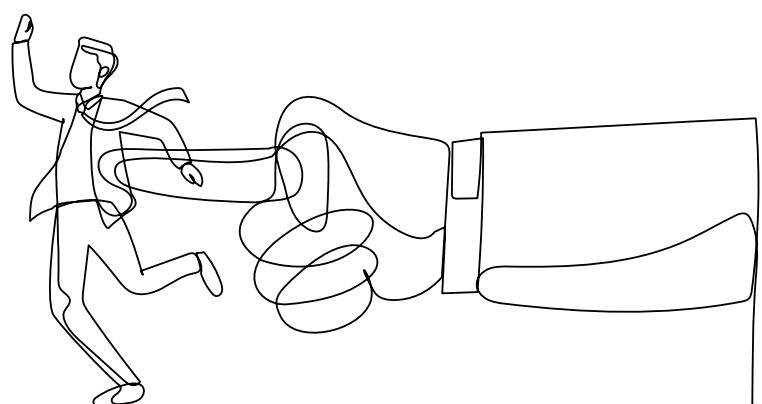


A Framework for Good Green Nudging

ELI Innovation Paper





ELI Innovation Paper

A Framework for Good Green Nudging

Dr Marta Santos Silva

(Research Centre for Justice and Governance, University of Minho, Portugal)

The European Law Institute

The European Law Institute (ELI) is an independent non-profit organisation established to initiate, conduct and facilitate research, make recommendations and provide practical guidance in the field of European legal development. Building on the wealth of diverse legal traditions, its mission is the quest for better law-making in Europe and the enhancement of European legal integration. By its endeavours, ELI seeks to contribute to the formation of a more vigorous European legal community, integrating the achievements of the various legal cultures, endorsing the value of comparative knowledge, and taking a genuinely pan-European perspective. As such, its work covers all branches of the law: substantive and procedural; private and public.

ELI is committed to the principles of comprehensiveness and collaborative working, thus striving to bridge the oft-perceived gap between the different legal cultures, between public and private law, as well as between scholarship and practice. To further that commitment it seeks to involve a diverse range of personalities, reflecting the richness of the legal traditions, legal disciplines and vocational frameworks found throughout Europe. ELI is also open to the use of different methodological approaches and to canvassing insights and perspectives from as wide an audience as possible of those who share its vision.

President: Pascal Pichonnaz

First Vice-President: Anne Birgitte Gammeljord

Second Vice-President: Sir Geoffrey Vos

Treasurer: Pietro Sirena

Speaker of the Senate: Reinhard Zimmermann

Secretary-General: Vanessa Wilcox

Scientific Director: Christiane Wendehorst

European Law Institute Secretariat

Schottenring 16/175

1010 Vienna

Austria

Tel.: + 43 1 4277 22101

Mail: secretariat@europeanlawinstitute.eu

Website: www.europeanlawinstitute.eu

ISBN: 978-3-9505192-7-3

© European Law Institute 2025

IP-2024-3

Cover image: Shutterstock

This publication was co-funded by the European Union's Justice Programme. Acknowledgment is also due to the University of Vienna which has generously hosted the ELI Secretariat under successive Framework Cooperation Agreements since 2011.



Supported by
the European Union



universität
wien

Table of Contents

| | |
|---|-----------|
| I. Background | 6 |
| II. The regulation of green nudges | 8 |
| III. A classification of nudges | 10 |
| IV. Definition, categories, and scope of green nudges | 11 |
| V. A framework for 'good' green nudges | 14 |
| VI. Guiding Principles | 16 |
| GP 1. Necessity | 16 |
| <i>When choosing a governance instrument to pursue environmental goals, States and public authorities should opt for the least intrusive methods possible.</i> | |
| GP 2. Proportionality | 16 |
| <i>Green nudges should not go beyond what is strictly required to achieve their aim.</i> | |
| GP 3. Privacy | 17 |
| <i>Green nudges should respect the privacy of the person being nudged, including where such nudges occur within a digital setting.</i> | |
| GP 4. Transparency | 19 |
| <i>Green nudges should be transparent. A nudge is transparent when the person being nudged is, or could reasonably become, aware that a behavioural intervention is taking place.</i> | |
| GP 5. Explainability | 20 |
| <i>Green nudges should be explainable. A nudge is explainable if the policy objective it pursues and the means by which it operates are known, or reasonably ought to be known, to the person being nudged.</i> | |
| GP 6. Autonomy | 21 |
| <i>To avoid manipulating choices and behaviours, entities administering green nudges should ensure that individuals retain real freedom of choice between alternatives, and that debiasing techniques, like information provision and education, are prioritised over techniques that exploit biases.</i> | |
| GP 7. Dignity | 23 |
| <i>Green nudges should refrain from disrespecting or instrumentalising the persons they target.</i> | |
| GP 8. Agency | 24 |
| <i>Green nudges should allow persons to form and develop preferences independently from the influence of others.</i> | |
| GP 9. Effectiveness | 24 |
| <i>Before implementing a green nudge, a comprehensive cost-benefit analysis should be conducted that includes social and normative costs and considers potential spillover effects.</i> | |
| GP 10. Acceptability | 26 |
| <i>Policymakers should design and implement nudges that are both acceptable to the persons they target and supported by the broader public.</i> | |
| GP 11. Oversight | 27 |
| <i>Organisations and institutions that frequently administer green nudges should consider appointing dedicated staff responsible for overseeing nudge strategies and maintaining a comprehensive registry of all nudges used.</i> | |
| Conclusion | 29 |

I. Background

This ELI Innovation Paper seeks to advance European law by reflecting on relevant EU law, including both legislative provisions and legal principles, within a framework informed by behavioural science.

It focuses on the concept of 'nudge', as defined by US academics Sunstein and Thaler, referring to 'any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives'.¹ Examples of nudging include: default organ donation systems, where individuals are automatically registered as donors unless they choose to opt out; graphic health warnings on cigarette packaging designed to reduce smoking rates without imposing a ban; and dark patterns, such as bait-and-switch pricing in airplane ticket bookings. A common illustration of this can be found in the context of flight bookings, where consumers are often presented with messages such as 'Only one seat left at this price'. Such tactics are intended to generate a false sense of urgency, prompting consumers to make rushed decisions rather than exploring alternatives that may better align with their preferences.²

Globally, policymakers are increasingly using behavioural insights to address policy challenges. The OECD's Behavioural Insights Knowledge Hub has identified over 300 institutions applying these insights in public policy across 63 countries.³

Nudging has demonstrated its effectiveness in domains such as public health⁴ and is increasingly being employed to advance environmental sustainability, particularly in contexts where conventional policy measures have shown limited impact.⁵

While corporations are major contributors to environmental degradation, it is important to recognise that household consumption accounts for 72% of global greenhouse gas emissions.⁶ This underscores the critical role individuals play in achieving the 1.5 °C target set by the Paris Agreement⁷ and highlights the need for behavioural interventions in the domain of consumption, where everyday choices have significant climate implications.

The 1999 revision of the United Nations Guidelines for Consumer Protection and the 2015 Global Sustainable Development Goals (SDGs) emphasise the importance of sustainable consumption.⁸

Notably, SDG 12 advocates responsible consumption and production, emphasising the right of citizens to access information and education that enable sustainable lifestyles. However, consumer policy often overlooks the responsibilities that accompany consumer entitlements.⁹ In this context, it is important to distinguish between the broader rights to information and education for sustainability, as promoted by SDG 12, and the narrower concept of

¹ Cass Sunstein and Richard H Thaler, *Nudge. Improving Decisions about Health, Wealth and Happiness* (Penguin Books, 2008), 6.

² Constanța Roșca, *Digital Arms for Consumer Harms. Mapping Legal and Technical Solutions for Dark Patterns in EU Consumer Law* (Maastricht University Press, 2024), 103.

³ Cale Hubble and Chiara Varazzani, *Mapping the global behavioural insights community*, 10 May 2023, available at <<https://oecd-opsi.org/blog/mapping-behavioural-insights/>> (accessed 8 May 2024).

⁴ Alberto Alemanno, 'Nudging Smokers: The Behavioural Turn of Tobacco Risk Regulation', *European Journal of Risk Regulation*, vol. 3 (1), Symposium on Nudge, Special issue 1/2012, 2012.

⁵ Pelle Guldborg Hansen and Andreas Maaløe Jespersen, 'Nudge and the Manipulation of Choice. A Framework for the Responsible Use of the Nudge Approach to Behavioural Change in Public Policy', *European Journal of Risk Regulation*, 1/2013, 3-28, 6.

⁶ Carbon Majors, 'The Carbon Majors Database Launch Report', April 2024, available at <https://carbonmajors.org/site//data/000/027/Carbon_Majors_Launch_Report.pdf> (accessed 23 May 2024).

⁷ Ghislain Dubois et al, 'It Starts at Home? Climate Policies Targeting Household Consumption and Behavioral Decisions Are Key-Carbon Futures', *Energy Research & Social Science*, June 2019, 52nd edn, 144-158, 145.

⁸ Economic and Social Council, Resolution E/1999/INF/2/Add.2 of 26 July 1999, available at <https://unctad.org/system/files/official-document/UN_DESA_GCP1999_en.pdf> (accessed 10 May 2024).

⁹ Lucila de Almeida and Fabrizio Esposito, 'The Blinding Effect of EU Consumer Policy Overshadows the Role of Consumer Law in Delivering the Green Transition', in Marta Santos Silva et al eds, *Routledge Handbook of Private Law and Sustainability* (Routledge, 2024), 140-153, 149.

consumer rights as defined within legal frameworks. The latter tends to prioritise individual consumer protection, often at the expense of fostering a culture of responsible consumption — an oversight that hinders progress toward sustainable consumer behaviour.¹⁰

In response to this gap, both public and private entities are increasingly turning to Pro-Environmental Behaviour (PEB) studies, including nudge techniques, to encourage more sustainable consumer practices.¹¹ This growing reliance on behavioural insights highlights the crucial role of behavioural economics and science in shaping consumer protection laws and policies by recognising and addressing the diverse ways in which consumers make decisions.¹²

Within this context, green nudges — behavioural interventions aimed at promoting environmentally sustainable behaviours — have emerged as a tangible and increasingly relevant application of behavioural insights in policy and regulation.

¹⁰ Lucila de Almeida and Fabrizio Esposito, 'The Blinding Effect...', *ob. cit.*, 148–9; A Mathios et al, 'Journal of Consumer Policy's 40th Anniversary Conference: A Forward-Looking Consumer Policy Research Agenda', *Journal of Consumer Policy* 43 (2020): 1–9, 7.

¹¹ Christian Thorun et al, *Nudge-Ansätze Beim Nachhaltigen Konsum: Ermittlung Und Entwicklung von Maßnahmen Zum „Anstoßen“ Nachhaltiger Konsummuster* (Bundesministeriums für Umwelt, Naturschutz, Bau und Reaktorsicherheit, 2016), 1–142, 39.

¹² Hans-W Micklitz, Anne-Lise Sibony and Fabrizio Esposito, *Research Methods in Consumer Law. A Handbook* (Edward Elgar, 2018).

II. The regulation of green nudges

The ethical boundaries of nudging have long been the subject of intense debate among academics¹³ and policymakers.¹⁴ These discussions underscore the importance of designing and implementing nudges in ways that respect individual autonomy¹⁵ and promote social welfare.

However, legal discourse on nudging — particularly in the context of ‘regulation-by-nudging’,¹⁶ understood as a behaviourally-informed but non-coercive form of regulation — remains comparatively underdeveloped.¹⁷

Legal discussions largely took place from a philosophical standpoint,¹⁸ focusing on concepts like libertarian paternalism,¹⁹ particularly in the US.

Green nudges within the EU are governed by

dispersed regulations and general principles.

To address this gap, this Innovation Paper develops a set of **11 Guiding Principles (GPs) that articulate how nudges, intended to advance environmental sustainability, should be designed, implemented, and evaluated.**

This Innovation Paper’s focus on GPs offers an appropriate and effective means of capturing the essence of the relevant, binding²⁰ EU instruments governing behavioural influence in consumer-facing contexts, the domain in which green nudges operate. By synthetising some of the most relevant provisions of frameworks such as the Unfair Commercial Practices Directive (UCPD),²¹ the Digital Services Act (DSA),²² the Consumer Rights Directive (CRD),²³ the Artificial Intelligence Act (AI Act)²⁴, the Ecodesign

¹³ C Tyler DesRoches et al, ‘When Is Green Nudging Ethically Permissible?’, *Current Opinion in Environmental Sustainability*, 60, 2023, 1-9; Paul Kuyer and Bert Gordijn, ‘Nudge in Perspective: A systematic literature review on the ethical issues with nudging’, *Rationality and Society*, 2023, 35(2), 191–230; Luc Bovens, ‘The Ethics of Nudge’ in Till Gruenne-Yanoff and Sven Ove Hansson eds, *Preference Change: Approaches from Philosophy, Economics and Psychology*. Theory and Decision Library A (Springer, 2009), 207–219; A. T. Schmidt and B. Engelen ‘The ethics of nudging: An overview’, *Philosophy Compass*, 15(4), 2020, 1–13; L K Lades and L Delanay, ‘Nudge FORGOOD’ *Behavioural Public Policy*, 6(1), 2022, 75–94.

¹⁴ OECD, *Tools and Ethics for Applied Behavioural Insights: The BASIC Toolkit* (Paris, 2019), available at <https://www.oecd.org/en/publications/tools-and-ethics-for-applied-behavioural-insights-the-basic-toolkit_9ea76a8f-en.html> (accessed 13 August 2025) and, more recently, OECD, ‘Good practice principles for ethical behavioural science in public policy’, *OECD Public Governance Policy Papers*, 20 (Paris, 2022), available at <https://www.oecd.org/en/publications/good-practice-principles-for-ethical-behavioural-science-in-public-policy_e19a9be9-en.html> (accessed 13 August 2025).

¹⁵ Throughout this Innovation Paper, the term ‘individual autonomy’ is used as defined in the commentary to GP 6.

¹⁶ Anne van Aaken, ‘Judge the Nudge: In Search of the Legal Limits of Paternalistic Nudging in the EU’, in *Nudge and the Law: A European Perspective* (London: Hart Publishing, 2015), 83–112, 83–4.

¹⁷ See, however, Marta Santos Silva, ‘Nudging and Other Behaviourally Based Policies as Enablers for Environmental Sustainability’, *Laws*, 11, no 1 (2022), 1–13; Anne-Lise Sibony and Alberto Alemanno, *Nudge and the Law: A European Perspective*, 2015; Alberto Alemanno and Alessandro Spina, ‘Nudging Legally. On the Checks and Balances of Behavioural Regulation’, *International Journal of Constitutional Law* 2 (2014), 1–27.

¹⁸ Cass R Sunstein, ‘The Ethics of Nudging’, *Yale Journal on Regulation*, 32, 2015, 413–450.

¹⁹ Heidi M Hurd, ‘Fudging Nudging: Why “Libertarian Paternalism” Is the Contradiction It Claims It’s Not’, *Georgetown Journal of Law & Public Policy*, 14 (Special 2016 Symposium on ‘The Ethics of Nudging: Evaluating Libertarian Paternalism’), 2016, 703–734; Russell Korobkin, ‘Libertarian Welfarism’, *California Law Review* 97, no 6 (December 2009): 1651–86; Gregory Mitchell, ‘Libertarian Paternalism is an oxymoron’, *FSU College of Law Public Law Research Paper* 136, Paper no. 05-02 (2004), 1159–1202.

²⁰ The Green Claims Directive (Proposal for a Directive of the European Parliament and of the Council on the substantiation and communication of explicit environmental claims, COM/2023/166 final) held considerable potential for regulating environmental claims associated with green nudges, but it was withdrawn. The decision by the European Commission came in late June 2025, following concerns about the potential administrative burden on micro-enterprises.

²¹ Directive 2005/29/EC of the European Parliament and of the Council of 11 May 2005 concerning unfair business-to-consumer commercial practices in the internal market and amending Council Directive 84/450/EEC, Directives 97/7/EC, 98/27/EC and 2002/65/EC of the European Parliament and of the Council and Regulation (EC) No 2006/2004 of the European Parliament and of the Council (“Unfair Commercial Practices Directive”, UCPD).

²² Regulation (EU) 2022/2065 of the European Parliament and of the Council of 19 October 2022 on a Single Market for Digital Services and amending Directive 2000/31/EC (Digital Services Act), PE/30/2022/REV/1, OJ L 277, 27.10.2022, p 1–102.

²³ Directive 2011/83/EU of the European Parliament and of the Council of 25 October 2011 on consumer rights, amending Council Directive 93/13/EEC and Directive 1999/44/EC of the European Parliament and of the Council and repealing Council Directive 85/577/EEC and Directive 97/7/EC of the European Parliament and of the Council, OJ L 304, 22.11.2011, p 64–88 (‘Consumer Rights Directive’, CRD).

²⁴ Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (‘Artificial Intelligence Act’, AI Act). PE/24/2024/REV/1, OJ L, 2024/1689, 12.7.2024.

for Sustainable Products Regulation (ESPR),²⁵ the E-Commerce Directive (ECD),²⁶ the Environmental Liability Directive (ELD),²⁷ and the General Data Protection Regulation (GDPR),²⁸ this Innovation Paper seeks to provide practical guidance to ensure such interventions are legally compliant, ethically robust, and socially legitimate. The GPs outlined in this Innovation Paper — unless explicitly stated otherwise, as in GP 1 (Necessity) — are directed at *any* policymakers and stakeholders involved in designing and implementing green nudges.

The resulting GPs constitute the foundation of a Framework for Good Green Nudging, designed to enhance legal certainty, encourage best practices, and strengthen public trust in the behavioural dimensions of environmental governance. When responsibly implemented and communicated, nudges can guide consumers toward supporting the SDGs, particularly SDG 12,²⁹ but also the European Green Deal,³⁰ the overarching strategy for achieving sustainability in the EU.

²⁵ Regulation (EU) 2024/1781 of the European Parliament and of the Council of 13 June 2024 establishing a framework for the setting of ecodesign requirements for sustainable products, amending Directive (EU) 2020/1828 and Regulation (EU) 2023/1542 and repealing Directive 2009/125/EC, PE/106/2023/REV/1, OJ L, 2024/1781, 28.6.2024 (Ecodesign for Sustainable Products Regulation, 'ESPR').

²⁶ Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market, OJ L 178, 17.7.2000, p 1–16.

²⁷ Directive 2004/35/CE of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage, OJ L 143, 30.4.2004, p 56–75.

²⁸ Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data and repealing Directive 95/46/EC ('General Data Protection Regulation', GDPR), OJ L 119, 4.5.2016, p 1–88.

²⁹ Cass R. Sunstein and Lucia A. Reisch, *Trusting Nudges. Toward a Bill of Rights for Nudging* (Routledge, 2019).

³⁰ Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions, COM/2019/640 final.

III. A classification of nudges

Nudges are generally categorised into paternalistic and welfare (pro-social) nudges based on their objectives. Paternalistic nudges are primarily designed or administered by the 'nudger' to enhance the well-being of the individual being nudged³¹ (the 'nudgee') or to protect them from harm.³² Examples include nudges that promote healthy habits, like quitting smoking or adopting a meat-free or low sodium diet.

Welfare or pro-social nudges, on the other hand, predominantly aim to protect the public or enhance overall welfare.³³ Nudges that encourage organ donation or waste separation fall into this category because they primarily seek, respectively, to increase organ availability and improve recycling rates.

Paternalistic nudges pose challenges in liberal societies,³⁴ where the tension between individual autonomy, as defined in GP 6, and State intervention is particularly sensitive. The philosophical framework of 'libertarian paternalism', which attempts to reconcile respect for autonomy with paternalistic goals, has been widely debated and frequently criticised as internally contradictory or even labelled 'an oxymoron'.³⁵ Consequently, paternalistic nudges are often subject to heightened scrutiny.

Welfare-oriented nudges, including those promoting environmentally sustainable behaviours (green nudges), raise related ethical and legal concerns. Even when less overtly paternalistic, these nudges can impose normative costs (or 'target opportunity

costs'³⁶), such as undermining personal agency,³⁷ autonomy³⁸ or societal self-legislation³⁹ — the collective capacity to define and uphold normative standards through democratic processes. Additional concerns arise from the potential to disrespect the dignity of those being nudged.

Although green nudges are generally perceived as less intrusive — due to their alignment with widely accepted environmental values and their resemblance to other welfare-oriented nudges, such as those promoting public safety — this perception should not obscure the need for careful evaluation. Like all behavioural interventions, green nudges must be assessed to ensure they remain consistent with EU laws and principles. This necessity underscores the importance of establishing a clear evaluative framework, such as the GPs proposed in this paper, to determine when such interventions are permissible and appropriate.

³¹ Anne van Aaken, 'Judge...', *ob cit*, 83, fn 2.

³² Gerald Dworkin, 'Paternalism', in *The Stanford Encyclopedia of Philosophy* (Minneapolis, 2017), 19–34, available at <<http://plato.stanford.edu/archives/spr2017/entries/paternalism>> (accessed 23 May 2024).

³³ Anne van Aaken, 'Judge...', *ob cit*, 88.

³⁴ Anne van Aaken, 'Judge...', *ob cit*, 83, fn 2.

³⁵ Gregory Mitchell, 'Libertarian Paternalism...', *ob cit*.

³⁶ Avishalom Tor, 'The Target Opportunity Costs of Successful Nudges', in *Consumer Law and Economics, Economic Analysis of Law in European Legal Scholarship* 9 (Springer, 2021), 3–17.

³⁷ Philipp Hacker, 'Nudge 2.0: The Future of Behavioural Analysis of Law in Europe and Beyond', *European Review of Private Law* 2 (2016): 297–322, 308.

³⁸ Daniel M Hausman and Bryn Welch, 'Debate: To Nudge or Not to Nudge', *Journal of Political Philosophy* 18 (2010): 123–36, 128.

³⁹ See, with references, Christian Schubert, 'Green Nudges: Do the Work? Are They Ethical?', *Ecological Economics* 132 (2017): 329–42, 330; Robert Lepenies and Magdalena Małecka, 'The Institutional Consequences of Nudging – Nudges, Politics, and the Law', *Review of Philosophy and Psychology* 6 (2015): 427–37, 432.

IV. Definition, categories, and scope of green nudges

Green nudges are interventions aimed at promoting environmentally sustainable behaviours. These include behaviours with a neutral, reduced, or positive environmental impact — particularly concerning greenhouse gas emissions⁴⁰ — and those that are less harmful than available alternatives or that demonstrate improved environmental performance over time.

What distinguishes green nudges is their non-coercive nature: they influence behaviour by subtly reshaping the decision-making context — often referred to as the ‘choice architecture’ — while fully preserving individual freedom of choice. For instance, displaying environmental impact information at the point of sale can encourage consumers to make more sustainable choices without restricting their ability to choose otherwise. Even when introduced by the State — a practice sometimes termed ‘mandated private nudging’⁴¹ — such interventions rely on gentle guidance rather than forceful regulation.

This sets green nudges apart from more prescriptive policy tools. For example, regulatory measures such as the revised Energy Performance of Buildings Directive (EPBD),⁴² which mandates the renovation of the worst-performing buildings and the gradual phasing-out of fossil fuel heating,⁴³ operates through legal mandates rather than behavioural steering. Likewise, outright bans on harmful substances involve direct constraints on individual action and fall outside the conceptual and practical scope of nudging. Such measures aim to eliminate environmentally

detrimental practices through coercive means, in contrast to the choice-preserving, context-sensitive strategies characterising green nudges.

Another defining feature of green nudges, as conceptualised in this paper, is the minimal use of economic incentives, which may be present, but not to a degree that significantly alters decision-making. Modest incentives, such as a bottle deposit refund or a small tax on garbage bags, can fall within the scope of green nudging, as they serve primarily as behavioural cues rather than financial drivers. However, when an incentive becomes great enough to influence an individual’s socio-economic circumstances or to systematically drive choices, it no longer qualifies as a nudge and it should instead be categorised as a monetary incentive, as is the case for a State fund that covers up to 85% of the costs incurred for energy efficiency renovation works.⁴⁴ The distinction between green nudges and monetary incentives is significant, as the latter operate on fundamentally different behavioural principles. Whereas green nudges rely on subtle cues to steer choices while preserving autonomy, monetary incentives aim to alter behaviour through direct financial motivation. This shift affects the underlying psychological mechanisms and carries different legal implications, particularly regarding transparency, fairness, and potential socio-economic impacts. As a result, monetary incentives are likely to lead to other behavioural outcomes and are subject to distinct regulatory and ethical scrutiny.

⁴⁰ See Directive (EU) 2024/825 of the European Parliament and of the Council of 28 February 2024 amending Directives 2005/29/EC and 2011/83/EU as regards empowering consumers for the green transition through better protection against unfair practices and through better information ('Empowering Consumers Directive'), PE/64/2023/REV/1, *OJL*, 2024/825, 6.3.2024, recital 12.

⁴¹ Antonios Karampatzos, *Private Law, Nudging and Behavioural Economic Analysis. The Mandated-Choice Model* (Routledge, 2020).

⁴² Directive (EU) 2024/1275 of the European Parliament and of the Council of 24 April 2024 on the energy performance of buildings (recast), PE/102/2023/REV/1 *OJL*, 2024/1275, 8.5.2024.

⁴³ Questions and Answers on the revised Energy Performance of Buildings Directive (EPBD), available at <https://ec.europa.eu/commission/presscorner/detail/en/qanda_24_1966> (accessed 12 August 2024).

⁴⁴ The Environmental Fund ('Fundo Ambiental'), established in Portugal by the Decree-Law no 42-A/2016, of 12 August 2016, provides such an incentive to the successful applicants to such a fund.

IV. Definition, categories, and scope of green nudges

The definition of green nudges adopted in this paper refers to behavioural interventions promoting the adoption of environmentally beneficial practices. Two clarifications are necessary in this regard.

First, the effectiveness or breadth of behavioural outcomes — direct or indirect — does not determine whether an intervention qualifies as a green nudge. The imposition of a modest tax on plastic bags, for instance, can constitute a green nudge insofar as it seeks to discourage plastic consumption, regardless of the extent to which it actually alters consumer behaviour in practice (some consumers may, for the sake of convenience, decide to continue paying for plastic bags). Conversely, green nudges may even give rise to unintended environmental drawbacks. A nudge promoting reusable shopping bags could increase water usage due to frequent washing, thereby partially offsetting its ecological advantages. Although such outcomes may signal suboptimal or ineffective design, they do not preclude the intervention from falling within the conceptual boundaries of green nudging. Instead, they reflect the importance of thoughtful, evidence-based design tailored to specific contexts.

Second, the present definition emphasises deliberate interventions that shape the decision-making environment, rather than broadening the focus to 'aspects of choice architecture' as originally defined by Thaler and Sunstein. While elements of choice architecture may be 'inevitable'⁴⁵ 'accidental'⁴⁶ or spontaneous, the nudges this Innovation Paper refers to are intentional and purposefully designed interventions — subject to evaluation, refinement, and adjustment — to guide behaviour predictably without restricting individual freedom of choice.

Building on this definition, green nudges can be operationalised through a variety of strategies tailored to influence environmentally relevant behaviours. These include:

1. Smart Information Provisions: Providing information such as ecolabels or mobile reminders to turn off heating systems.
2. Changes in the Physical Environment: Altering physical surroundings, like reorganising seasonal produce in cafeterias or painting footsteps to guide individuals to trash bins.
3. Default Settings: A compelling example is setting renewable energy sources as the default option for electricity, as it can lead to increased adoption of green energy among consumers. These interventions leverage the default effect, as individuals are more likely to go along with pre-set options, thereby encouraging sustainable practices without restricting choice.
4. Social and Identity-Related Norms: Encouraging green behaviours through social recognition, such as displaying gold stars on trash bins for exemplary recycling efforts.⁴⁷

A significant concern in the context of nudging is its potential overlap with 'dark patterns'. Despite 'conceptual inconsistencies' and an 'evolving terminology'⁴⁸ in the academic literature, Recital 67 of the DSA defines dark patterns as 'practices that materially distort or impair, either on purpose or in effect, the ability [of the recipients of the service] to make autonomous and informed choices or decisions. Those practices can be used to persuade [the recipients of the service] to engage in unwanted behaviours or undesired decisions that have negative consequences for them.'

Dark patterns are unlawful practices that deliberately exploit cognitive biases or vulnerabilities to advance the interests of the manipulator, often at the expense of an individual's autonomy, well-being, and informed decision-making. In contrast, green nudges are behavioural interventions designed, at least

⁴⁵ Cass R. Sunstein, 'The Ethics...', *ob cit*, 415.

⁴⁶ Pelle Guldborg Hansen and Andreas Maaløe Jespersen, 'Nudge...', *ob cit*, 9.

⁴⁷ Eleanor Ainge Roy, 'Gold Star for You: New Zealand Council Puts Stickers on Bins of Best Recyclers', *The Guardian*, 17 November 2020, available at <<https://www.theguardian.com/environment/2020/nov/17/gold-star-for-you-new-zealand-council-puts-stickers-on-bins-of-best-recyclers>> (accessed 13 May 2024).

⁴⁸ Constanța Roșca, *Digital Arms...*, *ob cit*, 51.

ideally, to encourage individuals to act and make choices that support environmental sustainability. In particular, green nudges are explicitly intended to promote environmental sustainability, such as reducing resource use, lowering emissions, or encouraging waste reduction. Dark patterns, in contrast, are not inherently tied to any positive externality, environmental or otherwise: their goal is typically to maximise short-term gains for the service provider, often to the detriment of the user.

This distinction carries critical regulatory implications. By their very nature, dark patterns are inherently manipulative and deceptive and should be categorically prohibited through mandatory legal rules. In contrast, green nudges warrant a more nuanced approach. Ethically and legally sound green nudges — those that adhere to the GPs in this Innovation Paper — should be permitted and actively encouraged, particularly when they complement more traditional regulatory instruments. Only those green nudges that fail to meet legal and ethical standards — for example, by misleading consumers or unduly limiting their freedom of choice — should be inadmissible and, where necessary, prohibited. In that sense, the phenomenon of 'green dark patterns' is becoming a growing concern.

V. A framework for 'good' green nudges

While often viewed as welfare-oriented and socially desirable, green nudges are not exempt from ethical and legal scrutiny. Their legitimacy depends not only on the outcomes they seek to promote but also on the means through which they operate. The GPs outlined in this paper provide a structured framework to assess whether such interventions are compatible with EU values and legal standards.

One might question why this Innovation Paper focuses specifically on green nudges rather than welfare-oriented nudges in general.

The urgent need to preserve the environment has fostered a social perception that accepting green nudges is a 'moral obligation'⁴⁹ an unavoidable responsibility,⁵⁰ often leading to the assumption that these measures are always legally and ethically sound.⁵¹ However, this assumption is flawed, as public and private entities involved in nudging are prone to the same biases and self-interests as any other actors,⁵² which can result in manipulative practices.

Moreover, green nudges involve a risk of manipulation and exploitation by governments ('government by stealth'⁵³) and corporations. As corporations increasingly face obligations under regulations like the Corporate Sustainability Reporting Directive (CSRD)⁵⁴ to pursue and report on sustainability efforts, the 11 GPs provided for in

the framework introduced by this Innovation Paper aim to balance the normative costs of green nudges with the imperative to protect the environment.⁵⁵ They underscore the importance of incorporating ethical considerations into environmental sustainability efforts, promoting responsible and transparent decision-making among policymakers, individuals, and organisations.

Recognising this, the framework introduced by this Innovation Paper introduces the GPs to ensure that green nudges are developed, implemented, and communicated in line with legal standards provided for by EU law and general principles of EU law.

Even though these GPs are designed explicitly for green nudges, their narrow scope does not imply that they lack applicability to other types of nudges. They are grounded in relevant legal considerations across various kinds of paternalistic and pro-social nudges, such as those aimed at promoting healthy eating or encouraging road traffic safety, as they address similar concerns.

Lastly, it should be noted that the GPs set out in this Innovation Paper are presented in a summarised and exploratory manner. They do not purport to offer a comprehensive or definitive restatement of the law but rather aim to provide an *initial* framework for reflection and discussion. Consistent with the purpose and format of ELI Innovation

⁴⁹ C Tyler DesRoches et al, 'When Is Green Nudging...', *ob cit*, 1.

⁵⁰ Hans-W Micklitz, 'Squaring the Circle? Reconciling Consumer Law and the Circular Economy', *Journal of European Consumer and Market law (EuCML)* 6/2019, 229–239, 235.

⁵¹ Elisabeth Gsottbauer and J C J M Van den Bergh, 'Environmental Policy Theory Given Bounded Rationality and Other-Regarding Preference', *Environmental and Resource Economics* 49 (2011): 263–304, 292; Felix Eckardt and Jutta Wieding, 'Nudging and Environmental Law', in *Nudging - Possibilities, Limitations and Applications in European Law and Economics*, 2016, 250. See also, generally on nudging, Mark White, *The Manipulation of Choice: Ethics and Libertarian Paternalism* (Springer, 2013).

⁵² Anne van Aaken, 'Judge...', *ob cit*, 86, fn 15.

⁵³ A Weale, 'European Environmental Policy by Stealth: The Dysfunctionality of Functionalism?', *Environment and Planning C: Government and Policy* 17 (1999): 37–51.

⁵⁴ Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, PE/35/2022/REV/1, OJ L 322, 16.12.2022, p. 15–80 ('Corporate Sustainability Reporting Directive', CSRD).

⁵⁵ Philipp Hacker, 'Nudging and Autonomy: A Philosophical and Legal Appraisal', in *Research Methods in Consumer Law. A Handbook*, 2016, 77–118, 117. Alberto Alemanno and Alessandro Spina, 'Nudging...', *ob cit*, 20; Felix Eckardt and Jutta Wieding, 'Nudging...', *ob cit*.

Papers, which are designed to stimulate debate and encourage further research, these GPs are intended as a pilot formulation. They invite refinement, testing, and expansion through future scholarly work or collaborative projects. In this sense, they represent a starting point for developing a more detailed and operational framework for the ethical and lawful design of green nudges.

Guiding Principles

GP 1. Necessity

When choosing a governance instrument to pursue environmental goals, States and public authorities should opt for the least intrusive methods possible.

GP 1 is specifically directed at public authorities involved in designing and implementing green nudges. It is grounded in the principle of necessity, which requires that the State opts for the least intrusive means available when pursuing environmental policy objectives. As non-coercive and choice-preserving interventions, green nudges differ markedly from traditional regulatory instruments. They offer an appealing alternative within the environmental governance toolkit because they can be deployed more swiftly and at lower political and administrative costs. Unlike conventional legislation, typically preceded by public deliberation in representative bodies, nudges are often adopted via executive action, with limited formal scrutiny or democratic debate.⁵⁶

Nonetheless, policymakers must resist the assumption that nudging is always preferable to legislation. The necessity principle demands a critical assessment of whether a nudge is appropriate in each context. Such assessment encourages a measured approach that weighs the nudge's potential against alternative, possibly more effective, policy tools.

In environmental policymaking, this means that the adoption of a green nudge should follow a comparative evaluation of all feasible options, including information campaigns, financial incentives and direct mandates. In some cases, more robust interventions may be required to meet pressing environmental targets, especially those arising from international commitments or urgent climate goals. Without considering whether more assertive

measures are necessary, an overreliance on nudges may lead to insufficient or merely symbolic responses to complex environmental challenges.

Recognising the need for a more robust regulatory approach, the ESPR introduces mandatory ecodesign requirements aimed at enhancing the environmental performance of products, moving beyond mere information-tools.

The regulation addresses systemic market failures, such as premature obsolescence, and reflects the European Commission's view that softer, voluntary measures are insufficient to achieve the desired outcomes. Merely persuasive or non-binding strategies were ultimately set aside in light of the urgency of environmental challenges and persistent market failures.

Emphasising the principle of necessity in the use of nudges may help ensure that policymakers apply environmental tools discerningly, considering the specific context, objectives, and societal impact, while still favouring the least intrusive policy approach. This fosters a policy environment that upholds freedom of choice while pragmatically addressing collective environmental needs.

GP 2. Proportionality

Green nudges should not go beyond what is strictly required to achieve their aim.

The pivotal criterion for evaluating pro-social nudges, including green nudges,⁵⁷ is often the proportionality test, here understood as proportionality *stricto sensu*.⁵⁸

Green nudges must remain within the boundaries set by fundamental rights. To be legitimate, nudges cannot cross the threshold into undue intrusion or

⁵⁶ Christian Schubert, 'Exploring the (Behavioural) Political Economy of Nudging', *Journal of Institutional Economics* 13, no 3, (2017): 499–522, 506; Robert Lepenies and Magdalena Małecka, 'Consequences of Nudging...', *ob cit*, 430.

⁵⁷ Anne van Aaken, 'Judge...', *ob cit*, 88.

⁵⁸ See Anne van Aaken, 'Limits to Paternalistic Nudging: A Proportionality Assessment', U. of St. Gallen Law & Economics Working Paper, no 2015–03 (2015), 20.

coercion, even when urgent environmental objectives are being pursued. Practices that rely on public shaming or social scores, for instance, may indicate a lack of proportionality and risk undermining the legitimacy of the intervention.

Consider a hypothetical policy in which a government offers consumers a modest tax deduction for purchasing environmentally friendly products, such as A+++-rated washing machines. The financial incentive in this case may be characterised as a green nudge as there is no significant economic incentive. However, if the policy were to mandate that all lower-rated washing machines have to be manufactured exclusively in grey, this would mark a departure from the principles of good green nudging. The intrusion into the freedom of those owning a lower rated washing machine to design their home in the colours of their choice shifts the mechanism from gentle encouragement to coercive social pressure, undermining freedom of choice.

While public policies must tread carefully to avoid overreach, private entities face similar challenges. A supermarket may decide to restrict the sale of bottled water during peak summer months exclusively to customers who bring their own refillable containers to reduce plastic waste and promote sustainable consumption. However, such a measure may be perceived as excessively stringent or punitive, particularly in the context of high temperatures and associated increased hydration needs. This approach risks undermining public support and could be seen as compromising individual welfare, especially if no reasonable alternatives to access water without a refillable bottle are provided. Such measures illustrate the behavioural concept of 'sludge', which refers to the use of friction or obstacles in decision-making processes to discourage certain behaviours or delay access to rights or benefits.⁵⁹ In this case, the access to single use plastic bottles is discouraged through the introduction of an often inconvenient requirement to bring one's own refillable bottle.

While sludge is often contrasted with nudge, they may both impose excessive burdens — be they cognitive, procedural, or reputational — under the guise of behavioural influence, which may be incompatible with the legitimate use of behaviourally informed policy tools in democratic societies.⁶⁰ Therefore, both sludges and nudges highlight the importance of proportionality and context sensitivity in the design of behavioural interventions.

Proportionality is a general principle underlying EU law, which applies, in particular, where fundamental rights and freedoms or legitimate interests are affected by unilateral action, including sanctions or similar interventions. In the context of nudging, proportionality may become relevant, for example, in the context of several of the legal grounds listed in Article 6 of the GDPR (General Data Protection Regulation) for the processing of personal data (see GP 3), as well as in the context of the use of AI. Article 5 of the AI Act prohibits, *inter alia*, the use of AI systems that evaluate or classify natural persons based on their social behaviour — including with regard to sustainable habits — with the social score leading to detrimental or unfavourable treatment that is unjustified or disproportionate to their social behaviour or its gravity. For example, if a consumer whose shopping data indicate environmentally detrimental consumption habits were no longer to be admitted to cultural events organised by the municipality, this would amount to a prohibited AI practice.

GP 3. Privacy

Green nudges should respect the privacy of the person being nudged, including where such nudges occur within a digital setting.

The privacy of individuals subjected to nudges must be robustly protected. This protection becomes especially critical when green nudges involve the collection, processing, or dissemination of personal data.

⁵⁹ Cass R Sunstein, *Sludge. What Stops us from getting things done and what to do about it* (MIT Press, 2021).

⁶⁰ Marta Santos Silva and Tomàs Gabriel García-Micó, 'Cooling-off hot deals: A plea for green sludge in distance sales contracts', in Marta Santos Silva et al eds, *Routledge Handbook of Private Law and Sustainability* (Routledge, 2024), 366–396, 369.

For the purposes of this GP, 'privacy' refers to 'informational privacy', which involves controlling who has access to one's personal information and to what extent,⁶¹ a concept often used interchangeably with 'data protection' (but cf the EU Charter of Fundamental Rights, which refers to the concepts in Article 7 and 8 respectively). This should be distinguished from 'decisional privacy'⁶² which pertains to the right to be free from unwarranted interferences in one's decisions and actions,⁶³ including attempts to influence behaviour or direct choices.⁶⁴ The latter is more closely related to GP 6 (Autonomy).⁶⁵

The deployment of nudges may risk breaching applicable data protection legislation. A key safeguard in this context is the requirement to obtain specific, informed, and freely given consent from individuals prior to the use of their data.⁶⁶ Alternatively, the processing of personal data in the context of green nudges must be justified by one of the other legal grounds listed in Article 6 GDPR.

For example, processing personal data for environmental protection purposes can be considered lawful when it is necessary for the performance of a task carried out in the public interest or in the exercise of official authority vested in the controller, which must be laid down in Union law or Member State law to which the controller is subject. Another legal ground, available for the private sector, would be 'legitimate interests', which involves a careful balancing of the interests or fundamental rights and freedoms of all parties involved.

Suppose a city is grappling with a severe environmental crisis caused by water contamination. In response, the local government launches a behavioural initiative aimed at encouraging residents to reduce water

usage and conserve resources. As part of this effort, authorities implement a programme that tracks individual households' water consumption in real time, providing citizens with better information about their consumption patterns, while not disclosing the data to third parties. This data collection may involve processing personal data, such as the number of occupants in a household and their water usage patterns, but it can be justified by reliance on public interests if all the other requirements set out by Article 6 GDPR are met. Conversely, if the city decided to publish the data, this would no longer be considered as proportionate to the legitimate aim pursued (see GP 2) and would violate data protection law.

An example of a company's responsible use of personal data to support environmental goals is a car-sharing service designed to reduce carbon emissions and encourage sustainable transportation practices. In this scenario, the company could collect personal data — such as users' travel patterns, vehicle usage, and emission levels — to monitor and optimise the efficiency of their car-sharing operations. By analysing this data, the company can identify areas for improvement, encourage users to choose environmentally beneficial transportation options, and incentivise sustainable behaviours, such as carpooling or electric vehicle usage. Depending on the circumstances, including the way the data is used and whether any technical and organisational safeguards applied, this processing of personal data could be justified by 'legitimate interests'.⁶⁷

Apart from the GDPR, further provisions on privacy may become relevant in the context of green nudges. According to Article 26 DSA, for example, providers of online platforms must not present advertisements to users based on profiling that uses data revealing religious or political views, or similar sensitive

⁶¹ A. Westin, *Privacy and Freedom* (Atheneum, 1967).

⁶² Beate Roessler, 'New Ways of Thinking about Privacy', in *Oxford Handbook of Political Theory* (Oxford University Press, 2006), 694–713.

⁶³ A L Allen, *Uneasy Access: Privacy for Women in a Free Society* (Rowman and Littlefield, 1988), 97; Beate Roessler, *The Value of Privacy* (Polity Press, 2005), 9.

⁶⁴ On the distinction between 'informational privacy' and 'decisional privacy' see Marjolein Lanzing, "'Strongly Recommended': Revisiting Decisional Privacy to Judge Hypernudging in Self-Tracking Technologies', *Philosophy & Technology* 32 (2019): 549–68.

⁶⁵ See GP 6 (Autonomy).

⁶⁶ Frederik Zuiderveen Borgesius, 'Behavioural Sciences and the Regulation of Privacy on the Internet', in *Nudge and the Law: A European Perspective* (Hart Publishing, 2015), 179–208, 186.

⁶⁷ Lin Kyi et al., 'Investigating Deceptive Design in GDPR's legitimate interests', *CHI Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems*, Art. no. 583, 1–16.

categories of personal data. Article 28 DSA obliges providers to ensure a high level of privacy of minors prohibiting, *inter alia*, advertising based on profiling where the recipient is a minor. Similar restrictions follow from the Political Advertising Regulation and the Audiovisual Media Services Directive (AVMSD).

While the principle of privacy is traditionally associated with natural persons, particularly in the context of data protection and dignity-based rights, certain aspects of privacy and confidentiality are also relevant to legal entities. For example, confidentiality of communications (cf the ePrivacy Directive), commercial confidentiality, protection of trade secrets (cf the Trade Secrets Directive), and the reputational interests of companies may be implicated by green nudging policies that involve public disclosure or benchmarking.

GP 4. Transparency

Green nudges should be transparent. A nudge is transparent when the person being nudged is, or could reasonably become, aware that a behavioural intervention is taking place.

Like any other policy that potentially affects the legitimate interests of others, green nudges must be transparent. This means that the entity implementing the nudge, whether public or private, should inform the person being nudged that a behavioural intervention is being used.

This concept of transparency is aligned with Rawls's principle that policies should be defensible in public⁶⁸ and Boven's concept of 'type interference transparency'.⁶⁹

Transparency enables individuals to recognise the mechanisms influencing their behaviour, which in turn allows them to engage with such interventions

reflectively, rather than being unknowingly steered by them. As Daniel Kahneman⁷⁰ explains, much of our decision-making is governed by 'System 1', the fast, automatic, and intuitive mode of thinking that makes us susceptible to subtle cues and nudges. However, when individuals are made aware of these mechanisms, they are more likely to activate 'System 2', the slower, more deliberate, and analytical mode, thereby gaining the opportunity to assess and potentially resist the influence of the nudge. Transparency, then, serves as a trigger for reflective engagement, safeguarding individual autonomy.

The claim that nudges 'work best in the dark'⁷¹ and that transparency necessarily reduces a nudge's impact has been increasingly challenged by empirical evidence. Studies have shown that nudges, particularly defaults⁷² and social norm interventions,⁷³ can remain effective even when individuals are aware of their presence. Thus, the requirement of transparency cannot be dismissed on the ground that it would undermine the effectiveness of the nudge. For example, changing the default electricity option to renewable energy without clear communication could be considered a deceptive practice and an infringement of the GP of transparency.

An important aspect of the transparency principle in GP 4 is that a nudge can still be deemed transparent even if the individual being nudged is unaware of it, provided it would not have been reasonable for them to overlook it. For instance, the previously mentioned example of painted footsteps leading to a trash bin may be considered transparent even in the absence of an explicit sign or when an individual does not consciously perceive their purpose. This is because the design of such a nudge inherently conveys its intention in a manner that most people would readily recognise, thereby embedding transparency into its very form. The principle of transparency reinforces the requirement that green nudges must not make

⁶⁸ Cass Sunstein and Richard H. Thaler, *Nudge*, *ob cit*, 244–5.

⁶⁹ Luc Bovens, 'The Ethics...', *ob cit* 216.

⁷⁰ Daniel Kahneman, *Thinking, fast and slow* (Penguin Books, 2012).

⁷¹ Luc Bovens, 'The Ethics...', *ob cit*, 217.

⁷² Hendrik Bruns et al, 'Can Nudges Be Transparent and yet Effective?', *Journal of Economic Psychology* 65 (2018), 41–59.

⁷³ Elena Kantorowicz-Reznichenko and Jaroslaw Kantorowicz, 'To Follow or Not to Follow the Herd? Transparency and Social Norm Nudges', *Kyklos* 74 (2021), 362–77.

misleading environmental claims, a safeguard more closely related to autonomy (see GP 6). The recent reform of the UCPD has emphasised environmental concerns by specifically targeting greenwashing⁷⁴ and ensuring that consumers are not misled by false claims about the environmental impact of products. The updated Directive deems as potentially 'misleading' any non-mandatory environmental claims in commercial communication that suggest a product has a positive or negligible environmental impact, is less harmful than alternatives, or has improved environmental performance over time. It also addresses the omission of relevant environmental, social, or circularity information as a deceptive practice.

Beyond explicit greenwashing claims, concerns have also emerged regarding more covert forms of manipulation in digital interfaces, commonly known as green dark patterns. 'Green dark patterns'⁷⁵ are deceptive design techniques that use misleading language, confusing layouts, or hidden fees to promote environmental causes under false pretences. Fostering explainability in this context empowers designers, regulators, and users to identify and counter deceptive practices, thereby strengthening trust, promoting ethical and legally compliant digital design, and creating more transparent, user-centred experiences.

Transparency requirements are one of the pillars of EU law. Many such requirements apply, for example, with regard to advertising, including under the UCPD, the ECD, the AVMSD and the DSA. Information on the performance of a product in relation to a repairability score, a durability score, a carbon footprint or an environmental footprint must be provided under Article 7 EDR, but also, in a contractual setting, under the CRD.

A very popular method of nudging is the ranking of search results in online services, eg a provider could rank search results with regard to products according to their carbon footprint.

According to Article 27 DSA, providers of online platforms that use recommender systems must set out, in plain and intelligible language, the main parameters used in their recommender systems, as well as any options for the recipients of the service to modify or influence them. Similar obligations to disclose ranking parameters are found, for example, in the UCPD and the CRD.

GP 5. Explainability

Green nudges should be explainable. A nudge is explainable if the policy objective it pursues and the means by which it operates are known, or reasonably ought to be known, to the person being nudged.

The concept of explainability complements transparency, together providing a comprehensive understanding of transparency *lato sensu*.⁷⁶ Distinguishing between *stricto sensu* transparency (GP 4) and explainability (GP 5) is crucial in practical terms.

The principle of explainability in green nudging emphasises that the rationale, mechanisms, and outcomes of environmental nudges must be clearly communicated and understandable to those being nudged. While transparency focuses on openness and disclosure regarding the existence of nudges, explainability delves deeper into *why* and *how* the nudge is implemented and/or communicated. 'Explainability' aligns with Bovens' concept of 'token interference transparency', which includes clarity of goals, disclosure of mechanisms, availability of clear information and the opportunity to opt out,⁷⁷ as well as with the comprehensive definition of 'transparency' by Hansen and Jespersen.⁷⁸

There is an ongoing debate on whether explanations should be directed at the individuals being nudged or other societal representatives. In either case, enhancing the explainability of nudging strategies

⁷⁴ European Union Agency for Fundamental Rights, 'Enforcing Consumer Rights to Combat Greenwashing' (Luxembourg, 2024).

⁷⁵ For a primer on the new concept, see Aleksandra Olbryk, 'Green Dark Patterns: Protection of Consumers between New Technology and Ecology' (Osnabrück Research Forum, Osnabrück, 30 November 2023), on file with the author.

⁷⁶ For a notion of transparency in wide terms, see Pelle Guldborg Hansen and Andreas Maaløe Jespersen, 'Nudge...', *ob cit*, 17 ff.

⁷⁷ Luc Bovens, 'The Ethics...', *ob cit*, 216 f.

⁷⁸ Pelle Guldborg Hansen and Andreas Maaløe Jespersen, 'Nudge...', *ob cit*, 17.

strengthens their effectiveness, legitimacy, and public acceptance. Explainability promotes transparency, encourages user engagement, and supports positive behavioural shifts toward environmental sustainability.

Where nudging is addressed by legal frameworks, such frameworks should empower individuals to understand the intent behind nudges, ask questions, and offer feedback.

Explainability ensures that nudges respect individual rights, foster accountability, and align with ethical and legal standards. By embedding explainability into the legal architecture of nudging, policymakers can empower stakeholders and reinforce the integrity and purpose of these interventions.

In online environments, where individuals are particularly vulnerable to digital influence,⁷⁹ explainability becomes even more critical. This vulnerability is intensified by power imbalances in automated commerce, data-driven consumer-seller relationships and the dynamics of digital marketplaces.⁸⁰

Explainability requirements have recently gained increasing attention from the EU legislator. According to Article 86 AI Act, for example, a person that is subject to a decision taken on the basis of the output from a high-risk AI system, which produces legal effects or similarly significantly affects that person in a way that they consider to have an adverse impact on their health, safety or fundamental rights, shall have the right to obtain from the deployer clear and meaningful explanations of the role of the AI system in the decision-making procedure and the main elements of the decision taken. A similar right to obtain an explanation in the context of automated decision making in general follows from Articles 22 and 15 GDPR.

GP 6. Autonomy

To avoid manipulating choices and behaviours, entities administering green nudges should ensure that individuals retain real freedom of choice between alternatives, and that debiasing techniques, like information provision and education, are prioritised over techniques that exploit biases.

This GP underscores the risk that green nudges may manipulate choices and behaviours, thereby infringing the principle of autonomy, and outlines how policymakers can mitigate that risk.

Autonomy is a central concept in political and moral philosophy, as well as a cornerstone of legal theory, particularly in areas like contract law, tort law, and beyond. Individual autonomy is considered an intrinsic element of various freedoms, including the freedom to contract, the freedom to conduct business, and the general freedom to act, all of which are safeguarded by national constitutions and the European Charter of Fundamental Rights.

For the purposes of this Innovation Paper, autonomy is understood as 'the ability [to make] informed choices, of shaping and fulfilling individual preferences'⁸¹ and 'manipulation' (including *online* manipulation) is understood as a source of autonomy loss.⁸²

To protect against the manipulation of choices, ie, actions that interfere with one's deliberative thinking, it is essential to ensure that individuals can make informed and voluntary decisions. Individuals should be able to easily opt out of or reverse⁸³ decisions taken under the influence of a nudge. This preserves their autonomy and ensures that the nudge does not unduly constrain their freedom of choice.⁸⁴

⁷⁹ Natali Helberger et al, 'Choice Architectures in the Digital Economy: Towards a New Understanding of Digital Vulnerability', *Journal of Consumer Policy* 45, no 2 (2022): 175–200.

⁸⁰ Natali Helberger et al, 'Choice...', *ob cit*, 176.

⁸¹ Eliza Mik, 'The erosion of autonomy in online consumer transactions', *Law, Innovation and Technology*, 8(1), 2016, 1–38, 5.

⁸² Ibid. See also Constanța Roșca, *Digital Arms...*, *ob cit*, 1 ff; Federico Galli, *Algorithmic Marketing and EU law on Unfair Commercial Practices* (Springer, 2022).

⁸³ Andrew Sims and Thomas Michael Müller, 'Nudge versus Boost: A Distinction without a Normative Difference', *Economics and Philosophy* 35 (2019): 195–222, 217 f.

⁸⁴ Ralph Hertwig, 'When to Consider Boosting: Some Rules for Policy-Makers', *Behavioural Public Policy* 1, no 2 (2017): 143–61, 151.

While nudges are designed to guide choices subtly, they must be implemented and communicated to allow individuals to base their decisions on their own preferences and values, without being unduly influenced by the nudge.

For example, in a cafeteria, a nudge might involve placing more sustainable food items at eye level to promote environmentally friendly choices. However, less sustainable options remain available, ensuring individuals have free choice. The nudge thus influences decision-making without limiting access to any option.

The manipulation of behaviours occurs when a green nudge seeks to subvert someone's deliberative capacities covertly.⁸⁵ This can happen when a nudge exploits or reinforces existing biases to steer behaviour.⁸⁶ To avoid this, policymakers should prioritise debiasing techniques, such as the smart provision of information (presented 'relationally' in order to orientate behaviour),⁸⁷ educative nudges (which promote learning and 'address the information level of the consumers directly')⁸⁸ or, alternatively, other evidence-based forms of non-fiscal and non-regulatory interventions, which Grüne-Yanoff and Hertwig label 'boosts'.⁸⁹ However, while debiasing techniques may appear transparent, they are not a panacea against manipulation. Tactics like selective disclosure or small-print disclosures,⁹⁰ opacity, framing and selective competence-building (particularly in the case of boosts⁹¹) can be manipulative. To prevent such manipulation, providing information and supporting individuals in overcoming cognitive biases in an impartial manner is crucial.⁹²

Traditionally,⁹³ manipulation is associated with deception or coercion that undermines genuine choice. However, some scholars⁹⁴ challenge this view, arguing that manipulation can sometimes enhance⁹⁵ rather than undermine rational decision-making.⁹⁶ For instance, if an individual consents to a specific type of influence or if the influence aligns with their deliberative thinking, it may not undermine their autonomy. Nonetheless, this view continues to represent a minority position in legal and ethical scholarship.

Autonomy as a goal is pursued in a broad range of EU regulations in force and recognised by the Court of Justice. Deceptive and manipulative practices in the context of allegedly 'green' concerns are addressed by a number of legal frameworks. The UCPD prohibits, *inter alia*, misleading commercial practices. This may include, for example, making a generic environmental claim for which the trader is not able to demonstrate a recognised, excellent environmental performance; making an environmental claim about an entire product or the trader's business as a whole when it concerns only a certain aspect; or claiming that a product has a neutral, reduced, or positive impact on the environment in terms of greenhouse gas emissions, based solely on offsetting measures.

According to Article 25 DSA, providers of online platforms shall not design, organise or operate their online interfaces in a way that deceives or manipulates the recipients of their service. This could occur, for example, by giving more prominence to certain choices when asking the recipient of the service for a

⁸⁵ TM Wilkinson, 'Nudging and Manipulation', *Political Studies* 61, no. 2 (2013): 341–55, 350.

⁸⁶ JS Blumenthal-Barby, 'Seeking Better Health Care Outcomes: The Ethics of Using the "Nudge"', *The American Journal of Bioethics* 12, no. 2 (2012): 1–10, 5, with further references.

⁸⁷ Fabiana Di Porto and Nicoletta Rangone, 'Behavioural Sciences in Practice: Lessons for EU policymakers', in Alberto Alemanno and Anne-Lise Sibony eds, *Nudge and the Law: A European Perspective* (Hart Publishing, 2015), 29–59, 38.

⁸⁸ Malte Frederic Dold, 'Condorcet's Jury Theorem as a Rational Justification of Soft Paternalistic Consumer Policies: A Philosophical Note', in Klaus Mathis and Avishalom Tor eds, *Nudging – Possibilities, Limitations and Applications in European Law and Economics* (Springer 2016), 39–58, 49.

⁸⁹ Till Gruenew-Yanoff and Ralph Hertwig, 'Nudge Versus Boost: How Coherent are Policy and Theory?', *Minds & Machines* 26 (2016), 149–183.

⁹⁰ TM Wilkinson, 'Nudging...', *ob cit*, 350.

⁹¹ But see Till Gruenew-Yanoff, 'Boosts vs Nudges from a welfarist perspective', *DANS – Philosophy and Economics. Recent Issues and Perspectives*, 2 (2018) 209–224, 219.

⁹² Mark White, *The Manipulation...*, *ob cit*, 139 ff. See GP 6 (Autonomy).

⁹³ Mark White, *The Manipulation...*, *ob cit*, 135.

⁹⁴ See, for example, H Pelle Guldborg Hansen and Andreas Maaløe Jespersen, 'Nudge...', *ob cit*.

⁹⁵ Thomas RV Nys and Bart Engelen, 'Judging...', *ob cit*.

⁹⁶ Thomas RV Nys and Bart Engelen, 'Judging Nudging: Answering the Manipulation Objection', *Political Studies* 65, no 1 (2017): 199–214, DOI: <https://doi.org/10.1177/0032321716629487>, 203.

decision or by repeatedly requesting that the recipient of the service make a choice where that choice has already been made, especially by presenting pop-ups that interfere with user experience.

In a similar vein, Article 5 AI Act prohibits the use of an AI system where the system deploys subliminal techniques beyond a person's consciousness or purposefully manipulative or deceptive techniques, where these materially distort the behaviour of people so that they make a decision that is reasonably likely to cause significant harm. Similar prohibitions of manipulation can be found, for example, in Article 9 of the AVMSD (eg 'surreptitious communication', 'subliminal techniques').

GP 7. Dignity

Green nudges should refrain from disrespecting or instrumentalising the persons they target.

Nudges encompass a spectrum of interventions, varying in intensity and impact on those being nudged. At the most intrusive level, individuals may be treated merely as a means to an end, rather than as ends in themselves.⁹⁷ This approach can lead to the instrumentalisation of individuals and a lack of respect,⁹⁸ potentially resulting in feelings of infantilisation⁹⁹ or humiliation.

For example, consider a poster designed to discourage ocean littering by depicting a mutant person with a fish head,¹⁰⁰ a graphic and emotionally charged appeal. While this image intends to provoke a strong emotional reaction that drives behavioural change, it could be perceived as disrespectful or instrumentalising by those exposed to it. This is because the poster exploits fear¹⁰¹ and disgust to achieve its goal, reducing the viewer to a mere target of emotional influence rather than engaging them as rational agents capable of making informed decisions. By focusing on shock value rather than meaningful

engagement, such imagery risks alienating individuals, leading them to feel disrespected or infantilised, rather than respected as autonomous decision-makers.

Building on this example, another instance where a green nudge may disrespect or instrumentalise individuals involves the use of public shaming tactics to discourage environmentally harmful behaviours.

Building on the example used in the commentary to GP 2 (Proportionality), imagine a scenario where a government introduces a policy offering a small tax deduction to consumers who purchase eco-friendly products, such as A+++-rated washing machines. To enforce this policy, however, the government takes the additional step of publicly shaming those who do not choose the eco-friendly option by listing their names in a public registry or on social media, labelling them as 'energy wasters' and 'environmental offenders'. This public labelling disrespects these consumers, treating them as a means to an end — namely, the reduction of energy consumption — without considering the potential harm to their dignity.

The dignity of consumers may, for example, be affected by unlawful discrimination. EU anti-discrimination law prohibits, *inter alia*, discrimination on grounds of sex or ethnic origin. In addition, various legal provisions prohibit the exploitation of particular vulnerabilities, notably under the UCPD and the AVMSD. Article 5 AI Act explicitly prohibits the exploitation, by way of an AI system, of any vulnerabilities of a natural person due to their age, disability or a specific social or economic situation. It also prohibits the use of AI systems for social scoring based on social behaviour or personality characteristics, with the social score leading to unfavourable treatment in social contexts that are unrelated to the contexts in which the data was originally generated. This prohibition can become relevant in the context of green nudging, as it could extend to 'sustainability scores' and similar measures.

⁹⁷ Mark White, *The Manipulation...*, *ob cit*, 135.

⁹⁸ Christian Schubert, 'Green Nudges...', *ob cit*, 338.

⁹⁹ Robert Baldwin, 'From Regulation to Behaviour Change: Giving Nudge the Third Degree', *Modern Law Review* 77(6) (2014), 831–857, 851.

¹⁰⁰ Available at <<https://www.adsoftheworld.com/campaigns/fish-7fda6acc-9c04-4d11-ae1a-ff869465872b>> (accessed 4 June 2025).

¹⁰¹ This is the conclusion of the 'Propaganda for Change' research project at the Psychology Department of the University of Warwick. See <<https://persuasion-and-influence.blogspot.com/2014/01/fish-head-mutants-wwfs-stop-climate.html>> (accessed 5 June 2025).

GP 8. Agency

Green nudges should allow persons to form and develop preferences independently from the influence of others.

In the case of paternalistic nudges, the primary concern is the infringement of autonomy. These nudges involve imposing what someone else believes is best for individuals without their explicit consent. In contrast, pro-social nudges are often justified by their potential benefits to the greater good, such as public health, safety, or environmental protection. However, this justification does not fully address the impact on an individual's sense of agency. When evaluating pro-social nudges, concerns about agency relate to an individual's ability¹⁰² to form and develop their preferences independently from the influence of others.

Green nudges, which often rely on defaults or predetermined choices to influence decisions, can promote positive behaviours, such as selecting environmentally friendly products. However, they may also limit individuals' opportunities for active decision-making. By setting defaults or guiding choices, green nudges can inadvertently undermine individuals' agency in forming preferences and participating in *self-legislation*, here understood as society's collective ability to evaluate, deliberate and choose its social institutions.¹⁰³

The EU has enacted several legislative instruments that, while not explicitly referencing 'green nudges', establish principles to ensure individuals can form and develop their preferences independently, free from undue influence. According to Article 27 DSA,

for instance, where several options are available for recommender systems that determine the relative order of information presented on an online platform, the provider must make available a functionality that allows the recipient of the service to select and to modify their preferred option at any time.

Article 8 of the UCPD defines as 'aggressive' — and therefore prohibited — commercial practices that, for example through harassment, coercion, or undue influence, are likely to significantly impair the average consumer's freedom of choice or conduct, thereby undermining the consumer's agency.

GP 9. Effectiveness

Before implementing a green nudge, a comprehensive cost-benefit analysis should be conducted that includes social and normative costs and considers potential spillover effects.

The effectiveness of green nudges has been widely discussed,¹⁰⁴ though much of the literature tends to emphasise 'efficiency', understood primarily in terms of cost-benefit analysis¹⁰⁵ rather than broader social and empirical dimensions. While efficiency can be readily assessed using quantitative data, effectiveness is a more nuanced concept that requires qualitative methods for evaluation. A green nudge may be economically *efficient* but could still prove ineffective or even detrimental to society.

Traditional regulatory approaches frequently fall short in achieving effective and timely behaviour change, which is critical given the current global challenges of climate change and environmental emergencies.¹⁰⁶ Despite some limitations regarding generalisability¹⁰⁷

¹⁰² Christian Schubert, 'Green Nudges...', *ob cit*, 338.

¹⁰³ Christian Schubert, 'Green Nudges...', *ob cit*, 338. See, however, Cass Sunstein, *Why Nudge? The Politics of Libertarian Paternalism* (Yale University Press, 2014), 130 f, 137.

¹⁰⁴ Yiling Lin, Magda Osman and Richard Ashcroft, 'Nudge: Concept, Effectiveness, and Ethics', *Basic and Applied Social Psychology* 6, no 3 (2017): 293–306; Gabriela Michalek et al, 'Nudging as a New "Soft" Tool in Environmental Policy. An Analysis Based on Insights from Cognitive and Social Psychology', Discussion paper, Discussion Paper Recap 15, October 2015.

¹⁰⁵ Hans-W Micklitz, 'The Measuring of the Law through EU Politics', in Marija Bartl and Jessica C Lawrence eds, *The Politics of European Legal Research: Behind the Method*, 2022, 223–38.

¹⁰⁶ Pelle Guldborg Hansen and Andreas Maaløe Jespersen, 'Nudge...', *ob cit*, 6.

¹⁰⁷ Stephanie Mertens, 'The Effectiveness of Nudging: A Meta-Analysis of Choice Architecture Interventions across Behavioral Domains', *PNAS* 119, no 1 (2022), 1–10, 8.

and long-term effects,¹⁰⁸ numerous studies indicate that green nudges are generally effective,¹⁰⁹ especially in areas such as energy consumption and waste management.

Research and regulatory practices within the EU, such as those demonstrated in the ESPR, reveal that greater effectiveness can be achieved through efforts in formatting, simplification, standardisation, and the provision of comparative information.¹¹⁰ For instance, a study conducted in Switzerland demonstrated that the use of a persuasive energy-saving app led to a 4.95% reduction in household energy consumption.¹¹¹ Defaults are particularly effective because individuals often lack sufficient information to make fully rational decisions. Consequently, they may bypass a thorough cost-benefit analysis when faced with environmentally significant choices or fail to act in alignment with their intentions.¹¹² The design of nudges should always be grounded in empirical evidence.¹¹³ A cost-benefit analysis remains the most practical method for evaluating the welfare effects of government actions, and it is crucial to factor in normative costs within this analysis.¹¹⁴

Special attention should be given to 'behavioural spillovers',¹¹⁵ such as *moral self-licensing*.¹¹⁶ For

instance, an individual who switches to a green energy plan might paradoxically increase their energy consumption compared to when using a less sustainable option. These nuanced considerations are vital for a comprehensive evaluation of the impacts and implications of green nudges.

A study from the University of Pennsylvania published in May 2024¹¹⁷ identified the most effective interventions for behaviour change. The researchers discovered that knowledge (education), general attitudes, and general skills had minimal impact on behaviour. In contrast, targeting habits (facilitating the adoption or abandonment of specific behaviours), modifying attitudes (associating them with positive or negative values), and enhancing behavioural skills (helping individuals overcome obstacles)¹¹⁸ were found to be more effective at the individual level.

Even when deemed necessary under this GP, empirical evidence indicates that nudges are more effective when used to *complement* rather than replace traditional monetary incentives.¹¹⁹ Therefore, nudges should be integrated into the regulatory toolkit through a collaborative¹²⁰ and case-by-case approach.¹²¹

¹⁰⁸ Francesca Cellina et al., 'Significant but Transient: The Impact of an Energy Saving App Targeting Swiss Households', *Applied Energy* 335 (2024), 1–14, 10.

¹⁰⁹ Siaw-Chui Wee, Weng-Wai Choong, and Sheau-Ting Low, 'Can "Nudging" Play a Role to Promote Pro-Environmental Behaviour?', *Environmental Challenges* 5, no 4 (2021), 1–13, 2.

¹¹⁰ Áine Ní Choisdealbha and Pete Lunn, 'Green and Simple: Disclosures on Eco-labels Interact with Situational Constraints in Consumer Choice' (2020) 43 *Journal of Consumer Policy*, 699–722; George Loewenstein, Cass Sunstein and Russell Golman, 'Disclosure: Psychology Changes Everything' (2014) 6 *Annual Review of Economics* 391, 405–408.

¹¹¹ Francesca Cellina et al., *Significant...*, *ob cit.* 12.

¹¹² Stephanie Mertens, 'The Effectiveness...', *ob cit.* 2.

¹¹³ Muiream Quigley and Elen Stokes, 'Nudging and Evidence-Based Policy in Europe: Problems of Normative Legitimacy and Effectiveness', in Alberto Alemanno and Anne-Lise Sibony eds, *Nudge and the Law: A European Perspective* (Hart Publishing, 2015), 62.

¹¹⁴ Yuval Feldman and Orly Lobel, 'Behavioural Trade-Offs: Beyond the Land of Nudges Spans the World of Law and Psychology', in Alberto Alemanno and Anne-Lise Sibony eds, *Nudge and the Law: A European Perspective* (Hart Publishing, 2015), 301–24, 309–322.

¹¹⁵ Paul Dolan and Matteo Galizzi, 'Like Ripples on a Pond: Behavioral Spillovers and Their Implications for Research and Policy', *Journal of Economic Psychology* 47 (2015): 1–16.

¹¹⁶ Anna C. Merritt, Daniel A. Effron, and Bénoit Monin, 'Moral Self-Licensing: When Being Good Frees Us to Be Bad', *Social and Personality Psychology Compass* 4, no 5 (2010): 344–57.

¹¹⁷ D. Albarracín, B. Fayaz-Farkhad, and J.A. Granados Samayo, 'Determinants of Behaviour and Their Efficacy as Targets of Behavioural Change Interventions', *Nature Reviews Psychology*, 3(6), 2024, 16 pp.

¹¹⁸ Hailey Reissman, 'Largest Quantitative Synthesis to Date Reveals What Predicts Human Behavior and How to Change It', *Annenberg School for Communication University of Pennsylvania* (blog), 3 May 2024, available at <<https://www.asc.upenn.edu/news-events/news/largest-quantitative-synthesis-date-reveals-what-predicts-human-behavior-and-how-change-it>> (last accessed 14 August 2025).

¹¹⁹ Paul J Ferraro and Juan José Miranda, 'Heterogeneous Treatment Effects and Mechanisms in Information-Based Environmental Policies: Evidence from a Large-Scale Experiment', *Resource and Energy Economics* 35 (2013): 356–79, 378; Marius Alt et al., 'Synergies of Interventions to Tackle Climate Change - A Meta-Analysis', *Global Environmental Change* 84 (2024) 1–13, 3; Matthias Lehner, Oksana Mont and Eva Heiskanen, 'Nudging – A Promising Tool for Sustainable Consumption Behaviour?', *Journal of Cleaner Production* 134 (2016), 166–77, 176.

¹²⁰ Yuval Feldman, *The Law of Good People: Challenging States' Ability to Regulate Human Behavior* (Cambridge: Cambridge University Press, 2018).

¹²¹ Marta Santos Silva, 'Nudging... *obcit.* 11.

It should also be noted that effectiveness has been considered a spectrum, meaning that an intervention will be effective if it is better than the previous state of affairs.¹²²

Moreover, a nudge can be considered effective even when it achieves the intended aim through unexpected or undesired reasons. Consider a hypothetical scenario where a utility company implements dynamic pricing to encourage consumers to use energy during off-peak hours. This pricing strategy aims to reduce peak demand and its associated environmental impact by shifting energy usage to less intensive periods. If the utility company transparently communicates that this pricing model is designed as a nudge — intended to influence consumption patterns — consumers may respond by adjusting their usage to reduce their bills. Although their primary motivation may be financial rather than environmental, the resulting behavioural shift away from peak usage still advances the policy's environmental goal. This illustrates a key point: even if the underlying motivation is not aligned with the policy's environmental rationale, the nudge can still be deemed successful in terms of its practical outcome. Behavioural change, regardless of the motivation behind it, can have valuable societal and environmental benefits.

However, transparency also introduces a potential trade-off. By making the intention behind the nudge explicit, it might inadvertently frame the intervention primarily in economic terms, thereby narrowing how consumers interpret the desired behaviour. This could limit the policy's effectiveness in fostering broader environmental awareness or long-term sustainable habits. The challenge, then, is to design transparent nudges that not only prompt behavioural change but also support a deeper understanding of, and engagement with, the underlying public interest goals.

While comparing GP1 and this GP, the question could be raised how to draw a line between both. GP 1 (Necessity) primarily concerns legitimacy and

proportionality in governance. It addresses the choice of regulatory instruments, and specifically whether to nudge at all. It stems from public law principles, particularly the proportionality principle in EU law and the protection of fundamental rights. GP 9 (Effectiveness), on the other hand, focuses on whether the chosen nudge will be effective, and whether it will work well enough to justify its use. It prescribes a cost-benefit analysis, not just in economic terms but also including normative, social, and behavioural dimensions, such as spillovers, unintended consequences, and long-term behavioural effects. It assesses the internal quality and impact of the nudge itself, not the broader justification for choosing nudging as a policy tool.

While EU legislation does not explicitly mandate a 'comprehensive cost-benefit analysis' for green nudges, several regulatory frameworks emphasise the importance of assessing their impacts, particularly concerning individual autonomy and potential societal effects. The ESPR, for instance, aims to enhance product sustainability, including by requiring an assessment of measures in achieving environmental goals.

GP 10. Acceptability

Policymakers should design and implement nudges that are both acceptable to the persons they target and supported by the broader public.

Ensuring the acceptability of nudges involves both understanding individual reactions and securing broader public support. In democratic societies, it is essential that behaviourally informed policies not only improve individual behaviours but also align with public values and concerns.

Individual acceptability is key to the effectiveness of a nudge (GP 9).¹²³ The design of a nudge should respect and address the preferences and concerns of those it targets. Individual acceptance is shaped by factors such as the perceived intrusiveness of the nudge, the legitimacy of the entity implementing it and the

¹²² Roger Brownsword, *Rights, Regulation, and the Technological Revolution* (Oxford University Press: 2008) 135.

¹²³ Lucia Reisch and Cass Sunstein, 'Do European like Nudges?', *Judgment and Decision* 11(4), 2016: 310–25, 320.

context in which it is applied.¹²⁴ A nudge is more likely to be successful if it is considered fair and aligned with an individual's values and interests.

Public support¹²⁵ further reinforces the legitimacy of nudging interventions. Broad community endorsement of such measures enhances trust and reduces potential resistance.¹²⁶ Studies¹²⁷ have shown that individuals are generally more receptive to nudges when they perceive them as advancing genuine societal goals or aligning with widely accepted values.¹²⁸

For example, while more intrusive measures such as default carbon charges may encounter resistance, there is considerable support for nudges that encourage sustainable practices, such as prominently displaying eco-friendly options in public places.

However, public acceptability alone is insufficient to justify a nudge. Policymakers must also assess how these interventions impact individual well-being, comparing their effectiveness¹²⁹ with that of alternative policy tools, and integrating them into a broader policy framework,¹³⁰ as analysed in the commentary to GP 9 (Effectiveness).

While EU legislation does not explicitly mandate that policymakers design and implement nudges, including green nudges, that are both acceptable to the individuals they target and supported by the broader public, several regulatory frameworks emphasise principles aligning with this GP.

GP 11. Oversight

Organisations and institutions that frequently administer green nudges should consider appointing dedicated staff responsible for overseeing nudge strategies and maintaining a comprehensive registry of all nudges used.

The administration of green nudges must be carried out responsibly to ensure adherence to ethical standards and legal requirements. This GP applies to institutions that regularly implement green nudges.

Although the GPs provided for in this Innovation Paper are not intended to be binding, it is advisable for institutions regularly designing and/or administering nudges to designate dedicated staff to oversee¹³¹ these. Ideally, these staff members should possess expertise in law, ethics, and environmental policy and operate independently¹³² from those implementing the nudges to prevent any conflict of interests. Their responsibilities should include: 1. ensuring legal compliance; 2. upholding ethical standards; 3. maintaining a registry of nudges; 4. evaluating and providing feedback; 5. driving continuous improvement; 6. engaging with stakeholders; and 7. establishing accountability mechanisms.

The oversight staff's primary role should be to ensure that green nudges align with constitutional and fundamental legal principles. This involves confirming that all nudges comply with relevant laws and regulations, including consumer protection, privacy, and environmental legislation. Their duties should encompass advising on the legal implications of the proposed nudges, recommending necessary

¹²⁴ Cass R Sunstein and Lucia A Reisch, *Trusting Nudges...*, *ob cit*.

¹²⁵ Dragos C Petrescu et al, 'Public Acceptability in the UK and USA of Nudging to Reduce Obesity: The Example of Reducing Sugar-Sweetened Beverages Consumption', *PLoS One* 11(6), 2016.

¹²⁶ Cass R Sunstein, Lucia A Reisch, and Micha Kaiser, 'Trusting Nudges? Lessons from an International Survey', *Journal of European Public Policy*, 2018, 1–27, 3.

¹²⁷ Lucia Reisch and Cass Sunstein, 'Do European...', *ob cit*.

¹²⁸ Lucia Reisch and Cass Sunstein, 'Do European...', *ob cit*, 318-9.

¹²⁹ GP 9 (Effectiveness).

¹³⁰ M T Gorski and C A Roberto, 'Public Health Policies to Encourage Healthy Eating Habits: Recent Perspectives', *Journal of Healthcare Leadership* 7 (2015), 81–90. C. Hawkes et al, 'Smart Food Policies for Obesity Prevention', *Lancet* 385 (9985) (2015), 2410-2421.

¹³¹ Robert Lepenies and Magdalena Małecka, 'The Institutional...', *ob cit*, 434.

¹³² *Ibid*.

adjustments, conducting routine audits to ensure compliance and establishing protocols to address any breaches. This also includes advocating for thorough evaluations of nudge interventions through Randomised Controlled Trials (RCTs) and regulatory impact assessments.¹³³ In private institutions, oversight staff should verify the proper implementation of mandated nudges — measures required by regulation rather than undertaken voluntarily¹³⁴ — often aimed at promoting specific behaviours that align with public policy objectives, such as environmental sustainability.

If a company fails to implement a required nudge correctly, or if a consumer challenges the way a nudge was applied, the matter may become a legal dispute. The institution's legal department is usually responsible for resolving such disputes, and this could involve defending the company's actions in court, negotiating settlements or ensuring compliance with the relevant laws and regulations. Importantly, this legal enforcement does not necessarily require specialised knowledge of environmental policy or ethics; it is rather about enforcement, ie, ensuring the institution adheres to legal requirements.

Additionally, the oversight staff should ensure the transparency and explainability of green nudges by clearly communicating their purpose, methods, and intended outcomes. They should verify that nudges respect individual autonomy and consent, safeguarding against manipulation or coercion.

The registry of nudges maintained by the oversight staff should be detailed, up-to-date and publicly accessible. It should include descriptions, objectives, methodologies, and outcomes of each nudge.

Evaluation and feedback responsibilities should include setting and tracking performance metrics for each nudge to assess their effectiveness in meeting environmental goals. The staff should establish channels for stakeholders, including employees and

the public, to provide feedback, helping identify unintended consequences or areas for improvement. Regular reports summarising evaluation findings and feedback should¹³⁵ be published, and thus, accessible to stakeholders and the public.

The oversight staff should continuously enhance their strategies by staying informed about the latest research and best practices in behavioural science and environmental policy. They should also provide training on implementing nudges in a legally, ethically, and socially responsible manner to other staff members.

Collaboration with environmental groups, consumer rights organisations, and other stakeholders, such as the European Consumer Organisation (BEUC) and the Joint Research Centre at the European level, is encouraged. This collaboration would help to align nudge strategies with broader societal goals and involve the public in the development and refinement of nudges through consultations and participatory processes.

Although the GPs offer recommendations rather than legally binding rules, it is strongly advised that institutions employing green nudges dedicate staff specifically to these roles. Doing so would help ensure that their nudging strategies are not only effective in promoting pro-environmental behaviour but also legally compliant, ethically sound and transparent. By adopting this approach, institutions can foster trust and secure support for their green nudging initiatives, thereby amplifying their impact and ensuring long-term sustainability.

¹³³ Alberto Alemanno and Alessandro Spina, 'Nudging...', *ob cit*, 14.

¹³⁴ Antonios Karampatzos, *Private Law...*, *ob cit*.

¹³⁵ These reports may be required if criteria for the Corporate Sustainability Reporting Directive are met.

Conclusion

As governments and institutions increasingly rely on behavioural insights to accelerate the transition toward sustainability, green nudges are emerging as an important, and often subtle, regulatory tool. While their potential to guide environmentally beneficial behaviour is significant, their use raises profound normative questions. The aim of this paper has been to provide a structured and principled framework for assessing when and how green nudges can be considered 'good' in the sense of being both effective and legally sound.

The 11 GPs articulated in this framework — necessity, proportionality, privacy, transparency, explainability, autonomy, dignity, agency, effectiveness, acceptability and oversight — highlight the complex balancing act between encouraging pro-environmental behaviour and respecting individual rights and freedoms. A key insight is that nudges, though non-coercive, still shape decision environments in ways that can challenge important principles and rules if not carefully designed.

This framework calls on policymakers, regulators, and practitioners to view green nudging not merely as a technical intervention but as a democratic exercise. Green nudges must be transparent, respectful, and acceptable to those directly affected and to society at large.

Green nudges should be subject to accountability mechanisms, ongoing evaluation, and inclusive debate. Only through such an approach can green nudging truly support a sustainable future that is also legitimate, fair, and grounded in shared public values.

In sum, nudging can be a powerful instrument for advancing the transition to environmental sustainability, but only if guided by principles of good governance. This paper offers a foundation for ensuring that green nudges not only influence behaviour but do so in a legitimate and accountable manner.

The European Law Institute (ELI) is an independent non-profit organisation established to initiate, conduct and facilitate research, make recommendations and provide practical guidance in the field of European legal development. Building on the wealth of diverse legal traditions, its mission is the quest for better law-making in Europe and the enhancement of European legal integration. By its endeavours, ELI seeks to contribute to the formation of a more vigorous European legal community, integrating the achievements of the various legal cultures, endorsing the value of comparative knowledge, and taking a genuinely pan-European perspective. As such, its work covers all branches of the law: substantive and procedural; private and public.

