

Algorithmic Tax Havens

Chettouh Omar

Adjunct Lecturer at the University of Algiers 1 and
Associate Lecturer at the Higher School of the Judiciary

omar-chettouh@hotmail.fr

Morsli Mohamed

The Faculty of Law and Political Science - The University of Ghardaia
Laboratory of Law and Society in the Digital Space

morsli.mohamed@univ-ghardaia.edu.dz

Submission: 28/02/2026 Acceptance: 24/06/2026 Published: 28/08/2026

Abstract

This study examines the emerging concept of algorithmic tax havens, proposing a functional reconsideration of traditional tax-haven criteria in light of the digital transformation of taxable activities. It argues that inadequate mastery of algorithmic tax technologies may evolve from an administrative deficiency into an institutional vulnerability capable of systematically reducing the probability of detecting and proving sophisticated tax non-compliance. Such technological asymmetry between digitally sophisticated taxpayers and tax administrations may reproduce effects traditionally associated with secrecy and weak regulatory oversight, thereby undermining effective tax sovereignty, fiscal equality, deterrence, and criminal tax security. The study further distinguishes ordinary digitalisation from genuine algorithmic administrative capacity, emphasizing data interoperability, advanced risk analysis, multidisciplinary expertise, and legally admissible digital evidence. It concludes that preventing algorithmic tax havens requires integrated legal and technological preparedness, reinforced international cooperation, explainable analytical tools, and effective judicial safeguards ensuring that enhanced tax enforcement remains consistent with legality, proportionality, transparency, privacy, and taxpayers' procedural rights.

Keywords :

Algorithmic Tax Havens; Tax Sovereignty; Algorithmic Tax Administration; Tax Evasion; Digital Tax Enforcement; Criminal Tax Security.

Introduction

The tax haven, as a legal and economic concept, has undergone a profound transformation as financial activity has shifted from traceable physical structures to a digital environment in which value, data, and transactions are generated at extraordinary speed. The traditional conception of a tax haven has been associated with low or zero taxation, banking secrecy, weak transparency and information exchange, and legal structures that separate beneficial ownership from its apparent legal form. The digital economy, however, requires us to test the adequacy of these elements where

<https://revistaidj.com/>

a State may have stringent tax legislation and cooperate internationally, yet lack the technical, human, and organisational capacity needed to understand complex digital operations and detect unlawful patterns within them.

The importance of the issue lies in the fact that tax control no longer depends merely on possessing information. A tax administration may hold millions of data points, declarations, and records, yet remain unable to convert them into actionable supervisory knowledge if it lacks tools for data integration, analysis, predictive detection, and understanding algorithmic models. By contrast, corporations, intermediaries, and other actors with advanced digital capabilities can restructure transactions, fragment financial flows, and use intangible assets and cross-border arrangements in ways that make non-compliance less visible. The centre of gravity therefore shifts from a shortage of legal rules to a shortage of capacity to enforce those rules within the environment they were designed to regulate.

Accordingly, this study proceeds from the hypothesis that a tax administration's inability to master modern algorithmic technologies may, where it reaches a level that materially reduces the probability of detecting and proving infringements, functionally reproduce the characteristics of a tax haven. The argument is not that every instance of technological delay automatically transforms a State into a tax haven. Rather, cumulative gaps in visibility, analysis, and response may create a low-enforcement-risk environment from which a non-compliant actor benefits in much the same way as such an actor traditionally benefited from secrecy or weak cooperation.

The study therefore raises the following question: to what extent can an inability to master modern algorithmic tax technologies evolve from a mere administrative deficiency into an institutional factor that reproduces the tax haven in digital form, and what legal and technical requirements are necessary to prevent that transformation? To answer this question, the study adopts an analytical method that rereads the literature on tax havens and international tax evasion and avoidance in light of digital transformation, while distinguishing between propositions expressly supported by the cited literature and the new conceptual inference advanced by this study.

Section One: From the Traditional Tax Haven to the Digital Tax Haven: The Role of Algorithmic Deficit in Tax Administration

Subsection One: The Limits of Traditional Tax-Haven Criteria in Addressing the Digital Transformation of Taxable Activity

Reconstructing the concept requires beginning not with technology itself, but with the functions historically performed by tax havens. The literature shows that evasion and avoidance do not arise from the tax rate alone; they are also shaped by the interaction of incentives, governance, and structures that make tax behaviour less transparent. Corporate studies further show that tax-sheltering decisions are linked to the governance environment and incentive structures within firms. This confirms that the phenomenon is not purely geographical, but is produced through a system of decisions, capacities, and information. From this perspective, the digital environment does not eliminate the traditional determinants; it adds a further dimension concerning the administration's ability to see those decisions as they are translated into data (Desai Mihir A. &

Dharmapala Dhammika, *Corporate Tax Avoidance and High-Powered Incentives*, Journal of Financial Economics, Elsevier, Netherlands, 2006, pp. 145-179).

Traditional regulatory approaches focused on harmful tax competition and preferential regimes, before the debate increasingly turned to secrecy as a central element. The importance of that development is that it partially detached the concept of the tax haven from the nominal tax rate: harm may result from concealing the relevant facts, not merely from reducing the tax burden. If traditional secrecy creates a legal or banking veil, the contemporary question is whether an inability to process data can create a technological veil performing the same function, with information technically available but incapable of being transformed into timely supervisory evidence (Murphy Richard, *Dirty Secrets: How Tax Havens Destroy the Economy*, Verso, United Kingdom, 2017, pp. 13-15).

Data-driven scholarship also demonstrates that understanding tax havens requires moving beyond impressions toward measuring financial flows, wealth, and imbalances. This point is particularly important in the digital environment, because an abundance of data may create the illusion that an administration is better equipped to supervise activity, whereas the real problem may lie in the quality of data integration and analysis. If measuring hidden wealth traditionally required combining banking statistics, balance-of-payments data, and corporate accounts, measuring digital tax risks likewise requires an analytical infrastructure capable of integrating heterogeneous sources and extracting patterns that are invisible to manual review (Zucman Gabriel, *La richesse cachée des nations: Enquête sur les paradis fiscaux*, Éditions du Seuil, France, 2e éd., 2017, pp. 6-7).

Critical scholarship identifies the traditional characteristics of tax havens as minimal or zero taxation, banking secrecy, limited legal constraints, and the absence of genuine economic activity. These features can, however, be reread in functional terms: secrecy reduces visibility; limited constraints reduce regulatory cost; and the absence of real activity separates legal form from economic substance. In the digital environment, reduced visibility may result not from a rule prohibiting disclosure, but from the administration's weak tools in the face of the density, speed, and complexity of transactions (Élie Bernard & Vaillancourt Claude (coord.), *L'économie toxique: Spéculation, paradis fiscaux, lobby, obsolescence programmée...*, M Éditeur, Canada, 2014, pp. 47-52).

Commercial and banking secrecy provide the clearest illustration of the relationship between a tax haven and the difficulty of identifying the beneficial owner. Where the rules protect the identity of the true owner, the administration confronts a structure whose economic reality it cannot penetrate. This provides a basis for analogy with the algorithmic environment: whereas older law could conceal identity directly, contemporary layers of data, digital structures, and automated relationships may produce a comparable effect. The concealment is not necessarily legal; it may instead be cognitive and technological. Visibility therefore emerges as a broader criterion capable of encompassing both traditional and new forms (Leservoisier Laurent, *Les paradis fiscaux*, Presses Universitaires de France, France, 2e éd., 1992, pp. 15-16).

Judicial experience in combating financial crime shows that international money trails cannot be understood merely because formal cooperation rules exist. Investigators need information that is

usable and received quickly enough to follow the movement before it fragments across multiple channels. This experience helps reveal that a tax haven is not merely a low-tax location, but also a space in which the chain of access to financial truth is disrupted. As that chain moves onto digital platforms and automated processes, technological delay itself may produce the same practical result even in the absence of formal banking secrecy (Van Ruymbeke Renaud, *Offshore: Dans les coulisses édifiantes des paradis fiscaux*, Éditions Les Liens qui Libèrent, France, 2022, unpaginated electronic edition).

Criticism directed at blacklists and formal cooperation agreements demonstrates that a commitment to cooperate does not necessarily amount to an effective capacity to detect misconduct. Financial arrangements may involve dozens or hundreds of companies and intermediaries across multiple jurisdictions, turning information requests based on prior knowledge of an account or person into a closed circle: the information cannot be requested without evidence, yet the evidence cannot be constructed without the information. The digital environment can reproduce the same circularity where a tax administration requires traditional warning indicators before opening an audit, while the arrangement is deliberately structured to avoid those indicators (Deneault Alain, *Offshore: Paradis fiscaux et souveraineté criminelle*, Éditions Écosociété, Canada, 2013, pp. 147-149).

Analysis of the unlawful or quasi-legal nature of certain tax-haven structures adds an important dimension: specialised rules may be used to circumvent the effects of sovereign rules enacted by other States without the conflict necessarily appearing as a direct violation. This shows that legal effectiveness cannot be assessed solely by the soundness of domestic rules, but also by the system's ability to pursue the transaction's actual economic effects. In the digital age, that requirement becomes more difficult where functions and data are distributed across infrastructures that do not correspond to traditional legal borders (Deneault Alain, Paul Martin and Companies: *Sixty Theses on the Alegal Nature of Tax Havens*, Talonbooks, Canada, 2006, pp. 5-8).

From a practical perspective, literature on offshore services shows that geography has lost part of its importance because of modern communications. Although this observation appears in the context of offshore investment, it has broader methodological significance: as the cost of distance diminishes, a purely geographical definition of the tax haven becomes less capable of explaining behaviour. A digital actor can manage structures and data remotely; the decisive question therefore becomes the characteristics of the regulatory and supervisory environment, including the administration's ability to access and understand information (Barber Hoyt L., *Tax Havens Today: The Benefits and Pitfalls of Banking and Investing Offshore*, John Wiley & Sons, United States, 2007, pp. 115-118).

Broad studies of globalisation confirm that secrecy, more than the tax rate alone, is a structural feature of many tax havens, implemented through banking rules and a range of legal structures. The conclusion that may be developed from this insight is that secrecy is not an end in itself; it is a mechanism for lowering the probability of detection. If a technological deficit can lower that probability to a comparable degree, then the economic function of secrecy can be reproduced without being formally mandated by law. This opens the way to the concept of the digital tax haven

(Palan Ronen, Murphy Richard & Chavagneux Christian, *Tax Havens: How Globalization Really Works*, Cornell University Press, United States, 2010, pp. 31-34).

The literature distinguishes between a narrow definition of a tax haven, combining low taxation, weak transparency and information exchange, and the absence of a substantial-activity requirement, and a broader definition focusing on low tax burdens and the attraction of capital. This diversity demonstrates that the concept has never been entirely static. Expanding it functionally to include supervisory capacity is therefore not a break with the literature, but an extension of its underlying logic: identifying the characteristics that make an environment more susceptible to being used to reduce tax liability or conceal the tax base (Gravelle Jane G., *Tax Havens: International Tax Avoidance and Evasion*, National Tax Journal, United States, 2009, pp. 727-733).

Studies of offshore wealth show that shell companies, trusts, and foundations can separate assets from their true owners, and that effective cooperation with tax authorities is what prevents such concealment from succeeding. This point is central: the shell company is not itself the haven; its significance lies in its capacity to disrupt tax knowledge. It is therefore possible to envisage digital mechanisms performing the same function by making a transaction executable while simultaneously rendering it difficult to understand or connect to the relevant taxpayer (Zucman Gabriel, *The Hidden Wealth of Nations: The Scourge of Tax Havens*, The University of Chicago Press, United States, 2015, pp. 28-30).

Audit studies show that traditional tools can identify relatively simple forms of non-compliance but face substantial difficulty in detecting offshore accounts, complex trusts, and concealed companies. If such limitations already exist in a comparatively traditional financial environment, they become more acute in an economy based on automated analysis, digital assets, and dense transaction chains. The weakness of the supervisory tool therefore becomes part of the definition of tax risk rather than merely a subsequent administrative problem (Saez Emmanuel & Zucman Gabriel, *The Triumph of Injustice: How the Rich Dodge Taxes and How to Make Them Pay*, W. W. Norton & Company, United States, 2019, pp. 60-61).

Historical experience also shows that formal information-exchange agreements may become a façade of compliance where they are designed in a manner that makes obtaining information excessively difficult. This confirms that cooperation must be assessed by results rather than by form. By analogy, in the digital sphere it is not enough for an administration to possess a theoretical right of access to data; it must be able to extract, connect, and analyse that data within a useful timeframe. Otherwise, data abundance itself may become a new form of opacity (Shaxson Nicholas, *Treasure Islands: Tax Havens and the Men Who Stole the World*, Vintage/Penguin Random House, United Kingdom, 2012, pp. 229-231).

Subsection Two: Algorithmic Asymmetry and the Transformation of Weak Supervisory Capacity into Digital Tax Attractiveness

Technological weakness becomes a tax factor when an asymmetry arises between the actor's capacity to design a transaction and the administration's capacity to interpret it. A firm may use advisers and advanced information systems to rearrange facts, while the administration relies on

fixed indicators or ex post review. The difference then lies not in the quantity of data available, but in the ability to convert data into operational knowledge. This idea is consistent with the literature showing the difficulty of measuring tax sheltering and distinguishing accounting outcomes from tax outcomes, making advanced analysis necessary to avoid confusing lawful conduct with deliberate concealment (Desai Mihir A. & Dharmapala Dhammika, *Corporate Tax Avoidance and High-Powered Incentives*, Journal of Financial Economics, Elsevier, Netherlands, 2006, pp. 145-179).

Algorithmic asymmetry does not mean that the algorithm itself commits an offence. It means that superiority in analytical and restructuring tools reduces the probability that the conduct will be detected. This can be inferred from the literature identifying secrecy and concealment capacity as features that attract the use of tax havens: if the traditional risk arises because the administration is prevented from seeing the account, the digital risk arises because it is unable to distinguish an abnormal pattern among millions of transactions. Analytical capacity thus becomes part of the deterrence equation (Murphy Richard, *Dirty Secrets: How Tax Havens Destroy the Economy*, Verso, United Kingdom, 2017, pp. 13-15).

This conclusion is reinforced where data exists but the tools needed to measure and interpret it do not. Statistical work on hidden wealth demonstrates that effective oversight begins by building a comprehensive picture from dispersed data. In modern tax administration, storing declarations, invoices, and registers is insufficient; the administration must connect them, analyse financial and temporal relationships, and identify anomalies. In the absence of such capabilities, data becomes a silent mass and the more capable actor benefits from the resulting knowledge gap (Zucman Gabriel, *La richesse cachée des nations: Enquête sur les paradis fiscaux*, Éditions du Seuil, France, 2e éd., 2017, pp. 6-7).

Economically, a haven may attract non-compliant conduct because it reduces the expected cost of detection. Where the traditional model achieves this through secrecy or minimal constraints, a digital environment can produce the same effect when administrative procedures are slow and fragmented relative to the speed of financial innovation. The actor does not need a legal exemption if it expects the supervisory system to be incapable of reconstructing the transaction. This is the essence of the transition from positive tax attractiveness to negative supervisory attractiveness (Élie Bernard & Vaillancourt Claude (coord.), *L'économie toxique: Spéculation, paradis fiscaux, lobby, obsolescence programmée...*, M Éditeur, Canada, 2014, pp. 47-52).

The traditional difficulty of identifying the true owner may be understood as an early form of informational asymmetry. Today, however, the owner may be formally known while the way in which income is generated, value is distributed, or consideration is determined between related parties remains technologically opaque. Modern supervision must therefore move beyond asking "Who owns?" to additional questions: How was value generated? How was it allocated? What model produced the data declared for tax purposes? The algorithmic dimension thus appears as an extension of the transparency problem (Leservoisier Laurent, *Les paradis fiscaux*, Presses Universitaires de France, France, 2e éd., 1992, pp. 15-16).

Judicial practice demonstrates that the speed of fund transfers and the multiplicity of intermediaries consume the time available for investigation. In an algorithmic environment the problem intensifies because transactions may be executed automatically and repeatedly, making ex post control less effective. An inability to use near-real-time analytical tools is therefore more than an administrative delay; it may structurally reduce the probability of detection, which is precisely the condition that makes the environment more attractive for digital tax fraud (Van Ruymbeke Renaud, *Offshore: Dans les coulisses édifiantes des paradis fiscaux*, Éditions Les Liens qui Libèrent, France, 2022, unpaginated electronic edition).

Complex offshore structures also show that a lack of effective cooperation can provide practical protection to a non-compliant actor even where formal rules exist. The same logic can operate internally: where national databases are not interoperable, or where the administration cannot read the digital footprint of a transaction, institutional fragmentation performs a function similar to external borders. “Haven pockets” may therefore arise within a single State, not because of its law, but because of weak integration and analytical capacity (Deneault Alain, *Offshore: Paradis fiscaux et souveraineté criminelle*, Éditions Écosociété, Canada, 2013, pp. 147-149).

The idea of modified sovereignty in offshore scholarship illustrates how actors can exploit gaps between rules and sovereign jurisdictions. Digitalisation expands the scope of such exploitation because economic activity may be distributed across servers, platforms, companies, and intangible rights. If the administration cannot assemble a unified picture, fragmentation itself becomes a means of weakening taxation. Algorithmic asymmetry is therefore, at its core, an asymmetry in the ability to reconstruct economic reality from its digital components (Deneault Alain, Paul Martin and Companies: *Sixty Theses on the Alegal Nature of Tax Havens*, Talonbooks, Canada, 2006, pp. 5-8).

Practical accounts of offshore services confirm that privacy and the government’s difficulty in obtaining information are themselves attractive features. This makes it possible to understand behaviour in terms of risk: the actor weighs the expected benefit against the probability of being reached by the authorities. In the digital environment, difficulty of access may result not from moving an asset abroad, but from designing the transaction in a manner that exceeds the administration’s technical tools. Weak technological capacity can therefore become an objective incentive even where the State has not deliberately created one (Barber Hoyt L., *Tax Havens Today: The Benefits and Pitfalls of Banking and Investing Offshore*, John Wiley & Sons, United States, 2007, pp. 115-118).

Studies of globalisation indicate that some companies comply with the arm’s-length principle only in jurisdictions where they expect a serious challenge from the tax administration, and that weak expertise and institutional capacity in certain States reduce the likelihood of successful transfer-pricing challenges. This observation closely supports the study’s hypothesis: behaviour adapts to expected supervisory capacity. If the relevant adaptive criterion is increasingly the level of algorithmic analysis, technically weaker environments may attract more complex forms of profit shifting or concealment of the tax base (Palan Ronen, Murphy Richard & Chavagneux Christian,

Tax Havens: How Globalization Really Works, Cornell University Press, United States, 2010, pp. 31-34).

Transfer-pricing scholarship also confirms that intangible assets create particular difficulties because clear market comparables are often unavailable. In the digital economy, the importance of intangibles, data, and algorithms continues to grow, expanding the scope for valuation disputes and increasing the knowledge burden on tax administrations. The absence of multidisciplinary teams and suitable analytical models may therefore transform economic complexity into a practical advantage for the more capable taxpayer and reduce the effectiveness of adjustment even where the underlying legal rules are sound (Gravelle Jane G., Tax Havens: International Tax Avoidance and Evasion, National Tax Journal, United States, 2009, pp. 727-733).

Analysis of concealment structures shows that an actor may combine a shell company, an account, and a fund across several jurisdictions. In the digital environment, technological layers can be added to legal layers, making it even more difficult to separate ownership from control or income from source. Traditional information exchange therefore remains necessary but is no longer sufficient unless the administration is also capable of interpreting the data received and linking it to the domestic taxpayer file (Zucman Gabriel, The Hidden Wealth of Nations: The Scourge of Tax Havens, The University of Chicago Press, United States, 2015, pp. 28-30).

Audit literature shows that sophisticated forms of evasion are not easily detected by random examination and require additional sources of information. From an algorithmic perspective, this means that tax administrations need advanced risk-selection models that go beyond historical indicators and include tools for identifying indirect relationships. If administrative tools remain static while actors learn how to avoid them, the system becomes systematically exploitable (Saez Emmanuel & Zucman Gabriel, The Triumph of Injustice: How the Rich Dodge Taxes and How to Make Them Pay, W. W. Norton & Company, United States, 2019, pp. 60-61).

Finally, the experience of information exchange on request shows that a system may appear cooperative yet remain ineffective because a request presupposes prior knowledge of what is to be discovered. The same paradox arises algorithmically when an administration uses detection rules that search only for patterns it already knows. Modern preparedness therefore requires exploratory capacity capable of detecting new patterns; otherwise, the boundaries of what the administration already knows become the boundaries around which actors design what remains unseen (Shaxson Nicholas, Treasure Islands: Tax Havens and the Men Who Stole the World, Vintage/Penguin Random House, United Kingdom, 2012, pp. 229-231).

Section Two: The Digital Tax Haven Between the Erosion of Effective Tax Sovereignty and the Need to Build Algorithmic Administrative Capacity

Subsection One: Legal Characterisation of the Digital Tax Haven and Its Effects on Sovereignty, Deterrence, and Criminal Tax Security

Legally characterising the digital tax haven requires distinguishing cause from effect. Technological inability is not, in itself, a tax privilege or a legal violation. It becomes legally significant where it produces, on a stable basis, a reduced probability of detection and proof. At that point, a functional condition arises that resembles the traditional haven in its effect: the space

for invisible conduct expands and effective equality among taxpayers weakens. This characterisation does not attribute to traditional literature a term that it has not used; rather, it builds on what that literature has established regarding the relationship between concealment and the ability to avoid supervision (Desai Mihir A. & Dharmapala Dhammika, *Corporate Tax Avoidance and High-Powered Incentives*, Journal of Financial Economics, Elsevier, Netherlands, 2006, pp. 145-179).

From the standpoint of sovereignty, it is insufficient for a State merely to possess jurisdiction to impose tax if it is unable to perceive the facts to which that jurisdiction applies. Tax sovereignty in the digital environment remains legal in origin, but it requires technical means for its exercise. The algorithmic dimension of sovereignty is therefore a description of the means by which the State accesses reality, not the creation of a new sovereign power. The wider the gap between legal rules and enforcement capacity, the more sovereignty shifts from an effective power to a theoretical competence of limited practical effect (Murphy Richard, *Dirty Secrets: How Tax Havens Destroy the Economy*, Verso, United Kingdom, 2017, pp. 13-15).

It follows that a digital tax haven should not be measured by the tax rate but by a composite indicator of visibility capacity: data quality, interoperability, speed of analysis, human expertise, the ability to trace intangible assets, and operational cooperation. This shift from a financial indicator to an institutional one finds support in scholarship emphasising the importance of measurement and data in understanding hidden wealth. The absence of measurement is not a neutral void; it may conceal the scale of the phenomenon and weaken the response (Zucman Gabriel, *La richesse cachée des nations: Enquête sur les paradis fiscaux*, Éditions du Seuil, France, 2e éd., 2017, pp. 6-7).

From the perspective of fairness, algorithmic weakness may create an imbalance between the traditional taxpayer, whose activity is easily visible to the administration, and the digitally sophisticated actor capable of embedding activity within complex structures. The problem is then not merely a loss of revenue, but a distortion of equality before public burdens. A uniform legal rule does not produce genuine equality if the probability of its application differs structurally according to the taxpayer's technological capacity. Developing administrative capability is therefore directly connected to protecting tax justice itself (Élie Bernard & Vaillancourt Claude (coord.), *L'économie toxique: Spéculation, paradis fiscaux, lobby, obsolescence programmée...*, M Éditeur, Canada, 2014, pp. 47-52).

The effects of the digital haven are also evident in matters of proof. A tax rule requires facts capable of attribution, whereas the digital environment may distribute the elements of those facts across databases, platforms, and intermediaries. If the administration cannot reconstruct the evidentiary chain, failure of proof results from institutional weakness rather than from the absence of a legal rule. This recalls the function traditionally performed by secrecy in preventing identification of the owner or reconstruction of the financial trail (Leservoisier Laurent, *Les paradis fiscaux*, Presses Universitaires de France, France, 2e éd., 1992, pp. 15-16).

In the criminal sphere, the severity of punishment does not operate independently of the probability of detecting the offence. An actor who expects supervisory tools to be incapable of understanding

the structure employed may not be significantly deterred by an abstract increase in penalties. Criminal tax security therefore requires increasing the certainty of detection, making analytical capacity part of deterrence policy. This does not mean replacing law with technology; it means using technology as a necessary instrument for making law effective (Van Ruymbeke Renaud, *Offshore: Dans les coulisses édifiantes des paradis fiscaux*, Éditions Les Liens qui Libèrent, France, 2022, unpaginated electronic edition).

International cooperation presents a similar problem: the existence of an agreement does not guarantee an effective outcome if information does not arrive in an analysable form or if the administration is unable to use it. The emphasis must therefore move from legal cooperation to operational cooperation, including technical standards, data-format harmonisation, and teams capable of processing cross-border information. In this sense, algorithmic sovereignty is compatible with cooperation rather than opposed to it (Deneault Alain, *Offshore: Paradis fiscaux et souveraineté criminelle*, Éditions Écosociété, Canada, 2013, pp. 147-149).

Conceptually, the digital tax haven may be described as a condition of “reduced supervisory risk” within a system that may otherwise impose high taxes and severe penalties. This definition avoids conflating it with the traditional haven and instead treats the two as distinct mechanisms serving a comparable function: both reduce the probability that the State will reach the tax base, but the first may do so through secrecy or preferential treatment, whereas the second does so through institutional inability to read digital economic reality (Deneault Alain, Paul Martin and Companies: *Sixty Theses on the Alegal Nature of Tax Havens*, Talonbooks, Canada, 2006, pp. 5-8).

This characterisation also means that classification may be partial within the same State. A banking sector may be subject to advanced analytical control while digital commerce, crypto-assets, or internal transfer pricing remain comparatively under-supervised. It is therefore unnecessary, and often inaccurate, to label an entire State a digital tax haven. The more precise approach is to measure pockets of institutional exploitability within the system. This turns the concept from a political stigma into a diagnostic tool for institutional vulnerability (Barber Hoyt L., *Tax Havens Today: The Benefits and Pitfalls of Banking and Investing Offshore*, John Wiley & Sons, United States, 2007, pp. 115-118).

The institutional dimension also confirms that weak expertise in confronting multinational enterprises may limit a State’s ability to challenge complex structures. In the digital age, this weakness takes a new form where the models used exceed the inspector’s knowledge or the administration’s technical infrastructure. Algorithmic sovereignty is therefore as dependent on human resources as it is on software: an intelligent system has little value where no suitably qualified personnel can interpret its results and translate them into a legal argument capable of withstanding judicial scrutiny (Palan Ronen, Murphy Richard & Chavagneux Christian, *Tax Havens: How Globalization Really Works*, Cornell University Press, United States, 2010, pp. 31-34).

Legal characterisation must also preserve the distinction between lawful avoidance and unlawful evasion. Technology may be used for legitimate tax planning just as it may be used for concealment, and complexity cannot itself be treated as evidence of criminality. Algorithmic

supervision therefore requires clear risk criteria, explainable outputs, human review, and the taxpayer's right to challenge the basis on which a decision was made. Tax security is incomplete unless it remains anchored in legality and due process (Gravelle Jane G., *Tax Havens: International Tax Avoidance and Evasion*, National Tax Journal, United States, 2009, pp. 727-733).

From the standpoint of institutional responsibility, experience in combating tax havens shows that reliance on trust or voluntary disclosure alone is insufficient. In the digital environment, it is equally mistaken to assume that digitising tax returns automatically creates effective supervision. Digitisation may merely transfer paper onto a screen without changing analytical capacity. A distinction must therefore be drawn between a digital administration and an algorithmic administration: the former collects electronically, whereas the latter connects, interprets, predicts, and learns within the limits of law (Zucman Gabriel, *The Hidden Wealth of Nations: The Scourge of Tax Havens*, The University of Chicago Press, United States, 2015, pp. 28-30).

Deterrence also depends on the administration's ability to detect sophisticated evasion among taxpayers with substantial resources. Research shows that traditional audits do not easily capture complex offshore structures. Equality in the severity of punishment is therefore insufficient where equality in the probability of detection is absent. Developing detection tools consequently becomes a condition for restoring balance among taxpayers, not merely a mechanism for increasing revenue (Saez Emmanuel & Zucman Gabriel, *The Triumph of Injustice: How the Rich Dodge Taxes and How to Make Them Pay*, W. W. Norton & Company, United States, 2019, pp. 60-61).

Weak coordination among public bodies fragments visibility, a problem already observed in international regulation where no single regulator sees the complete picture. The same problem can arise domestically among tax authorities, customs, commercial registries, financial-sector regulators, and anti-money-laundering bodies. If data remains confined to isolated silos, the State may create within its own territory an "informational offshore" from which actors can benefit without ever leaving the jurisdiction (Shaxson Nicholas, *Treasure Islands: Tax Havens and the Men Who Stole the World*, Vintage/Penguin Random House, United Kingdom, 2012, pp. 229-231).

Subsection Two: Building Algorithmic Sovereignty and Preparedness to Prevent the State from Becoming a Digital Tax Haven

Preventing the emergence of a digital tax haven begins with building institutional capacity rather than purchasing a single software package. Algorithmic capacity is a system comprising data quality, interoperability, computing infrastructure, legal and economic expertise, data science, information security, and procedures for converting analytical outputs into decisions capable of proof. The difficulty of measuring tax behaviour in empirical research confirms that a poorly designed indicator may conflate distinct phenomena; administrative models must therefore be testable, auditable, and continually updated (Desai Mihir A. & Dharmapala Dhammika, *Corporate Tax Avoidance and High-Powered Incentives*, Journal of Financial Economics, Elsevier, Netherlands, 2006, pp. 145-179).

Reform also requires moving from secrecy toward usable transparency. The objective is not to collect unlimited quantities of information, but to ensure that necessary information is received in

a form that can be analysed. This requires beneficial-ownership registers, disclosure of high-risk structures, standardised entity identifiers, and integration of tax declarations with relevant financial and customs data under clear legal safeguards. Transparency thereby becomes not a formal obligation, but a practical capacity to reconstruct economic reality (Murphy Richard, *Dirty Secrets: How Tax Havens Destroy the Economy*, Verso, United Kingdom, 2017, pp. 13-15).

This must be accompanied by a continuous measurement policy. Statistical data proved crucial in revealing the scale of offshore wealth; similarly, tax administrations should develop indicators for measuring “institutional susceptibility to algorithmic exploitation”: the time required to detect a new pattern, the proportion of data that can be linked across systems, the degree to which models can explain alerts, and the extent of coverage of digital sectors. An institution cannot remedy a vulnerability that it does not measure (Zucman Gabriel, *La richesse cachée des nations: Enquête sur les paradis fiscaux*, Éditions du Seuil, France, 2e éd., 2017, pp. 6-7).

Investment must therefore be directed toward narrowing the capability gap rather than achieving merely formal digitisation. A system based on fixed rules can quickly be learned and circumvented by sophisticated actors, whereas a changing environment requires flexible models and periodic reassessment. Flexibility, however, must not become opacity: rules governing the use of artificial intelligence should be clearly defined, models should be tested for accuracy and bias, and decisions affecting the taxpayer’s legal position must remain subject to human and judicial review (Élie Bernard & Vaillancourt Claude (coord.), *L’économie toxique: Spéculation, paradis fiscaux, lobby, obsolescence programmée...*, M Éditeur, Canada, 2014, pp. 47-52).

The identity of the beneficial owner remains fundamental because algorithmic analysis cannot compensate for the absence of basic information. If a company or account is legally separated from the person who exercises effective control, even the best models will operate on incomplete data. Traditional transparency reforms must therefore be combined with modern analytical capabilities: disclosure of ownership, availability of accounts, information exchange, and then effective analysis and linkage. A digital haven cannot be addressed by one tool, but only through an integrated chain running from visibility to proof (Leservoisier Laurent, *Les paradis fiscaux*, Presses Universitaires de France, France, 2e éd., 1992, pp. 15-16).

Reform also requires cooperation among the judiciary, the tax administration, and financial authorities. Information identified by a risk algorithm does not automatically become evidence; it must be collected and verified through lawful procedures. Inspectors, judges, and experts should therefore be trained in the nature of digital evidence, protocols should be established to preserve data integrity and chain of custody, and the permissible degree of reliance on automated outputs should be clearly defined. In this way, technical effectiveness can be reconciled with the guarantees of a fair trial (Van Ruymbeke Renaud, *Offshore: Dans les coulisses édifiantes des paradis fiscaux*, Éditions Les Liens qui Libèrent, France, 2022, unpaginated electronic edition).

At the international level, cooperation should move beyond individual requests toward more automatic exchange wherever the law permits, accompanied by shared standards for data quality. Experience in combating offshore structures shows that cooperation requiring prior proof may be incapable of producing the evidence needed in the first place. In the digital environment,

information exchange must help authorities build risk indicators before the trail disappears, while respecting data-protection requirements and defined purposes of processing (Deneault Alain, *Offshore: Paradis fiscaux et souveraineté criminelle*, Éditions Écosociété, Canada, 2013, pp. 147-149).

It is also important to create mechanisms for monitoring structures that exploit gaps between sovereign jurisdictions. The purpose is not to prevent cross-border activity, but to ensure that the distribution of legal and technical functions does not cause the tax base to disappear. This can be pursued through joint transfer-pricing and digital-analysis teams, disclosure of complex arrangements, economic assessment of substance, and linkage between audit findings and information available to partner administrations (Deneault Alain, Paul Martin and Companies: *Sixty Theses on the Alegal Nature of Tax Havens*, Talonbooks, Canada, 2006, pp. 5-8).

Building preparedness also requires redefining human resources. The contemporary tax inspector increasingly needs to work within a team that combines law, accounting, economics, data science, and digital forensic analysis. This does not mean that every inspector must become a programmer. Rather, the institution must possess a cooperative structure capable of translating a legal question into a data test and then translating the technical result back into the language of legal proof. That integration is what transforms technology from a separate tool into an institutional capability (Barber Hoyt L., *Tax Havens Today: The Benefits and Pitfalls of Banking and Investing Offshore*, John Wiley & Sons, United States, 2007, pp. 115-118).

The experience of developing countries with transfer pricing indicates that shortages of legislation, expertise, and institutional confidence weaken the ability to challenge large multinational enterprises. Algorithmic sovereignty should therefore include programmes for building and sharing expertise, not merely purchasing ready-made solutions that may deepen technological dependence. The preferable approach is to develop internal capacity to understand models and data, while benefiting from international cooperation, so that the administration can evaluate the tools it uses rather than becoming a user unable to question their outputs (Palan Ronen, Murphy Richard & Chavagneux Christian, *Tax Havens: How Globalization Really Works*, Cornell University Press, United States, 2010, pp. 31-34).

Addressing intangible assets requires more advanced economic and legal analytical models because the absence of clear market comparables creates fertile ground for dispute. Digital tools can help the administration gather comparables and analyse value chains, but they do not eliminate legal judgment. Artificial intelligence should therefore support rather than replace decision-making, and both the data sources and the analytical methodology should be documented so that any tax adjustment remains defensible before a court (Gravelle Jane G., *Tax Havens: International Tax Avoidance and Evasion*, National Tax Journal, United States, 2009, pp. 727-733).

Reform should not be confined to banks, because concealment migrates to new structures whenever an older channel becomes more tightly regulated. Experience with shell companies and trusts shows that regulatory innovation adapts to detection rules. A risk-based approach is therefore needed that supervises function rather than form: Who controls the arrangement? Where is value created? Who bears the relevant risks? What is the true path of the financial flow? This approach

is better suited to an age in which technological vehicles change rapidly (Zucman Gabriel, *The Hidden Wealth of Nations: The Scourge of Tax Havens*, The University of Chicago Press, United States, 2015, pp. 28-30).

A detection strategy should also be directed toward the most complex taxpayers and transactions, because random auditing alone does not identify every sophisticated form of evasion. Network analysis and anomaly detection can help prioritise risks, provided that a statistical result is never transformed automatically into a finding of liability. The algorithm determines where the inspector should look; proof of infringement remains governed by legal rules and the taxpayer's rights of defence (Saez Emmanuel & Zucman Gabriel, *The Triumph of Injustice: How the Rich Dodge Taxes and How to Make Them Pay*, W. W. Norton & Company, United States, 2019, pp. 60-61). Finally, preventing a digital haven requires periodic scrutiny of the effectiveness of cooperation itself. Success should not be measured by the number of agreements or the volume of data exchanged, but by the administration's ability to use that information in actual cases and reduce detection time. Performance indicators should therefore link incoming information to supervisory outcomes and expose points of delay or technical incompatibility. Policy then moves from announcing cooperation to testing its real effect on the probability of detection (Shaxson Nicholas, *Treasure Islands: Tax Havens and the Men Who Stole the World*, Vintage/Penguin Random House, United Kingdom, 2012, pp. 229-231).

Conclusion

The study concludes that digital transformation does not require abandoning the traditional concept of the tax haven; rather, it reveals the concept's limits where the effectiveness of the tax system becomes dependent on the administration's ability to perceive digital facts. A traditional haven lowers taxes, conceals information, or obstructs cooperation. The digital tax haven proposed here rests on a different cause but produces a comparable functional effect: a material reduction in the probability of detection and proof because of insufficient institutional capacity to analyse the algorithmic environment.

Accordingly, mere delay in updating software is not enough to establish a digital tax haven. The delay must evolve into a vulnerability capable of systematic exploitation. This can be measured through gaps in data integration, weak risk analysis, limited multidisciplinary expertise, slow response, an inability to interpret digital models and operations, and a reduced capacity to transform information into legally usable evidence. This threshold prevents the concept from becoming overbroad and preserves its legal and analytical value.

The study also shows that tax sovereignty has not lost its legal essence in the digital age, but has acquired an algorithmic dimension in the means by which it is exercised. The power to impose tax cannot fulfil its purpose if the administration is unable to see the tax base, identify the taxpayer, and prove the taxable facts. Investment in data, human resources, and advanced analytics therefore forms part of the protection of public revenue and equality before taxation, rather than being merely an option for administrative modernisation.

The study recommends an integrated strategy based on: unifying and connecting databases; developing beneficial-ownership registers; ensuring interoperable information exchange; establishing multidisciplinary teams; adopting explainable and reviewable risk-analysis tools; developing rules on digital evidence; measuring institutional susceptibility to algorithmic exploitation; and strengthening technical and legal international cooperation. These measures should be accompanied by safeguards for privacy, proportionality, transparency, and judicial oversight so that greater administrative effectiveness does not itself generate new legal risks.

The question that should therefore be added to future criteria for evaluating tax environments is not only: Where are taxes low, or where does information disappear? It is also: Where does the administration's ability to see, understand, and prove taxable activity decline in the digital age? If the twentieth century placed secrecy and territorial jurisdiction at the centre of the tax-haven problem, the twenty-first century makes institutional algorithmic competence a condition for transforming tax sovereignty from a legal text into an effective enforcement capacity.

References

- Desai Mihir A. & Dharmapala Dhammika, *Corporate Tax Avoidance and High-Powered Incentives*, Journal of Financial Economics, Elsevier, Netherlands, 2006.
- Murphy Richard, *Dirty Secrets: How Tax Havens Destroy the Economy*, Verso, United Kingdom, 2017.
- Zucman Gabriel, *La richesse cachée des nations: Enquête sur les paradis fiscaux*, Éditions du Seuil, France, 2e éd., 2017.
- Élie Bernard & Vaillancourt Claude (coord.), *L'économie toxique: Spéculation, paradis fiscaux, lobby, obsolescence programmée...*, M Éditeur, Canada, 2014.
- Leservoisier Laurent, *Les paradis fiscaux*, Presses Universitaires de France, France, 2e éd., 1992.
- Van Ruymbeke Renaud, *Offshore: Dans les coulisses édifiantes des paradis fiscaux*, Éditions Les Liens qui Libèrent, France, 2022.
- Deneault Alain, *Offshore: Paradis fiscaux et souveraineté criminelle*, Éditions Écosociété, Canada, 2013.
- Deneault Alain, Paul Martin and Companies: *Sixty Theses on the Alegal Nature of Tax Havens*, Talonbooks, Canada, 2006.
- Barber Hoyt L., *Tax Havens Today: The Benefits and Pitfalls of Banking and Investing Offshore*, John Wiley & Sons, United States, 2007.
- Palan Ronen, Murphy Richard & Chavagneux Christian, *Tax Havens: How Globalization Really Works*, Cornell University Press, United States, 2010.
- Gravelle Jane G., *Tax Havens: International Tax Avoidance and Evasion*, National Tax Journal, United States, 2009.
- Zucman Gabriel, *The Hidden Wealth of Nations: The Scourge of Tax Havens*, The University of Chicago Press, United States, 2015.
- Saez Emmanuel & Zucman Gabriel, *The Triumph of Injustice: How the Rich Dodge Taxes and How to Make Them Pay*, W. W. Norton & Company, United States, 2019.

Shaxson Nicholas, *Treasure Islands: Tax Havens and the Men Who Stole the World*,
Vintage/Penguin Random House, United Kingdom, 2012.