

MINORS' CONTRACTUAL AUTONOMY IN THE DIGITAL ECOSYSTEM: LEGAL PROTECTION AND SELF-DETERMINATION IN PRIVATE LAW

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Abstract

This paper examines the contractual autonomy of minors in the digital ecosystem through the lens of private law. As children increasingly engage with algorithm-driven platforms and standardised digital contracts, traditional legal doctrines—such as legal capacity, consent, and fairness—face new challenges. The study investigates how private law can respond to the structural vulnerabilities of minors without undermining their evolving autonomy. It proposes enhanced protective mechanisms, including simplified disclosures, assisted validation, and withdrawal rights. At the same time, it calls for a rethinking of core contractual categories in light of technological realities. The analysis supports the development of a digital private law framework that ensures effective protection while enabling minors' responsible participation in online markets.

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Keywords

Contractual Capacity – Digital Private Law – Minors’ Autonomy – Consumer Protection – Algorithmic Contracting

1. Minors, Contracts and Technology: at the Origins of a New Systemic Conflict

The convergence between contract law, digital technologies and the evolving status of minors generates a structural tension within private law: traditional civil law categories are confronted in markets designed to bypass awareness and negotiation. This tension is not merely doctrinal but systemic, calling for an ontological redefinition of the contract in the digital age.

The issue of contractual autonomy for minors in the digital environment raises a dual normative concern: on the one hand, there is a clear need to ensure effective protection against abuse¹, manipulation², and excessive commercial exposure³; on the other hand, it is equally important to recognise and promote a gradual legal self-

¹ Sonia Livingstone and Amanda Third, ‘Children and young people’s rights in the digital age: An emerging agenda’ (2017) 19 (5) NMS 657.

² Queenette Odudu, ‘Technological Solutions for Protecting Children From Online Predators: Current Trends and Future Directions’ (2024) SSRN 2, 11.

³ Jenny Radesky, Yolanda Reid Chassiakos, Nusheen Ameenuddin and Dipesh Navsaria, ‘Digital Advertising to Children’ (2020) 146 (1) AAP 1, 3.

determination of minors⁴, in line with the evolving capacities principle set forth in the United Nations Convention on the Rights of the Child⁵. Private law is thus confronted with the task of reassessing its traditional categories—such as legal capacity, consent validity, and contractual liability⁶—in light of the specificities of digital interactions and the increasingly active role of minors within the digital ecosystem⁷.

This convergence reveals a structural misalignment between the normative premises of classical private law—such as informed consent, symmetrical negotiation, and relational reciprocity—and the realities of algorithmically mediated, opaque, and unilaterally imposed digital contracting. When these dynamics intersect with the specific vulnerabilities of minors, the contract becomes a site of systemic legal conflict: not merely an exception or anomaly, but a disruptive phenomenon that calls for an ontological redefinition of key civil law categories.

2. Capacity and Contractual Autonomy of Minors

In civil law systems such as the Italian and German ones, legal capacity constitutes a fundamental prerequisite to be able to fully exercise own private autonomy.

Article 2 of the Italian Civil Code establishes that full legal and contractual capacity is acquired upon reaching the age of majority, subject to specific exceptions for acts of ordinary administration or for emancipated minors⁸. This framework reflects a

⁴ Yves Poullet, 'e-Youth before its judges – Legal protection of minors in cyberspace' (2011) 27 (1) CLSR 6, 10.

⁵ UN General Assembly, *Convention on the Rights of the Child* (20 November 1989) UNTS vol 1577, 3, art 5 and art 12 / Srishti Virat, 'Child Rights in the Digital Environment' (2023) V (1) IJLLR 1 / John Tobin, *The UN Convention on the Rights of the Child: A Commentary* (OUP 2019).

⁶ Reiner Schulze and Dirk Staudenmayer, *Digital Revolution: Challenges for Contract Law in Practice* (1st edn, Nomos 2016).

⁷ Halla Holmarsdottir, Idunn Seland and Christer Hyggen, 'How Can We Understand the Everyday Digital Lives of Children and Young People?' in Halla Holmarsdottir, Idunn Seland, Christer Hyggen and Maria Roth (eds), *Understanding The Everyday Digital Lives of Children and Young People* (PM 2024).

⁸ Francesco Rossi, *Capacità e incapacità* (ESI 2018).

protective model that assumes minors lack the maturity and awareness needed to undertake binding obligations. This approach finds parallels in German civil law jurisdiction, where §104 BGB provides that minors under the age of seven lack legal capacity entirely, and where contracts entered into by minors over seven are only valid with prior consent or subsequent approval by their legal representatives under §§107–109 BGB. This model, while conceptually aligned with the Italian system, enshrines a stricter mechanism of formal parental control.

As a general rule, minors are not entitled to validly conclude contracts except through their legal representatives or, where expressly provided, with judicial or parental authorisation⁹. However, this traditional model is increasingly challenged by the realities of digital interaction, in which minors regularly engage in activities that involve contractual relationships: accepting standard terms and conditions, making microtransactions, purchasing virtual goods, or subscribing to online services¹⁰.

Against this backdrop, one must question whether the codified approach to contractual capacity remains adequate to address the diffuse, low-value, and high-frequency contractual practices that characterise the digital economy¹¹. The rigidity of the current legal regime may lead to dysfunctional outcomes, such as the systematic denial of contractual autonomy even in instances where the minor demonstrates sufficient understanding of the nature and consequences of the act. This calls for a reinterpretation of contractual capacity, not merely as a formal, age-based requirement, but rather as a functional competence to self-determine responsibly in specific contexts¹².

⁹ Guido Alpa, *Il contratto in generale. Principi e problema* (2nd edn, Giuffrè 2021).

¹⁰ Fabio Bravo, 'I contratti a distanza e il mercato digitale' in Guido Alpa and Antonio Catricalà (eds), *Diritto dei consumatori* (IM 2016).

¹¹ Sandra Calvert, 'Children as Consumers: Advertising and Marketing' (2008) 18 (1) TFC 205.

¹² By analogy, the partition between *petits enfants* and *grands enfants*, relevant to health, self-determination and parental responsibility, would be applicable. See: Pasquale Stanzione, 'Persona minore di età e salute, diritto all'autodeterminazione, responsabilità genitoriale' (2013) CDC 21.

This perspective aligns with the CRC's principle of "evolving capacity", which calls for respecting minors' autonomy in proportion to their maturity¹³.

Private law reveals a tension between protectionist and enabling models, the former focused on vulnerability, the latter on graduated autonomy¹⁴.

A further dimension that requires analysis concerns the relationship between contractual capacity and the meritoriousness of interests pursued¹⁵. Pursuant to Article 1322 c.c., contractual autonomy may depend on whether the transaction serves a meritorious purpose¹⁶.

3. The Digital Contract: New Challenges

The emergence of the digital contract marks a paradigmatic shift in the architecture of contractual relations¹⁷. Rather than serving as a negotiated exchange between parties of equal standing, the contract is increasingly embedded in digital infrastructures that automate consent, obfuscate content, and preclude authentic deliberation¹⁸.

Civil law has historically developed the architecture of contract on the basis of principles such as freedom of contract, equality between the parties, and the

¹³ Sara Rigazio, 'A Dynamic Perspective on the Minor's Right to Self Determination: the Lesson from the Convention on the Rights of the Child (Crc) and Some Practical Insights from the Entertainment Industry' (2019) C.E.L.B. 3.

¹⁴ Lucilla Gatt and Ilaria Amelia Caggiano, 'Consumers and Digital Environments as a Structural Vulnerability Relationship' (2022) 2 EJPLT 13 / Samuel Issacharoff, 'Disclosure, Agents, and Consumer Protection' (2011) 167 (1) JITE 65.

¹⁵ Rosmawani Che Hashim and Farah Nini Dusuki, 'Minors and Their Incapacity to Contract: A Revisit' (2023) 14 (1) UUMJLS 269.

¹⁶ Mariella Lamicela, 'La riscoperta del giudizio di meritevolezza ex art. 1322,co.2, c.c. tra squilibrio e irrazionalità dello scambio contrattuale' (2016) 5 (2) RG 195.

¹⁷ Tatyana Skvortsova et al., 'Development of Digitization in Contractual Relations' (2019) 87 LNNS 1025.

¹⁸ Nancy Kim, 'Digital Contracts' (2019) 75 TBL 1683.

significance of informed consent¹⁹. Yet, in the digital environment, these principles are often stripped of their substantive content. Consent is often expressed by clicking pre-ticked boxes, without individual negotiation²⁰; general terms and conditions are unilaterally drafted, typically lengthy and technical, thereby rendering comprehension difficult even for the average adult user²¹; recommendation algorithms and personalised targeting mechanisms shape user choices, undermining the authenticity of contractual will²².

These criticalities become exponentially more pronounced when minors are involved. Their increased cognitive, emotional, and relational vulnerability exposes them to the risk of entering into binding obligations without a full awareness of the attendant legal and economic consequences²³. In such cases, the digital contract risks degenerating into an instrument that constrains, rather than expresses, individual autonomy²⁴. Private law must thus confront the adequacy of digital contracts in satisfying the requirements of conscious formation of consent, pre-contractual good faith, and equity in the performance of obligations²⁵.

Moreover, the mass and serial nature of digital contracts introduces a structural tension between the individual dimension of contractual responsibility and the collective nature of digital market practices²⁶. Online platforms do not operate on a relational basis but rather through automated and replicable models, in which

¹⁹ Enrico Gabrielli, *I contratti in generale* (UTET 2006).

²⁰ Neil Richards and Woodrow Hartzog, 'The Pathologies of Digital Consent' (2018) 96 WULR 1461.

²¹ Florian Möslin, 'Digitized Terms: The Regulation of Standard Contract Terms in the Digital Age' (2023) 19 (4) ERCL 300.

²² Mireia Artigot Golobardes, 'Algorithmic Personalisation of Consumer Transactions and the Limits of Contract Law' (2022) 1 JLMI 18.

²³ James Chang and Farnaz Alemi, 'Gaming the System: A Critique of Minors' Privilege to Disaffirm Online Contracts' (2012) 2 (2) UCILR 627, 642.

²⁴ Simona Tiribelli, 'Moral and Legal Autonomy in the Era of Artificial Intelligence' (2022) S&F 166.

²⁵ Martijn W Hesselink, *The Politics of the European Civil Code* (KLI 2006).

²⁶ Zeynep Ayata, 'European Union Contracts in Digital Environments' in David Ramiro Troitiño (ed) *E-Governance in the European Union* (Springer 2024) 173.

contractual content is unilaterally determined and the individual user has virtually no room for influence²⁷.

This context calls into question the actual applicability of traditional civil law remedies—such as annulment for mistake or coercion, invalidity due to lack of form, or termination for breach—to scenarios that diverge markedly from the classical paradigm of deliberate and informed agreement.

Finally, the increasing integration of artificial intelligence into contractual processes—through chatbots, smart contracts, and dynamically personalised terms—raises novel questions concerning the legal attribution of will, the characterisation of offers, and the validity of consent expressed through automated interactions²⁸. This debate must also be read in light of recent European legislation. The Digital Services Act²⁹ (Regulation EU 2022/2065) expressly prohibits certain manipulative practices—commonly referred to as ‘dark patterns’—and reinforces transparency duties, particularly where minors are concerned (art. 28). Similarly, the AI Act proposal prohibits systems that exploit the vulnerabilities of specific groups, such as children, by materially distorting their behaviour (art. 5). These measures show that the European legislator is moving towards a broader recognition of contractual vulnerability in digital contexts.

While these structural transformations raise concerns for all consumers, they become particularly problematic in the case of minors³⁰. Here, the systemic opacity and automation of the digital contract intersect with specific legal and cognitive vulnerabilities, giving rise to compounded risks that private law must address with

²⁷ Antonio Orti Vallejo, ‘Contractual Relationships in Collaborative Economy Platforms’ (2019) 27 (5) ERPL 995.

²⁸ Norhafiza Awang, ‘Contract Law and Artificial Intelligence: Examine the Implications of AI on Contract Negotiation and Execution, Including the Challenges of Automated Contracting’ (2024) 7 IJARBS 93.

²⁹ Regulation (EU) 2022/2065 of the European Parliament and of the Council on a Single Market for Digital Services (Digital Services Act) [2022] OJ L277/1. / Caroline Cauffman and Catalina Goanta, ‘A New Order: The Digital Services Act and Consumer Protection’ (2021) 12 (4) EJR 758.

³⁰ Oleksandr Omelchuk, Olena Cherniak and Nataliia Tyshchuk, ‘Protection of the rights of children and minors in their transactions in the information society’ (2020) 9 (2) IH 25.

heightened sensitivity. It should be emphasised that vulnerability in digital contracting is not confined to minors. Situational vulnerabilities—such as impulsive behaviours induced by algorithmic recommendation systems or persuasive design techniques—may affect adult users as well. The European debate thus increasingly conceptualises vulnerability as a relative condition, not only linked to age, but also to the cognitive and relational context in which contractual decisions are made.

4. The Minor in the Digital Contracts: Critical Issues

Once minors enter this transformed contractual landscape, the criticalities described above become exponentially more severe. Their position as legally and cognitively unprepared subjects makes them particularly susceptible to contractual mechanisms that bypass understanding, inhibit negotiation, and impose obligations through design rather than dialogue³¹. The interaction between rules governing minors' legal capacity and the structural features of digital transactions necessitates a critical reassessment of the traditional mechanisms underpinning contractual obligation³².

First and foremost, digital contracts frequently lack any effective *ex ante* mechanism for verifying the user's legal status. This undermines the coherence of the protective legal framework, which is largely premised on the invalidity or voidability of acts entered into by those lacking capacity, while simultaneously exposing minors to obligations they may not fully understand or evaluate³³.

The standardised nature of contractual terms on digital platforms further reduces minors' ability to comprehend and critically assess the content of contracts. This issue becomes even more acute in the presence of dark patterns or implicit persuasive

³¹ Antonio Landi, 'I fornitori di servizi di intermediazione molto grandi' in Luca Bolognini, Enrico Pelino and Marco Sciadone (eds) *Digital Services Act e Digital Markets Act. Definizioni e prime applicazioni dei nuovi regolamenti europei* (TAL 2023).

³² Irene Longo, 'Capacità e incapacità delle persone di età minore : alcuni spunti sul contratto telematico' (2016) 3 RIIG 391.

³³ Guido Alpa, 'I contratti del minore. Appunti di diritto comparato' (2004) 5 IC 517.

techniques, which may induce the minor to perform dispositive acts without an authentic manifestation of contractual intent³⁴.

Another critical issue concerns the liability arising from contract performance. At the same time, the ability of legal representatives to invoke annulment under Article 1425 or appeal of the contract under Article 1426 of the Italian Civil Code may generate uncertainty in contractual relations, especially where the act in question has already produced significant economic effects or has been partially or fully executed³⁵. Interestingly, German law adopts a more structured *ex-ante* approach: under §110 BGB (the so-called “Taschengeldparagraph”), minors may enter into contracts without parental consent only when the consideration is fully paid with means provided for that purpose. While this provision offers a narrow window of autonomy, it also implies a presumption of informed consent linked to financial limitation, which is absent in the Italian framework.

Additional concerns arise from evidentiary difficulties in proving minority status and lack of parental authorisation, particularly in digital environments that lack traceable or authenticated records³⁶.

Finally, from an axiological perspective, a fundamental tension emerges between the principle of contractual freedom and the imperative of legal protection for minors³⁷. On the one hand, minors are increasingly active participants in the digital economy, demonstrating growing relational and decision-making capabilities³⁸; on the other

³⁴ Katri Nousiainen and Catalina Perdomo Ortega, ‘Dark Patterns in Law and Economics Framework’ (2024) 36 (1) LCLR 90.

³⁵ Francesco Rossi, ‘Contratti del minore e responsabilità per i danni prodotti alla controparte’ (2021) 1 *Famiglia* 3.

³⁶ If it is proved that the parents failed to exercise control and that the other party was harmed, the principle of *culpa in educando* may abstractly apply. See: Court of Cassation, Section 3, Civil, Judgment February 19, 2014 No. 3964.

³⁷ Eleonora Grossi, *La tutela del minore nel commercio elettronico e nella rete internet* (LIUC 2003).

³⁸ Anna Gambaro, ‘Il bambino consumatore: il suo diritto ad una appropriata informazione’ (2010) 12 *SSF* 221.

hand, there remains a pressing need for legal safeguards that cannot be wholly delegated to the logic of the free market³⁹.

5. Protection and Empowerment

A first set of instruments comprises *ex ante* control mechanisms, aimed at preventing minors from entering into contractual relationships in conditions of unawareness or without supervision⁴⁰. In this regard, the implementation of effective age verification systems represents a fundamental technical and legal requirement⁴¹. However, such systems must be carefully designed to strike a balance between legal certainty and the protection of minors' digital rights and privacy, avoiding disproportionate forms of profiling or surveillance⁴².

A further remedy lies in the adoption of enhanced contractual disclosures, drafted in simplified, comprehensible, and visually accessible language tailored to users in developmental stages⁴³. In this sense, the imposition of a heightened duty of transparency upon digital service providers towards minor users is proposed, as a specific application of the general principle of pre-contractual good faith⁴⁴.

³⁹ Novriyanto Nusi, 'Electronic Legality Of Employment Contracts On Minor Children' (2020) 2 (2) ESLAW 293.

⁴⁰ Shilpa Das, 'Ex-Ante Regulation: An Evolving Need in Digital Markets' (2024) 5 (1) CCIJOCLP 55.

⁴¹ Simone Van Der Hof and Sanne Ouburg, 'We Take Your Word for It' - A Review of Methods of Age Verification and Parental Consent in Digital Services' (2022) 8 EDPLR 61.

⁴² Karolina La Fors-Owczynik, 'Prevention strategies, vulnerable positions and risking the 'identity trap': digitalized risk assessments and their legal and socio-technical implications on children and migrants' (2016) 25 (2) ICTL 71.

⁴³ Natali Helberger et al., 'Digital Content Contracts for Consumers' (2013) 36 JCP 37.

⁴⁴ Virginia Portillo et al., 'A call to action: Designing a more transparent online world for children and young people' (2024) 19 JRT 1.

A third area of intervention concerns assisted validation or subsequent ratification mechanisms, whereby a contract entered into by a minor may acquire legal effect upon authorisation by a legal representative, potentially subject to judicial oversight⁴⁵.

In Germany, a similar mechanism operates through §§108 and 109 BGB, which render the effectiveness of a contract concluded by a minor contingent upon the timely approval or rejection by their legal guardian. This institutionalised ratification system could inform future Italian reforms aiming to balance autonomy and protection in a predictable framework.

Particularly significant is the provision of a right of withdrawal without penalty⁴⁶, exercisable within a reasonable period, as a post-contractual safeguard for acts undertaken without sufficient deliberation⁴⁷. This remedy operates as an ex-post corrective, capable of neutralising detrimental effects without undermining the stability of legal transactions.

Lastly, it is essential to promote educational instruments grounded in private law. The dissemination of a culture of informed contracting, beginning at the school level, may constitute a structural measure of legal empowerment⁴⁸. Digital contractual literacy should be understood not merely as a technical skill, but as the progressive exercise of individual autonomy, linked to the capacity to evaluate risks, consequences, and obligations. The inclusion of these safeguards finds further support in European legislation: while the DSA strengthens duties of transparency and limits on manipulative design towards minors, the AI Act⁴⁹ (EU Regulation n. 2024/1689) introduces a horizontal prohibition against exploiting users' vulnerabilities. Taken

⁴⁵ Jasper Verstappen, *Legal Agreements on Smart Contract Platforms in European Systems of Private Law* (LGTS 56, 2023) 55.

⁴⁶ Directive 2011/83/EU of the European Parliament and of the Council on consumer rights [2011] OJ L304/64, art 9.

⁴⁷ Reinhard Steennot, 'The right of withdrawal under the Consumer Rights Directive as a tool to protect consumers concluding a distance contract' (2013) 29 (2) CLSR 105.

⁴⁸ Catherine M. Lemieux, 'Learning contracts in the classroom: Tools for empowerment and accountability' (2001) 20 (2) SWE 263.

⁴⁹ Regulation (EU) 2024/1689 (Artificial Intelligence Act) [2024] OJ L. / Celso Cancela-Outeda, 'The EU's AI act: A framework for collaborative governance' (2024) 27 IoT 2.

together, these provisions anticipate a model of digital private law in which contractual fairness is no longer measured exclusively by formal consent, but also by the substantive protection of vulnerable users.

6. Prospective Outlook: What Role for Private Law?

Yet, the centrality of contract as a mechanism for the voluntary regulation of legal relationships—especially in digital contexts—restores to private law a crucial role in constructing a legal order capable of reconciling liberty with protection. Regulating digital contracts demands an intelligent and selective adaptation of traditional legal institutions, without relinquishing the protective and axiological function of private law⁵⁰.

In this light, private law must operate as a “second-generation” legal order, mediating between the individualistic logic of private autonomy and the imperative to protect vulnerable subjects, particularly minors⁵¹. The challenge, however, is not merely legal, but also institutional and cultural. A dialogical and intersystemic private law is needed—capable of engaging constructively with EU law (notably the AI Act, the DSA and the GDPR⁵²), and with the pedagogical and constitutional dimensions of minor protection.

In this regard, private law cannot ignore the impact of the AI Act, which, alongside the DSA, shapes a European framework of digital fairness. Both instruments acknowledge that the manipulation of vulnerable individuals, whether minors or adults, constitutes a systemic threat to autonomy. These developments suggest a gradual convergence between consumer protection law, data regulation, and private law principles.

⁵⁰ Guido Alpa, ‘Il mercato unico digitale’ (2021) 1 CIE 1.

⁵¹ Martha Albertson Fineman, *Equality, Autonomy, and the Vulnerable Subject in Law and Politics* (1st edn, Routledge 2013).

⁵² Regulation (EU) 2016/679 (General Data Protection Regulation) [2016] OJ L119/1. / Felix Zopf, ‘Two Worlds Colliding - The GDPR in between Public and Private Law’ (2022) 8 EDPLR 210 / Ilaria Amelia Caggiano, ‘Protecting Minors as Technologically Vulnerable Persons through Data Protection: An Analysis on the Effectiveness of Law’ (2022) 1 EJPLT 27.

7. Towards a Digital Private Law for Childhood

The concept of contractual capacity, the principle of private autonomy, and the disciplines of information and liability must be reinterpreted in an adaptive manner—without abandoning doctrinal rigour but embracing a functional and dynamic reading⁵³. In this respect, the proposal for a digital private law for childhood is not merely a theoretical aspiration; it is a systemic necessity. It calls for a legal space capable of articulating protection and empowerment, recognising the progressive maturation of the minor subject, and providing legal instruments that safeguard without excluding⁵⁴.

The path forward is twofold: the elaboration of normative, jurisprudential, and doctrinal solutions that are consistent with the complexity of the digital environment; the promotion of basic legal education that enables minors to acquire awareness of their rights and obligations. From this perspective, private law is not merely a technical discipline, but a fundamental component of the democratic project, capable of contributing to a more just, transparent, and inclusive digital society. Looking ahead, the development of a digital private law framework for minors may contribute to building a more just, inclusive, and proportionate legal system—one in which minors' participation in economic life is not relegated to a regulatory grey area, but governed by principles of shared responsibility, graduated autonomy, and effective protection⁵⁵.

⁵³ Mark Tunick, 'State Authority, Parental Authority, and the Rights of Mature Minors' (2023) 27 TJE 7 / Grzegorz J. Blicharz, 'Consumers as Unassisted Minors: Asymmetrical Sanction for Unfair Contract Terms' (2022) 11 (6) Laws 87.

⁵⁴ Liat Franco and Shulamit Almog, 'Precarious Childhood: Law and its (IR)Relevance in the Digital Lives of Children' (2019) 7 (1) PSJLIA 53.

⁵⁵ Charles Alves de Castro, Aiden Carthy and Isobel O'Reilly Dr, 'An Ethical Discussion About the Responsibility for Protection of Minors in the Digital Environment: A State-of-the-art review' (2022) 9 (5) ASSRJ 343.