1. Introduction

At the beginning of the 21st century, Zygmunt Bauman's theory of liquid modernity became one of the most influential interpretations of contemporary social transformations. In contrast to "solid" modernity, characterised by stable institutions, relatively predictable social roles and biographies organised around coherent trajectories, liquid modernity describes a world in which social forms lose their durability, and individuals are compelled to constantly reconstruct their identity and the meaning of their existence (Bauman, 2000). In this configuration, insecurity, flexibility and uncertainty are not peripheral phenomena, but become constitutive features of social life. From this perspective, algorithmic-fluid modernity can be interpreted as a mutation that shifts the centre of social integration from the interdependence produced by the division of labour towards the coordination achieved by digital infrastructures. Whilst the organic solidarity described by Durkheim was based on the awareness that individuals depend on one another for society to function (Durkheim, 1960), contemporary society is increasingly organised through systems that mediate social relations without necessarily generating a sense of collective belonging. In this sense, one of the fundamental tensions of the age of artificial intelligence is the possibility that technical integration may increase whilst normative integration diminishes, producing what we might call a trend towards algorithmic anomie, an idea that builds on the classically postulated social anomie (Durkheim, 1951).

Bauman's analysis accurately captured the effects of globalisation, the flexibilization of the labour market and the individualisation of social responsibility. In a now-iconic formulation, he observed that "*the burden of pattern-weaving and the responsibility for failure fall primarily on the individual's shoulders*" (Bauman, 2000), suggesting that the task of constructing a coherent life story is progressively being transferred from institutions to the individual. In this sense, liquid modernity describes a profound shift in the relationship between the individual and society; stability is no longer provided by social structures, but must be reflexively produced by the social actors themselves.

However, more than two decades after the publication of *Liquid Modernity*, the historical conditions underpinning this diagnosis have changed significantly. Contemporary societies are no longer shaped exclusively by processes such as globalisation, capital mobility or labour flexibility, but also by the expansion of digital infrastructures, online platforms and systems based on artificial intelligence. These technologies function not merely as tools for communication or information processing, but as mechanisms that increasingly organise the conditions of social experience. As Jungherr and Schroeder (2023) demonstrate, the impact of artificial intelligence on the public sphere lies not only in its capacity to generate content, but also in the fact that it shapes (and may even manipulate) information environments and influences user behaviour in diverse, polarising ways (Șerban, Pătruț and Nimineț, 2026).

In this context, a fundamental theoretical question arises: to what extent is the concept of liquid modernity still sufficient to explain a world in which instability is no longer merely experienced socially, but is monitored, quantified and organised through algorithmic systems? Whilst Bauman described the dissolution of stable social forms, he

did so in a period preceding the emergence of contemporary infrastructures for mass data collection, predictive systems and algorithmic mechanisms of classification and recommendation. In other words, the theory of liquid modernity captures the condition of fluidity, but offers few tools for understanding how this fluidity is technologically managed today.

Recent literature on the digital society suggests that we are witnessing a structural transformation that goes beyond the mere introduction of new technologies. Zuboff (2019) argues that human experience has become the raw material of a new economic model based on the extraction and monetisation of behavioural data, a process she conceptualises as “surveillance capitalism”. In a similar vein, Couldry and Mejias (2019) contend that data has become the subject of a new form of systematic extraction, comparable, in its scale and consequences, to historical processes of colonisation. At the same time, Crawford (2021) draws attention to the fact that artificial intelligence must be understood not as a neutral tool, but as a socio-material infrastructure composed of power relations, classification processes, forms of invisible labour and mechanisms for the exploitation of resources.

These contributions highlight a significant shift in perspective. Whereas liquid modernity described a world in which individuals had to navigate uncertainty in the absence of stable reference points, contemporary society is characterised by the emergence of systems capable of observing, quantifying and anticipating human behaviour on an unprecedented scale. Fluidity is no longer merely an existential experience for social actors, but has become the subject of continuous processes of measurement, classification and algorithmic intervention.

Nevertheless, the current literature remains fragmented. Analyses inspired by Bauman explain the dynamics of instability and individualisation, but pay little attention to technical infrastructures. Studies on surveillance capitalism and algorithmic governance highlight the mechanisms of data collection and use, but discuss their implications for sociological theories of modernity to a lesser extent. There is, therefore, a lack of conceptual integration between theories of late modernity and critical research on artificial intelligence and the digital society.

Building on this theoretical limitation, the article proposes the concept of algorithmic-fluid modernity. This concept denotes a social condition in which the fluidity described by Bauman is intensified, mediated and organised through algorithmic infrastructures that distribute visibility, anticipate behaviours and influence access to symbolic and material resources. From this perspective, instability is no longer merely a consequence of the weakening of social institutions, but also the result of technical systems that actively intervene in shaping everyday experience.

The central thesis of this article is that artificial intelligence is transforming the mechanisms through which fluidity is experienced and managed. Identity becomes a process of continuous calibration mediated by algorithmic feedback; power takes on predictive and pre-emptive forms; vulnerability is distributed unequally through automated classification processes; and stability can no longer be understood exclusively as an individual resource, but must be conceptualised as a socio-technical function dependent on infrastructures, regulations and institutional conditions.

The article is organised into six sections. The first reconstructs the theoretical framework of “liquid modernity” formulated by Bauman. The second identifies its main limitations in the context of contemporary digital societies. The third develops the model

of “algorithmic-fluid modernity” through five interdependent theses. The fourth introduces the concept of “anchors” as mechanisms for maintaining the continuity of the self in conditions of accelerated change. The fifth discusses the theoretical and normative implications of the proposed model, whilst the final section summarises the contributions, limitations and future directions for research.

## **2. Liquid modernity: instability, freedom and insecurity**

The concept of liquid modernity formulated by Zygmunt Bauman refers to a structural transformation of late modernity in which social forms lose their durability and institutions cease to provide stable frameworks for orientation. In contrast to “solid” modernity, characterised by robust institutions and relatively predictable life trajectories, liquid modernity is defined by volatility, flexibility and uncertainty. Bauman summarises this shift in a now-classic formulation, one that tells us that the social aspects of individuals’ lives can no longer be sustained for long in their traditional forms, much like the behaviour of liquids: *“It is the patterns of dependency and interaction whose turn to be liquefied has now come. They are now malleable to an extent unexperienced by, and unimaginable for, past generations; but like all fluids they do not keep their shape for long”* (Bauman, 2000).

This statement must be understood not as a mere descriptive observation, but as an ontological diagnosis of the modern condition. “Forms” — profession, family, community, identity — no longer persist long enough to structure individual experience. Consequently, stability can no longer be outsourced to institutions, but must be produced by the individual themselves, to a far greater extent than before.

From this perspective, the fluidity described by Bauman can be reinterpreted as the social expression of a broader process of acceleration. Institutions are becoming more fragile not only because norms are changing, but because the speed of change exceeds the capacity of social structures to produce continuity. Thus, the experience of instability stems not only from the disappearance of traditional points of reference, but also from the compression of social time and the need for constant adaptation.

### **2.1. Freedom and insecurity: the paradox of modern autonomy**

One of Bauman’s fundamental contributions lies in highlighting the paradoxical relationship between freedom and insecurity. The expansion of individual freedom does not automatically lead to an increased sense of control, but simultaneously brings about a greater sense of personal responsibility. In liquid modernity, individuals have more options than in the past, but at the same time they become responsible for the consequences of their own choices.

This observation is closely related to Anthony Giddens’s analysis of reflexive identity. For Giddens, the self is no longer a product of tradition, but a project that must be continually constructed and reconstructed. One’s life story becomes a permanent reflexive task, and identity must be sustained through repeated decisions and the constant monitoring of one’s own life trajectory (Giddens, 1991).

In this context, freedom ceases to be exclusively a resource and simultaneously becomes an obligation. The individual is free to choose, but is not free to avoid choosing. This transformation produces a specific form of existential anxiety characteristic of late modernity.

## **2.2. Flexibility and the erosion of biographical continuity**

Whilst Bauman analyses the fluidity of social structures at the macro-social level, Richard Sennett (1998) examines the consequences of this transformation on individuals' everyday experience. In his book *The Corrosion of Character*, Sennett shows that the new flexible capitalism makes it increasingly difficult to construct coherent biographical narratives. Temporary employment relationships, constant reorganisations and the emphasis on adaptability reduce the possibility of developing stable professional identities. For Sennett, the central issue is not flexibility in itself, but its effect on character and personal continuity. Stability, although often criticised as rigidity, fulfils essential functions for the development of trust, responsibility and biographical coherence. In a context of constant change, individuals are forced to repeatedly redefine themselves, which can lead to identity fragmentation and difficulties in maintaining a stable sense of self.

This perspective complements Bauman's analysis and provides an important bridge to contemporary digital society. Whilst economic flexibility undermines the continuity of identity, digital and algorithmic environments will further amplify this trend by introducing permanent mechanisms for assessing and recalibrating behaviour.

## **2.3. Mobility and the networked society**

Another essential dimension of liquid modernity is mobility. For Bauman, the ability to move about, to avoid becoming fixed and to cross borders becomes an important source of power. However, mobility is not evenly distributed, and its benefits are accessible mainly to those who possess sufficient economic and social resources.

This observation can be explored further through a dialogue with Manuel Castells and his theory of the network society. Castells (2010) argues that the dominant logic of contemporary societies is organised around flows of information, capital and communication. Within this framework, power is increasingly associated with the ability to control these flows and to occupy privileged positions within global networks.

Consequently, mobility should not be understood merely as physical movement, but also as differentiated access to the informational and symbolic flows that structure contemporary social life. This observation will prove essential in the analysis of algorithmic infrastructures, where visibility and access to information are distributed through automated mechanisms.

## **2.4. Identity and the problem of continuity**

Perhaps the most profound consequence of liquid modernity concerns the transformation of identity. Whereas in solid modernity identity was underpinned by relatively stable institutions and roles, in liquid modernity it becomes a continuous process of construction and reconstruction.

In this respect, Bauman's analysis aligns with Giddens's concerns regarding reflexivity and with Sennett's observations on the difficulty of constructing coherent biographical narratives. Identity is no longer the result of belonging, but of a constant effort to integrate experiences into a narrative about oneself.

This transformation introduces a fundamental tension. On the one hand, the individual enjoys unprecedented freedom in defining their own identity. On the other hand, it is precisely this freedom that makes identity vulnerable to instability, fragmentation and uncertainty.

### **2.5. Liquid modernity as a premise of algorithmic-fluid modernity**

Viewed retrospectively, Bauman's theory provides a remarkable framework for understanding the contemporary condition. Instability, flexibility, the individualisation of responsibility and the fragility of biographical continuity remain central characteristics of contemporary social life.

However, Bauman (2000), Giddens (1991), Sennett (1998) and Rosa (2013) all developed these analyses before algorithmic infrastructures became the dominant medium of social interaction. They describe processes of fluidity, acceleration and individualisation, but pay little attention to the technical mechanisms through which these processes are organised and managed. Thus, liquid modernity can be viewed today not as a comprehensive description of the present, but as the theoretical foundation from which an analysis of a new social configuration must be developed, one in which fluidity is simultaneously experienced and governed through digital infrastructures. This necessity leads to the concept of algorithmic-fluid modernity, developed in the following sections.

### **3. The Limits of Liquid Modernity in the Context of Artificial Intelligence**

The theory of liquid modernity remains one of the most influential interpretations of contemporary social transformations because it accurately captures the processes of flexibilization, individualisation and institutional fragilization characteristic of late modernity. However, the development of digital infrastructures and artificial intelligence raises the question of whether the mechanisms that produce and organise social fluidity are today the same as those Bauman described in the early 2000s. Paradoxically, the need to reassess the Baumanian framework arises at a time when the very existence of systems such as generative linguistic models was considered unlikely by numerous researchers. Between the 1980s and 2015, influential critics of artificial intelligence, such as Chomsky (2012), Brooks (1991), Marcus (2018), Hofstadter (1999) and Tallis (2011), argued that statistical and computational approaches would be unable to replicate the cognitive flexibility, contextual understanding or reasoning capacity characteristic of human intelligence. The rapid development of generative systems over the last decade has not resolved all these philosophical and cognitive controversies, but it has radically altered the social conditions in which they are discussed. Today, the central issue is no longer whether artificial intelligence can have a significant impact on social life, but rather how these effects reshape identity, power, vulnerability and autonomy. In this sense, the emergence of AI represents not merely a technological innovation, but a sociological event that compels us to reconsider the concepts used to understand contemporary modernity.

The argument of this section is that liquid modernity has not been superseded, but rather reconfigured. Fluidity continues to be a defining characteristic of contemporary experience, yet it is increasingly mediated, organised and harnessed through algorithmic infrastructures. In this sense, the limitations of Bauman's model do not stem from its being flawed, but from the fact that it was formulated before the emergence of the socio-technical systems that have now become central to the organisation of social life.

Five major limitations are discussed below, which justify the need for a conceptual extension.

### **3.1. The first limitation: fluidity without infrastructure**

In Bauman's analysis, fluidity appears primarily as an effect of the weakening of modern institutions, globalisation and the increased mobility of capital and individuals. The world becomes fluid because the structures that provided continuity are losing their stability. This interpretation accurately captures the social transformations of the late 20th century, but pays little attention to the technical infrastructures that mediate social experience.

Contemporary literature suggests that this omission is becoming increasingly problematic. Manuel Castells argued as early as the beginning of the 2000s that contemporary societies are organised around information networks that restructure the relationships between time, space and power (Castells, 2010). In a similar vein, Gillespie (2018) shows that digital platforms do not function merely as channels of communication, but as actors that organise and filter the visibility of information.

This perspective is explicitly developed by Jungherr and Schroeder (2023), who argue that the impact of artificial intelligence on the public sphere must be understood primarily through its capacity to shape information environments and user behaviours.

Consequently, contemporary fluidity no longer represents merely the effect of the weakening of social structures, but also the product of digital infrastructures that organise the conditions of information circulation and social interaction.

### **3.2. The second limitation: the absence of a data economy**

In the theory of liquid modernity, insecurity and individualisation are interpreted primarily as effects of the economic and institutional transformations associated with globalisation. However, Bauman lacks the conceptual tools necessary to analyse the emergence of the data economy.

Over the last two decades, data has become one of the main economic resources of digital capitalism. (Zuboff, 2019) argues that human experience is transformed into a source of behavioural data that can be used to build predictive models and generate profit.

To put it even more radically, Couldry and Mejias (2019b) contend that we are witnessing the emergence of a new regime of social extraction, which they describe as "data colonialism". According to the authors, what is being extracted is no longer territories or natural resources, but the very everyday experience of individuals.

This perspective introduces a dimension absent in Bauman's work: fluidity is not merely experienced, but is also monetised.

### **3.3. The third limitation: power is no longer merely flexible, but predictive**

In Bauman's model, power is associated with the capacity for mobility and the avoidance of territorial constraints.

However, the development of artificial intelligence introduces a different form of exercising power. Michel Foucault described disciplinary societies as systems geared towards the surveillance and correction of behaviour (Foucault, 1977). Gilles Deleuze (1991) later suggested that these are being replaced by "societies of control", in which the regulation of behaviour becomes continuous. Artificial intelligence extends this logic. Predictive systems no longer react to behaviour that has already occurred, but seek to anticipate future behaviour and even to influence or manipulate it.

Pasquale (2015) describes these processes as forms of power exercised through algorithmic opacity, whilst Zuboff (2019) argues that economic value is generated

precisely through the ability to anticipate behaviour. Thus, contemporary power becomes pre-emptive. It seeks to intervene before an action takes place. The implications of this transformation are profound. Whereas the disciplinary societies described by Foucault intervened in behaviours that had already occurred, contemporary predictive systems tend to operate on behavioural probabilities. In this sense, power becomes pre-emptive: it seeks to identify, classify and influence actions before they take place. This logic is reminiscent of the scenario depicted in the film *Minority Report* (2002), in which individuals are punished for anticipated crimes rather than for acts actually committed. Although contemporary societies are far removed from such an extreme form of predictive governance, the development of systems for predictive policing, credit scoring, risk assessment and algorithmic profiling indicates that intervention in the probable future has already become an important component of the exercise of power (Amoore, 2013; Pasquale, 2015; Zuboff, 2019).

#### **3.4. The fourth limitation: the universalisation of the experience of fluidity**

One of the most significant criticisms that can be levelled at Bauman is his tendency to describe fluidity as an almost universal experience. Contemporary literature, however, shows that algorithmic infrastructures distribute opportunities and vulnerabilities in a profoundly unequal manner. Benjamin (2019), Noble (2018), O'Neil (2016) and Crawford (2021) all demonstrate that algorithmic systems are not neutral. They reflect and amplify pre-existing social structures. In this sense, fluidity is not experienced uniformly. For some individuals, it means flexibility and opportunity. For others, it means classification, monitoring and exclusion. This observation transforms fluidity from a general condition into a socially stratified experience.

#### **3.5. The fifth limitation: the lack of a theory of socio-technical autonomy**

Perhaps the most significant limitation of Bauman's model is that the response to instability remains largely an individual one. In the context of AI, this solution becomes insufficient. The issue is no longer merely whether the individual can construct meaning and continuity, but whether the technological environment allows them to do so. This is where the literature on Digital Humanism becomes relevant.

Nida-Rümelin and Weidenfeld (2022) argue that autonomy cannot be reduced to an individual psychological trait, but depends on the institutional and technological architectures that make the exercise of freedom possible. Similarly, the UNESCO (2021) recommendation on the ethics of artificial intelligence and European legislation on AI are based on the idea that autonomy must be protected through institutional and technological mechanisms. Consequently, stability and autonomy can no longer be understood exclusively as individual resources. They become emergent properties of the relationship between the individual and the socio-technical infrastructure.

At this point, it is important to clarify that the argument of this article does not consist of a mere technological update of the theory of liquid modernity. If the transformations discussed were merely the emergence of new digital tools within a fundamentally unchanged social context, Bauman's concept would suffice. Our proposal, however, is based on the idea that algorithmic infrastructures alter the very logic of the production and organisation of social fluidity. In Bauman's analysis, instability stems primarily from the weakening of institutions, the flexibilization of social relations and the transfer of responsibility to the individual. In contemporary societies, fluidity is no longer merely experienced, but also measured, classified, anticipated and shaped by technical

systems capable of collecting data and influencing behaviour. In other words, whilst liquid modernity describes the dissolution of stable forms, algorithmic-fluid modernity describes the emergence of infrastructures that organise and manage this dissolution. It is precisely this transformation that justifies the need for a distinct concept, capable of capturing the shift from fluidity as an effect of social change to fluidity as an object of socio-technical governance.

Taken together, these five limitations indicate that the central issue is not the abandonment of the theory of liquid modernity, but its extension. Bauman described a world in which social forms lose their stability; contemporary literature shows that this instability is today organised through infrastructures capable of observing, classifying and anticipating behaviours. Consequently, fluidity can no longer be understood exclusively as an effect of social transformations, but must also be analysed as the result of socio-technical processes that are restructuring the conditions of contemporary experience. This transformation justifies the introduction of the concept of algorithmic-fluid modernity, developed in the following section.

At the same time, these transformations have given rise to new theoretical approaches concerned with the relationship between technology, autonomy and human dignity. Among these, Digital Humanism proposes a perspective that rejects both uncritical technological optimism and pessimistic technological determinism. In its core tenets, Digital Humanism argues that the development of artificial intelligence must be assessed in terms of its capacity to support autonomy, democratic deliberation and human control over digital infrastructures (Nida-Rümelin & Weidenfeld, 2022). This approach is relevant to the present analysis because it shifts the focus from technological performance to the social conditions that enable the exercise of human agency. From this perspective, the fundamental question is no longer merely how artificial intelligence transforms society, but also what resources enable individuals and communities to maintain their continuity and autonomy in an environment characterised by increasing algorithmic influence.

#### **4. Algorithmic-fluid modernity: a theoretical model of organised fluidity**

Building on the limitations identified in the previous section, we propose the concept of algorithmic-fluid modernity to describe a new configuration of the relationship between the individual, society and technology.

The concept does not signify a radical break with liquid modernity, but rather a transformation of the mechanisms through which fluidity is produced and managed. Whilst in Bauman's model instability resulted mainly from the weakening of institutions and the flexibilization of social structures, in algorithmic-fluid modernity it is simultaneously organised and amplified by digital infrastructures that monitor, classify and anticipate behaviours.

The concept of algorithmic-fluid modernity should not be understood in a strictly technical sense. The term 'algorithmic' is used here as an umbrella term for the whole range of contemporary computational infrastructures — including artificial intelligence, predictive systems, digital platforms, datafication mechanisms and automated decision-making architectures — which organise, monitor and influence social processes. Consequently, the concept does not refer to a particular technology, but to a historical form of socio-technical mediation of fluidity characteristic of the digital age.

Consequently, the fundamental difference does not lie in the existence of fluidity, but in the fact that it becomes the object of continuous processes of computation, prediction and intervention.

The proposed model can be summarised in five interdependent theses describing the successive transformation of social infrastructures, identity, power, vulnerability and autonomy.

#### **4.1. Thesis I: From social fluidity to infrastructure-organised fluidity**

The first transformation concerns the very nature of fluidity. In Bauman's analysis, fluidity arises from the fragilisation of stable social forms. In contemporary society, however, fluidity coexists with extremely stable technical infrastructures. Nick Srnicek describes digital platforms as infrastructures that actively organise and coordinate social interaction (Srnicek, 2016). Similarly, José van Dijck shows that platforms do not merely facilitate communication, but shape the norms of sociality and self-presentation (van Dijck, 2013). This observation introduces a significant shift: everyday experience may seem fluid and unstable, yet it is underpinned by persistent technical systems that collect data, filter information and distribute visibility. Consequently, contemporary fluidity no longer represents merely the absence of stability, but the result of an infrastructure that produces and manages this instability. In this sense, algorithmic-fluid modernity can be defined as a condition in which the mobility of experience is underpinned by the stability of the infrastructures that organise it.

#### **4.2. Thesis II: From reflexive identity to algorithmically calibrated identity**

If digital infrastructures reorganise the conditions of social experience, then they inevitably transform the processes of identity construction as well. Giddens (1991) described modern identity as a reflexive project. The individual must construct and maintain a coherent narrative about themselves in a world that is constantly changing. Nowadays, however, this reflexivity is mediated by systems that provide constant feedback on behaviour. Lupton (2016) shows that individuals are encouraged to continuously monitor, measure and optimise themselves. Social media, health apps, rating systems and professional platforms produce ongoing representations of behaviour that become an integral part of the experience of the self. Identity is no longer constructed exclusively through reflection, but also through reactions to digital representations of oneself. From this perspective, the self becomes a recursive system that continually adapts to its own algorithmic traces.

#### **4.3. Thesis III: From Discipline to Pre-emption**

The transformation of identity is accompanied by a transformation of power. Foucault (1977) described disciplinary modernity as a system based on surveillance and correction. The individual was observed, assessed and sanctioned after the behaviour had taken place. In algorithmic-fluid modernity, a different logic emerges. Predictive systems do not merely track what individuals have done, but seek to estimate what they are likely to do. Antoinette Rouvroy and Thomas Berns (2013) describe this phenomenon through the concept of "algorithmic governmentality", a mode of governance that operates through statistical correlations and the anticipation of behaviour. Power no longer reacts to behaviour. It intervenes in probabilities. Thus, control becomes anticipatory.

#### **4.4. Thesis IV: Vulnerability becomes algorithmically distributed**

In Bauman's model, insecurity is a general characteristic of liquid modernity. In algorithmic-fluid modernity, insecurity is distributed unevenly. Data, classifications and predictive systems do not affect all groups equally. Benjamin (2019), Noble (2018), O'Neil (2016) and Eubanks (2018) demonstrate that algorithmic infrastructures tend to reproduce and amplify existing social hierarchies or inequalities. Eubanks (2018) shows that automated systems used in the social services sector often have disproportionate effects on vulnerable populations. Thus, an individual's position in society influences not only their access to resources, but also the way in which they are perceived, assessed and classified by algorithmic systems. Vulnerability therefore becomes an emergent property of the relationship between social position and technological infrastructure.

#### **4.5. Thesis V: Stability becomes a socio-technical function**

The four previous transformations converge towards a fundamental conclusion. If infrastructures organise experience, if identity is algorithmically calibrated, if power operates predictively and if vulnerability is distributed differentially, then stability can no longer be understood exclusively as an individual resource. It becomes dependent on the socio-technical conditions that make the exercise of autonomy possible. Floridi (2014) argues that the contemporary digital environment must be understood as a new "infosphere", within which individuals and technologies coexist and influence one another. Similarly, Nida-Rümelin and Weidenfeld (2022) argue that autonomy is conditioned by the social and technological architectures within which it is exercised. Consequently, stability can no longer be defined exclusively in psychological terms. It becomes a relational property, produced by the interaction between the individual, institutions and technological infrastructures.

This conclusion paves the way for the introduction of the concept of "anchors", developed in the following section.

### **5. Anchors: resources of continuity in an algorithmic-fluid world**

If algorithmic-fluid modernity is characterised by organised infrastructural instability, identities undergoing a continuous process of recalibration, and predictive forms of power exercise, then the central issue becomes that of continuity. How can the coherence of the self be maintained in an environment that favours constant adaptation, immediate reaction and the fragmentation of experience?

To answer this question, the article proposes the concept of "anchors". Anchors can be defined as resources of continuity that enable individuals and groups to maintain orientation, coherence and the capacity for action in conditions of accelerated change. They are neither forms of rigidity nor attempts to return to the stability of solid modernity. On the contrary, their function is to make adaptation possible without the dissolution of identity. In the sense used in this article, anchors do not constitute a new theory of personality, nor a normative ideal regarding how individuals ought to live. They are proposed as a multilevel analytical framework designed to investigate the conditions that make it possible to maintain continuity in contexts characterised by rapid change. The concept operates simultaneously at the micro level (resources of meaning, identity and symbolisation), at the meso level (relationships of recognition and belonging) and at the macro level (institutional and socio-technical infrastructures of autonomy). From this perspective, anchors do not denote fixed individual traits, but rather relational mechanisms

that connect social actors with the cultural, social and technological environments in which they operate. It is precisely because of this multilevel structure that the concept can be used both for theoretical interpretation and for empirical operationalisation through the analysis of the stability of values, narrative continuity, relations of recognition and the institutional conditions that underpin autonomy.

The concept of anchors should not be understood merely as an interpretative tool, but also as a basis for developing an empirical research programme. The five types of anchors proposed here can be operationalised as observable dimensions of continuity within the conditions of algorithmic-fluid modernity. They can be investigated using qualitative methods, through the analysis of biographical narratives and adaptation strategies, as well as through quantitative methods, by developing scales to measure resources of meaning, identity stability, capacity for symbolisation, the density of recognition relationships, and the socio-technical conditions of autonomy. In this form, anchors represent not only a theoretical concept, but also a potential conceptual framework for empirical research into the relationship between autonomy, vulnerability and social transformation in the age of artificial intelligence.

From this perspective, anchors do not oppose fluidity, but rather limit its disorganising effects. The concept can be operationalised through five complementary dimensions: anchors of meaning, anchors of identity, anchors of symbolisation, relational anchors and socio-technical anchors.

### **5.1. Anchors of meaning: finding one's bearings in a world of unlimited options**

One of the defining characteristics of liquid and algorithmically fluid modernity is the proliferation of choices. Although this diversification is frequently associated with freedom, it can lead to increased difficulties in finding one's bearings and, ultimately, even in making a choice. In the absence of relatively stable evaluation criteria, individuals risk reacting predominantly to the most visible, most recent stimuli, or those perceived to offer the most attractive social rewards. In digital environments, this tendency is amplified by engagement mechanisms, which favour immediate attention at the expense of long-term orientation. From this perspective, 'anchors of meaning' represent those value frameworks that enable experience to be integrated in a relatively coherent direction. They provide coherent criteria for selecting goals and interpreting events.

This dimension can be linked to Viktor Frankl's logotherapy, which argues that meaning functions as the organising principle of human existence. As Frankl states: "*Those who have a way to live can bear almost any how*" (Frankl, 2006). In sociological terms, anchors of meaning can be observed through the stability of stated values, the consistency of decisions and the ability to maintain long-term projects despite contextual changes.

Digital modernity is defined by the continuous expansion of choices. Whilst the proliferation of options has long been regarded as an indicator of individual freedom, contemporary literature suggests that the abundance of alternatives can lead to increased difficulties in finding one's bearings. In the context of constant information overload, the central issue is no longer access to information, but the ability to select, prioritise and integrate experiences into a coherent framework of meaning. (Simon, 1971) observed, even in the early stages of the information society, that "*an abundance of information creates a poverty of attention*", anticipating one of the fundamental tensions of the contemporary digital environment. In the same vein, Schwartz (2004) shows that the proliferation of options can lead to anxiety, indecision and difficulties in making

decisions, a phenomenon known as the “paradox of choice”. This conclusion conflicts with the rational actor model, which is dominant in numerous economic and public choice theories, according to which individuals benefit from the continuous expansion of the set of available options. Schwartz (2004), however, suggests that, beyond a certain threshold, the proliferation of alternatives can diminish one’s ability to navigate choices and transform formal freedom of choice into a source of uncertainty and decision-making stress. In this sense, the central problem facing contemporary societies is no longer a lack of options, but the ability to select and prioritise within a context characterised by an abundance of information and almost limitless possibilities. Thus, in a world characterised by almost limitless possibilities, orientation becomes an increasingly valuable social and psychological resource.

This difficulty is amplified by the algorithmic infrastructures that organise the visibility of information and shape everyday experience. Digital platforms do not offer equal access to all available options, but prioritise certain content through mechanisms of recommendation, personalisation and engagement optimisation. Zuboff (2019) argues that these processes form part of an economic model based on predicting and influencing human behaviour, whilst Couldry and Mejias (2019b) describe the transformation of social experience into a continuous source of economically exploitable data. Complementarily, Boyd (2014) shows that digital media influence processes of socialisation and identity construction through architectures of visibility that shape what individuals consider relevant, legitimate or worthy of attention. From this perspective, orientation is no longer exclusively an individual process, but one mediated by technical systems that filter and prioritise information before it becomes the subject of personal reflection.

In the context of the development of generative artificial intelligence, this issue takes on new dimensions. Bender et al. (2021) draw attention to the risk that large-scale language models may reproduce and amplify patterns present in the data on which they are trained, providing users with responses that may appear coherent without necessarily reflecting a genuine understanding of reality. In an environment where information is increasingly mediated by automated systems, the individual’s ability to critically evaluate sources and integrate knowledge into their own perspective becomes essential. In Floridi’s (2014) terms, this transformation reflects the emergence of an “infosphere” in which identity, knowledge and social relations are deeply interconnected with digital infrastructures.

In these circumstances, anchors of meaning take on particular importance, as they provide relatively stable criteria for interpreting experiences and evaluating available options. From the perspective of logotherapy, Frankl (2006) argues that meaning functions as an organising principle of human existence, enabling the individual to maintain a coherent direction even in contexts marked by uncertainty and change. This perspective can be placed in dialogue with the theory of social acceleration proposed by Rosa (2013), which describes the increasing difficulty of maintaining stable relationships with the world in a context characterised by rapid technological and social transformations. Thus, anchors of meaning can be understood as mechanisms of symbolic stabilisation that enable identity continuity and the maintenance of long-term projects in an environment dominated by fluidity, informational fragmentation and algorithmic mediation.

## **5.2. Anchors of identity: the narrative continuity of the self**

If meaning provides direction, identity provides continuity. In Anthony Giddens's theory, identity is not defined by fixed traits, but by the individual's ability to maintain a coherent narrative about the self (Giddens, 1991). In algorithmic-fluid modernity, this continuity is constantly disrupted by digital feedback, social comparison and the pressure to continually recalibrate. Under these conditions, identity anchors represent the mechanisms through which individuals manage to integrate change into a coherent story about themselves. They do not imply absolute stability. On the contrary, they enable continuity amidst change.

This idea is also consistent with the theory of narrative identity developed by Paul Ricoeur, who distinguishes between identity as permanence and identity as narrative continuity (Ricoeur, 1992). In this sense, what needs to be preserved is not the content of identity, but the ability to integrate transformations into a comprehensible narrative.

This challenge relating to identity is amplified by digital media, which expose individuals to a continuous flow of feedback, social comparison and public evaluation. Analysing the experience of socialisation within digital networks, Boyd (2014) shows that identity is constructed under conditions of permanent visibility, in which the audience multiplies, becomes difficult to define and is often invisible. Similarly, Turkle (2011) observes that digital technologies encourage multiple self-presentations and the continuous negotiation of one's personal image, amplifying the tension between authenticity and social performance. In this context, identity risks becoming fragmented into a succession of adaptations to the demands of the environment, and narrative continuity becomes more difficult to maintain. Identity anchors can thus be understood as mechanisms that enable the integration of these diverse experiences and roles into a relatively coherent representation of the self, without eliminating the flexibility required to adapt to different contexts (Turkle, 2011; Boyd, 2014).

The development of artificial intelligence and algorithmic infrastructures introduces a new dimension to this issue. Floridi (2014) argues that individuals are increasingly living in an "infosphere" in which online and offline existence are deeply interconnected, and identity is distributed across multiple digital representations. From a complementary perspective, Coeckelbergh (2022) argues that artificial intelligence systems are not merely technical tools, but actively participate in shaping the way in which people understand themselves and are recognised and accepted by others. Furthermore, the critical analysis proposed by Bender et al. (2021) suggests that generative language models can influence the processes of interpreting and validating individual experiences by producing seemingly coherent and meaningful discourses about reality. In these circumstances, identity anchors no longer serve merely to ensure an individual's biographical continuity, but also to maintain the reflexive autonomy necessary to critically integrate the influences exerted by platforms, algorithms and artificial intelligence systems into a coherent and meaningful personal narrative (Floridi, 2014; Bender et al., 2021; Coeckelbergh, 2022).

## **5.3. Anchors of symbolisation: transforming experience into meaning**

A central feature of digital media is the acceleration of information flows. The problem is not merely the vast quantity of information available, but the difficulty of transforming part of it into meaningful experience. Hartmut Rosa argues that social acceleration often leads to difficulties in integrating with and resonating with the world (Rosa, 2019). Similarly, Wilfred Bion describes symbolisation as the process by which raw experiences are transformed into elaborated psychic content (Bion, 2023). In the

absence of this process, experiences tend to be lived in a fragmentary manner and reactivated impulsively. From this perspective, anchors of symbolisation represent the mechanisms through which individuals transform information flows into interpretable and integrated experiences. These include reflection, dialogue, autobiographical writing, narrative practice and other forms of symbolic elaboration. In an age dominated by rapid reactions and the accelerated consumption of information, the capacity for symbolisation becomes an essential condition for autonomy.

A central feature of contemporary digital environments is the unprecedented acceleration of information flows. The fundamental challenge no longer lies in accessing information, but in the ability to transform this abundance of stimuli into meaningful and integrated experiences. From a sociological perspective, Rosa (2019) argues that social acceleration reduces the possibilities for building relationships of “resonance” with the world, favouring superficial and transient interactions at the expense of deep processes of understanding and integration. At a psychological level, this idea can be placed in dialogue with Bion’s (2023) theory, which describes symbolisation as the process through which raw experiences, emotions and immediate impressions are transformed into elaborate and reflectable psychic content. In the absence of this process, experience risks remaining fragmentary, being lived out through impulsive reactions or unreflective repetitions. From this perspective, the anchors of symbolisation represent the mechanisms that enable the transformation of continuous flows of information into intelligible experiences, open to reflection and biographical integration.

Narrative plays an essential role in this process. (Bruner, 1990) argues that people do not organise their experience exclusively through logical reasoning, but through the construction of stories that lend coherence and meaning to the events they have experienced. Experiences become intelligible when they are placed within a narrative structure that connects them to the individual’s past, present and future. This perspective is clearly illustrated by the research of Frank (2022), which shows that recounting difficult experiences, including illness and suffering, facilitates the reconstruction of meaning and the reintegration of disruptive experiences into a coherent identity. Thus, practices such as autobiographical writing, reflective dialogue, personal journaling or other forms of narrative elaboration can be understood as anchors of symbolisation that enable the transformation of scattered experiences into resources for self-knowledge and existential orientation.

The importance of these processes becomes even more evident in a context dominated by instant communication and rapid reactions. Turkle (2015) observes that digital media tend to reduce the spaces necessary for reflection and deep conversation, favouring immediate responses and the accelerated consumption of information. At the same time, the development of artificial intelligence systems introduces new forms of mediation of experience and interpretative processes. Coeckelbergh (2022) argues that AI-based technologies are playing an increasingly significant role in the production and organisation of social meaning, influencing the way in which individuals understand the world and relate to their own experience. In these circumstances, symbolic anchors are no longer merely mechanisms of psychological elaboration, but also essential resources for maintaining reflexive autonomy. The ability to critically interpret information, construct one’s own narratives and transform experiences into personal meanings thus becomes a fundamental condition for preserving individual agency in a society characterised by acceleration, digitalisation and algorithmic mediation.

#### **5.4. Relational anchors: recognition beyond performance**

In contemporary societies, social recognition is increasingly mediated by digital platforms and algorithmic systems that transform visibility into a central resource. The number of followers, the reactions received, reputation scores or various forms of digital evaluation become seemingly objective indicators of individual value. However, these forms of validation are often volatile, dependent on algorithmic changes and the dynamics of collective attention. From the perspective of recognition theory, Honneth (1996) argues that the development of a stable identity depends on enduring experiences of recognition based on love, respect and social appreciation. These forms of recognition cannot be reduced to mere performance evaluations, as they constitute the foundation of self-confidence, self-respect and a sense of personal worth.

However, the transformations brought about by digital media are altering the conditions under which recognition is achieved and maintained. Analysing technology-mediated relationships, Turkle (2011) observes that individuals are more connected than ever before, yet often experience more fragile forms of closeness and interpersonal support. Similarly, Boyd (2014) shows that social networks amplify the importance of public visibility and constant feedback in the processes of identity construction. Under these circumstances, social recognition can become dependent on immediate and quantifiable reactions, which encourages a focus on performance and the strategic presentation of the self. Recognition thus risks being confused with popularity, and personal worth with the level of public exposure.

This trend is reinforced by the logic of digital platforms and the expansion of artificial intelligence-based systems. Gillespie (2014) shows that algorithms significantly influence the distribution of attention and visibility in the digital public sphere, whilst Nieborg and Poell (2018) describe the transformation of social activities into measurable and comparable indicators. Coeckelbergh (2020) observe that this logic is extended by AI systems that classify, evaluate and prioritise individuals based on automated criteria, contributing to the consolidation of a culture of quantified performance. In this context, relational anchors become particularly important as they offer experiences of recognition that do not depend exclusively on success, productivity or visibility. Family, friendship, professional communities and affinity groups thus function as spaces for identity stabilisation, in which the individual can experience acceptance and continuity beyond the fluctuations of social and algorithmic evaluation.

#### **5.5. Socio-technical anchors: infrastructures of autonomy**

The first four types of anchors concern individual and relational resources. However, in algorithmic-fluid modernity, continuity cannot be sustained solely through individual effort. It also depends on the architecture of the technological environment.

In the literature on Digital Humanism, autonomy is understood as the result of a relationship between the individual and the institutional conditions that make the exercise of freedom possible (Nida-Rümelin & Weidenfeld, 2022). This perspective aligns with the recommendations (UNESCO, 2021b) on the ethics of artificial intelligence, which emphasise transparency, accountability and human oversight.

Socio-technical anchors are the institutional mechanisms that reduce the asymmetry between users and algorithmic systems. They include algorithmic transparency, the right to an explanation, the auditing of AI systems, data protection, mechanisms for challenging automated decisions, and regulations such as the AI Act. These mechanisms do not

eliminate fluidity, but they reduce the risk of it turning into a form of dependency or structural vulnerability.

The first four types of anchors describe resources through which individuals can maintain their sense of direction, identity continuity, capacity for symbolisation and relational stability. However, in algorithmic-fluid modernity, autonomy cannot be understood solely as the result of individual competencies. It also depends on the characteristics of the technological and institutional infrastructures within which people live and make decisions. From the perspective of Digital Humanism, Nida-Rümelin and Weidenfeld (2022) argue that human freedom is always conditioned by the social and technological environment that makes its exercise possible. Similarly, the Recommendation (UNESCO, 2021a) on the ethics of artificial intelligence emphasises that the development and use of AI systems must respect the principles of transparency, accountability, human oversight and the protection of fundamental rights, precisely to prevent technology from becoming a source of dependence and control.

From this perspective, autonomy becomes an emergent property of the relationship between the individual and the digital infrastructures that shape their choices. (Floridi et al., 2018), as part of the *AI4People* initiative, demonstrate that artificial intelligence systems must be designed in such a way as to remain intelligible, explainable and compatible with democratic values. In the same vein, Dignum (2019) argues that the development of responsible artificial intelligence requires the existence of institutional audit, control and appeal mechanisms to prevent the complete transfer of responsibility to automated systems. These approaches are based on the premise that autonomy is threatened not only by direct constraints, but also by subtle processes of influence, classification and recommendation that can shape behaviour without users being fully aware of it.

Consequently, socio-technical anchors are those mechanisms that reduce the power asymmetry between users and algorithmic systems. The literature on algorithmic ethics highlights the fact that the opacity of automated processes can limit individuals' ability to understand and challenge the decisions that affect them (Mittelstadt et al., 2016). For this reason, algorithmic transparency, the right to an explanation, the protection of personal data, independent auditing of AI systems and the existence of mechanisms for challenging automated decisions are considered essential components of a democratic infrastructure of autonomy (Wachter et al., 2016). Recent regulations, such as the AI Act, reflect precisely this focus on establishing institutional conditions that enable individuals to exercise their freedom and capacity for self-determination within a social environment characterised by an ever-increasing algorithmic influence. Thus, socio-technical anchors do not eliminate the fluidity characteristic of contemporary society, but they reduce the likelihood of this fluidity turning into a form of structural vulnerability or technological dependence.

### **5.6. Towards an integrative model of continuity**

Taken together, the five types of anchors describe complementary levels of human continuity. Anchors of meaning provide direction; those of identity provide narrative continuity. Anchors of symbolisation transform experience into meaning; relational anchors provide recognition and a sense of belonging; socio-technical anchors create the structural conditions for autonomy.

This framework allows us to reframe a central question for the age of artificial intelligence. The issue is no longer whether change can be avoided. It is becoming

inevitable. The question is whether individuals and communities have sufficient resources to transform fluidity into a coherent process of adaptation, rather than an experience of dispersion and fragmentation.

## **6. Discussions: from liquid modernity to algorithmic-fluid modernity**

The article began with a seemingly simple question: to what extent can Zygmunt Bauman's theory of liquid modernity still explain the social conditions of a world shaped by artificial intelligence and digital infrastructures? The analysis suggests that the answer should not be framed in terms of a replacement of Bauman's model, but rather an extension of it. Modernity has not become any less liquid; on the contrary, the fluidity described by Bauman has intensified and become more widespread. However, the mechanisms that produce and organise it have undergone profound changes.

The central contribution of this article lies in the argument that contemporary fluidity can no longer be understood exclusively as an effect of the weakening of institutions and the individualisation of responsibility. At present, it is increasingly mediated by algorithmic infrastructures that collect data, distribute visibility, shape opportunities and anticipate behaviours. In this sense, fluidity is no longer merely an existential condition of social actors, but also an object of technical organisation.

This observation leads to an important initial theoretical reformulation. In Bauman's theory, the relationship between stability and change is analysed primarily in relation to institutions and social structures. In the model proposed here, this relationship must be extended to include digital infrastructures. Thus, the instability of individual experience coexists with the stability of technical systems that persist, record and organise behaviours. The paradox of contemporary society lies not only in the fluidity of social relations, but in the fact that this fluidity is underpinned by extremely stable and persistent infrastructures.

### **6.1. From reflexivity to calibration**

A second implication concerns the understanding of identity. In the sociological tradition represented by Giddens (1991), identity is conceptualised as a reflexive project. The continuity of the self depends on the individual's ability to construct and maintain a coherent narrative about their own existence. Algorithmic-fluid modernity does not negate this perspective, but introduces an additional element: reflexivity is increasingly mediated by systems that generate constant feedback on behaviour.

In this context, identity is no longer merely narrative, but also metric. It is influenced by scores, ratings, recommendations, performance indicators and other forms of digital quantification. This transformation suggests that the processes of self-construction must be analysed not only through the lens of individual reflection, but also in relation to the informational architectures within which they take place.

From this perspective, one of the contributions of the concept of algorithmic-fluid modernity is the shift in emphasis from reflexivity to calibration. The individual no longer merely reflects on their own experience, but continuously adjusts their behaviour in relation to the algorithmic representations of that experience.

### **6.2. From discipline to anticipation**

The proposed model also entails a reformulation of the concept of power. In the Foucauldian tradition, modern power operates primarily through discipline, surveillance and normalisation. Recent literature on artificial intelligence and algorithmic governance

suggests, however, that these mechanisms are complemented by forms of intervention oriented towards the future.

Predictive systems used in recruitment, lending, advertising, healthcare or security are not limited to assessing behaviours that have already occurred. They seek to estimate probabilities and influence behaviours before they occur. Consequently, social control is no longer exercised exclusively retrospectively, but also prospectively. This transformation can be understood as a shift from discipline to anticipation, from sanctioning behaviour to shaping behavioural probabilities. Power no longer operates solely on individuals' actions, but also on their possibilities for action.

### **6.3. Vulnerability as a socio-technical product**

Another major implication concerns the distribution of vulnerability. The theory of liquid modernity highlights insecurity as a widespread experience of late modernity. Contemporary research on algorithms and artificial intelligence shows, however, that this insecurity is not distributed evenly. Visibility, access to resources, the likelihood of being monitored or categorised, and the ability to challenge automated decisions vary significantly between social groups.

This observation suggests that vulnerability cannot be reduced to an individual characteristic. It must be understood as the result of the interaction between social position and the technological infrastructures that organise access to opportunities and resources. In this sense, contemporary inequality is not merely economic or cultural, but also algorithmic.

### **6.4. Reconsidering autonomy**

Perhaps the most important implication of the proposed model concerns the concept of autonomy. In liquid modernity, autonomy is often associated with the individual's ability to navigate uncertainty and construct meaning in conditions of instability. In the context of artificial intelligence, this perspective becomes insufficient. The capacity to make autonomous decisions depends increasingly on the socio-technical conditions within which individuals act.

This observation leads to a shift in perspective. Autonomy can no longer be understood exclusively as an individual attribute. It must be conceptualised as a relational property, dependent on infrastructure, regulations, transparency mechanisms and effective possibilities for control over the technologies used.

From this perspective, the concept of "anchors" takes on a central role. Anchors are not merely psychological resources for adaptation, but mechanisms that enable continuity to be maintained in an environment characterised by acceleration, quantification and algorithmic intervention. They form the bridge between individual experience and the structural conditions of autonomy.

### **6.5. Implications for social theory**

Viewed as a whole, algorithmic-fluid modernity can be understood as an attempt to integrate three theoretical traditions that have evolved relatively independently.

The first is the tradition of late modernity theories represented by Bauman, Beck, Giddens and Rosa, concerned with instability, individualisation and acceleration. The second is the critical literature on digital society and data capitalism, represented by Zuboff, Couldry, Mejias, Srnicek and van Dijck. The third is the literature on the ethics

and governance of artificial intelligence, represented by Crawford, Benjamin, Noble, Floridi and Nida-Rümelin.

The concept of algorithmic-fluid modernity seeks to create a common ground between these perspectives, based on the idea that contemporary transformations cannot be adequately explained either exclusively through the theory of modernity or exclusively through the study of digital technologies. They must be analysed as processes that are simultaneously social, cultural, economic and technical.

## **6.6. A new sociological question**

Ultimately, the article suggests that the fundamental question of contemporary sociology is no longer merely how individuals adapt to change. This question has dominated reflection on modernity from Weber and Simmel to Giddens and Bauman.

In the age of artificial intelligence, the question becomes more specific: How can the continuity of identity and the autonomy of action be maintained in an environment that not only changes constantly, but also continuously measures, classifies and anticipates human behaviour?

This reformulation is perhaps the most significant theoretical implication of the concept of algorithmic-fluid modernity and justifies the need to develop analytical frameworks capable of simultaneously integrating social fluidity and the algorithmic infrastructures that organise it.

## **7. Contributions, limitations and future research directions**

### **7.1. Theoretical contributions**

The main contribution of this article lies in the development of the concept of algorithmic-fluid modernity as an extension of Zygmunt Bauman's theory of liquid modernity. The article argues that the transformations associated with artificial intelligence and digital infrastructures do not merely represent a new technological phase of late modernity, but alter the mechanisms through which social fluidity is produced, organised and experienced. From this perspective, the contribution lies not in abandoning the Baumanian framework, but in reinterpreting it in the light of contemporary processes of datafication, platformization and algorithmic governance. The proposed concept suggests that contemporary fluidity must be understood simultaneously as a social experience and as the effect of technical infrastructures that collect data, distribute visibility, classify individuals and anticipate behaviours.

A second contribution lies in the integration of theoretical traditions that are often analysed separately. The proposed model brings into dialogue theories of late modernity (Bauman, Beck, Giddens, Rosa), critical literature on the digital society and data capitalism (Zuboff, Couldry, Mejias, Srnicek, van Dijck), and research on the ethics and governance of artificial intelligence (Crawford, Floridi, Benjamin, Noble, Nida-Rümelin). This integration enables the analysis of contemporary transformations as processes that are simultaneously social, cultural, economic and technical.

A third contribution is the introduction of the concept of "anchors" as an analytical model of continuity within the context of algorithmic-fluid modernity. Unlike approaches that treat autonomy exclusively as an individual property or solely as an effect of social structures, the concept of "anchors" proposes a relational perspective on stability. Identity continuity is analysed as the result of the interaction between resources of meaning, narrative processes of the self, the capacity for symbolisation, relations of recognition, and the socio-technical conditions of autonomy. In this sense, "anchors" are not merely a

normative metaphor, but a conceptual framework amenable to operationalisation and empirical investigation.

## **7.2. Limitations**

Despite its integrative ambition, this article has a number of limitations that must be explicitly acknowledged. Firstly, the proposed model is predominantly theoretical and conceptual in nature. The arguments developed are based on the synthesis and reinterpretation of existing literature, without being supported by an empirical programme of its own. For this reason, the relationships between the proposed concepts must be regarded as theoretical hypotheses requiring validation through further empirical research. Secondly, the concept of algorithmic-fluid modernity operates at a high level of abstraction. Although this approach allows for the identification of common structural trends, it risks reducing the diversity of social experiences and the variations generated by different cultural, economic and political contexts. The degree of algorithmization of social life and the impact of digital infrastructures differ significantly across regions, institutions and social groups. Thirdly, the article adopts a critical perspective on the relationship between artificial intelligence and society. Although this choice is justified by the analysed literature, it pays less attention to the potential emancipatory effects of digital technologies, such as expanding access to knowledge, facilitating social participation or fostering new forms of cooperation and solidarity. Fourthly, the concept of “anchors” remains, at this stage, a theoretical construct still under development. Although analytical dimensions and indicators have been proposed, the precise distinction between the different types of anchors and the relationships between them requires further clarification and empirical testing.

## **7.3. Future research directions**

The limitations identified open up several relevant avenues for research. A first avenue concerns the empirical operationalisation of the concept of anchors. Future research could investigate how different forms of anchoring contribute to maintaining identity continuity in environments characterised by intense digital mediation. Longitudinal studies, narrative interviews or mixed-methods approaches could assess the relationship between anchors and individuals’ ability to manage accelerated change. A second direction concerns a differentiated analysis of algorithmic-fluid modernity. If vulnerability is distributed unequally, then it is necessary to investigate how the experience of algorithmic fluidity varies according to social class, gender, age, educational level, occupation or access to technology. Such an approach would allow for the empirical evaluation of the hypothesis regarding the stratified distribution of vulnerability. A third research direction concerns the relationship between artificial intelligence and processes of identity construction. Future studies could analyse how recommendation systems, social platforms, self-tracking tools and AI-based applications influence processes of reflexivity, self-monitoring and narrative continuity. A fourth area focuses on assessing the effects of regulation and algorithmic governance mechanisms. Comparative research could investigate the extent to which instruments such as the AI Act, algorithmic audits, decision-making transparency or the right to an explanation effectively contribute to strengthening autonomy and reducing the vulnerabilities associated with automated systems.

A particularly promising avenue lies in the development of an integrated empirical model of anchors. From this perspective, the five proposed dimensions can be treated as latent variables of socio-identity continuity and investigated using factor validation models, structural equation models or longitudinal analyses. Such an approach would allow for the assessment of the relationships between exposure to algorithmic influences, the level of anchoring resources, and various social and psychological outcomes, such as perceived autonomy, resilience, civic participation or subjective well-being. In this way, the concept of algorithmic-fluid modernity can transcend its status as a purely theoretical construct and generate a cumulative research programme on the conditions of human continuity in contemporary digital societies.

Finally, the proposed model can be extended to applied fields such as education, health, work, public communication or political participation. Analysing how algorithmic-fluid modernity restructures these spheres represents a promising direction for the development of a sociology of artificial intelligence that is grounded in both theory and empirical evidence.

### **Conclusions**

Zygmunt Bauman's theory of liquid modernity provided one of the most influential frameworks for understanding the instability, individualisation and fragility of the social forms' characteristic of late modernity. More than two decades after its publication, many of his observations remain remarkably relevant. Institutions continue to lose their ability to provide stable points of reference, identities are constructed reflexively, and individuals are faced with the need to adapt constantly to contexts undergoing continuous transformation.

Nevertheless, the contemporary conditions of social change can no longer be explained exclusively through the processes described by Bauman. The development of digital infrastructures, the expansion of artificial intelligence and the transformation of data into an economic and political resource have profoundly altered the mechanisms through which fluidity is produced and experienced. Instability is no longer merely the consequence of the weakening of social structures, but is increasingly mediated, organised and capitalised upon through algorithmic systems that monitor, classify and anticipate behaviours.

Building on this observation, the article proposed the concept of algorithmic-fluid modernity as an extension of the Baumanian framework. The concept describes a social configuration in which fluidity is not merely experienced existentially, but becomes the object of continuous processes of computation, prediction and technological intervention. In this new configuration, digital infrastructures organise the conditions of social experience; identity is subject to ongoing processes of algorithmic calibration and power takes on predictive and pre-emptive forms and vulnerability is distributed differentially through automated mechanisms of classification and evaluation.

The analysis has shown that one of the most significant consequences of this transformation is the need to reconsider autonomy and the continuity of identity. Whilst in liquid modernity stability was primarily the responsibility of the individual, in algorithmic-fluid modernity it depends on the interaction between personal resources, social relationships and the socio-technical conditions that make the exercise of freedom possible. From this perspective, the article introduced the concept of 'anchors' as an analytical model of continuity. Anchors of meaning, identity, symbolisation, relationships and socio-technical factors have been conceptualised as mechanisms that enable

coherence to be maintained in the face of accelerated change and ubiquitous technological mediation.

The article's main contribution thus lies in establishing a theoretical bridge between the sociology of late modernity, critical studies of the digital society, and the literature on the ethics and governance of artificial intelligence. Rather than treating technology as a factor external to society or modernity as a process independent of digital infrastructures, the proposed model suggests that contemporary transformations must be analysed as processes that are simultaneously social, cultural, economic and technical.

Ultimately, the article argues that the central question of the age of artificial intelligence is no longer merely who we are in a constantly changing world, but under what conditions we can remain autonomous and consistently human in an environment that continuously observes, measures, classifies and anticipates our behaviour. From this perspective, the fundamental challenge of the present is not the elimination of fluidity, but the development of the social, relational and institutional conditions that enable its transformation into a form of reflexive adaptation, rather than an experience of fragmentation and disorientation.

#### **Authors contributions. CRediT (Contributor Roles Taxonomy)**

R.M.D. was involved in the literature review, conceptualisation, analysis and interpretation, and drafting conclusions. A.N.D. was involved in the literature review, conceptualisation, analysis and interpretation, and drafting conclusions.

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