

Catching Pokémon, Not Tax Bills

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What if the Pokémon you caught were not just a nostalgic escape but part of a billion-dollar enterprise hiding in plain sight? Beneath the surface of Niantic's groundbreaking augmented reality game, Pokémon Go, lies a tale of untaxed wealth creation that challenges the very foundations of our tax system. While players spent countless hours capturing virtual creatures, they were unwittingly contributing to a cutting-edge AI mapping system, a corporate intangible asset worth billions. Unlike the game's in-app purchases, taxed under traditional frameworks, this mapping system sidestepped tax obligations entirely, revealing cracks in a tax regime ill-equipped to handle the modern economy.

This Essay analyzes Niantic's dual business model: taxable game revenue versus untaxed intangibles, and studies its broader implications for tax policy in the digital age. How do we value user-generated data? Which jurisdiction gets taxing rights for a borderless digital asset? And how does the principle of realization, designed for tangible assets, apply to intangible wealth that may never be monetized in conventional ways? Using Pokémon Go as a case study, we highlight the urgent need for tax frameworks that address the complexities of intangibles, data, and artificial intelligence. In the era of data-driven wealth, this Essay calls for a reevaluation of the tax system's ability to adapt to innovation. Pokémon Go is not just a game; it is a wake-up call to rethink how we tax the intangible economy and ensure a fairer distribution of its benefits.

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Introduction

What if we told you that you could play a unique and magical game for free? What if we told you this game would let you chase fantastical creatures across your neighborhood, turning your daily stroll into an epic adventure? What if we told you that millions of people have already done exactly this, pouring countless hours into catching Pokémon in a virtual world? And what if we told you that, while you were playing, you were also building, for someone else, a billion-dollar AI mapping system for free, without even knowing it?

Welcome to *Pokémon Go*, the groundbreaking augmented reality game that blurred the lines between entertainment and real-world engagement. Its global success is no surprise; with its blend of nostalgia,¹ cutting-edge

1. See *Conclusion: The Rise & Fall of the Pokémon Empire*, in PIKACHU'S GLOBAL ADVENTURE: THE RISE AND FALL OF POKÉMON 290 (Joseph Tobin ed., 2004) (explaining that, despite Pokémon's decline in popularity during the early 2000s, "Pikachu himself/herself seems to have reached a level of fame and affection that will allow him/her to live on for many years to come, if nothing else than as an item of nostalgia.").

technology,² and social interaction,³ *Pokémon Go* captured the hearts, and smartphones, of millions! Players walked, explored, and competed, all while generating revenue for Niantic through in-app purchases and microtransactions. Yet, as addictive as the gameplay is, what happens beneath the surface is even more intriguing and much more serious than a game.

While hundreds of millions of people from all over the world were catching virtual Pokémon, Niantic was capturing something far more valuable: geolocation data, visual input, and user behavior.⁴ These raw materials became the foundation for an AI-powered geolocation mapping system, an intangible asset that is worth billions of dollars.⁵ Yet, unlike the revenue from in-app purchases, which is presumably subject to taxation, this invaluable digital infrastructure remains untaxed.⁶ Players unknowingly

2. See Nick Wingfield & Mike Isaac, *Pokémon Go Brings Augmented Reality to a Mass Audience*, N.Y. TIMES (July 11, 2016), <https://www.nytimes.com/2016/07/12/technology/pokemon-go-brings-augmented-reality-to-a-mass-audience.html> [<https://perma.cc/3V5Z-3FR5>] (attributing the game's popularity to the fusion of "digital technology with the physical world").

3. See Tanja S. H. Wingenbach & Yossi Zana, *Playing Pokémon Go: Increased Life Satisfaction Through More (Positive) Social Interactions*, FRONTIERS IN SPORTS AND ACTIVE LIVING, July 2022 at 1, 2 (suggesting that social factors such as friendship maintenance and relationship initiation were "the main catalyst[s] for continued gameplay"); Kimberly A Lawler-Sagarin, Brad J Sagarin & Andrew Pederson, *Enhanced Community Through Augmented Reality: Social Benefits of Pokémon Go*, PSYCH. REPS., 3428, 3429 (2023) (hypothesizing that "the game's rewards for social interaction and visiting locations such as parks and historical sites" would "enhance players' sense of belonging to the community in which they play").

4. See John Divine, *Pokemon Go: Collecting All the Data?*, YAHOO NEWS (July 13, 2016), <https://www.yahoo.com/news/pokemon-collecting-data-130000777.html> [<https://perma.cc/Z7LT-Y3R7>] (highlighting the commercial value of the app's user-generated geospatial data).

5. See *Pokémon Go Players Have Unknowingly Been Training a Game-Changing AI Model – Revealed!*, YOURSTORY (Nov. 28, 2024), <https://yourstory.com/2024/11/pokemon-go-players-ai-training-niantic-ar-data> [<https://perma.cc/YF8M-8WJS>] (generated by Nucleus_AI) (reporting that the developer of *Pokémon Go* disclosed that user-generated data has been used "to train AI models capable of understanding and interacting with physical environments."); Felecia Wellington Radel, *It's Not Just a Game. Your Pokémon Go Player Data Is Training AI Map Models*, USA TODAY (Nov. 23, 2024), <https://www.usatoday.com/story/tech/2024/11/23/niantic-pokemon-go-data-ai-map/76488340007/> [<https://perma.cc/98N5-NZZW>] (explaining that "Niantic's model is training and processing data using geolocation data from scans players submit of those real-world locations while playing Pokémon Go . . ."); Francisco J. Morales, *The Property Matrix: An Analytical Tool to Answer the Question, "Is This Property?"*, 161 U. PA. L. REV. 1125, 1152 (2013) (noting that statutory definitions of property are interpreted loosely in order to include intangible assets).

6. See George Mundstock, *Taxation of Business Intangible Capital*, 135 U. PA. L. REV. 1179, 1181–82 (1987) (noting the uncertainties involved in taxing intangible assets, which are difficult to identify and value at any given moment); Michael J. Graetz & Rachael Doud, *Technological Innovation, International Competition, and the Challenges of International Income Taxation*, 113 COLUM. L. REV. 347, 400 n.324 (2013) (describing Google's use of low-tax foreign jurisdictions to avoid taxes on its intangible intellectual property); Yariv Brauner, *Taxation of Information and the Data Revolution*, 109 IOWA L. REV. 1959, 1979 (2024) (detailing the difficulties of classifying and taxing a transfer of information).

helped construct a massive corporate intangible asset,⁷ while Niantic sidestepped the tax obligations traditionally associated with such wealth creation.

This Essay examines the untold tax story of *Pokémon Go*, exploring how Niantic's dual business model reveals the cracks in our current tax framework. That framework is becoming more and more outdated and ill-equipped to address the challenges posed by intangible assets, digital innovation, and the evolving nature of value creation in the modern economy. The company's business model employs a bifurcated revenue structure that capitalizes on both traditional taxable income streams and emerging intangible asset development. The first component generates direct taxable revenue through conventional game monetization strategies, including initial sales, subscription fees, and in-game purchases. Concurrently, the second component involves the systematic accumulation of untaxed intangible assets, specifically, proprietary data sets and algorithmic intelligence, that constitute the foundational elements of the contemporary digital economy. The case of *Pokémon Go* raises critical questions about how tax law should address innovation in the digital age.

What does it mean when the primary creators of value, millions of ordinary players, receive no compensation for their contributions, while the corporation reaps all the benefits? Should Niantic's billion-dollar mapping system be treated as taxable income? And how can the tax system evolve to account for this kind of intangible wealth? This Essay argues that Niantic's success is not merely a testament to technological innovation but also a vivid example of the structural shortcomings in taxing the modern economy.

By analyzing Niantic's dual economic and business strategies, this Essay will illuminate broader implications for tax policy in an age where intangibles, data, and AI are rapidly becoming the new cornerstones of value creation.⁸ It will examine how existing tax laws can be adapted to address this growing divide and propose solutions for capturing untaxed wealth in an increasingly intangible-driven economy.

I. The World of *Pokémon Go* and Niantic

In 2016, *Pokémon Go* became a cultural phenomenon almost overnight,⁹ blending nostalgia, technology, and social engagement in a way

7. Cf. Morales, *supra* note 5, at 1151–52 (explaining that the Supreme Court has held that a newspaper's list of subscribers is an amortizable intangible asset).

8. Jean-Pierre Danthine & Xiangrong Jin, *Intangible Capital, Corporate Valuation and Asset Pricing*, 32 *ECON. THEORY* 157, 158–59 (2007).

9. Alex Hern, *Pokémon Go Becomes Global Craze as Game Overtakes Twitter for US Users*, *THE GUARDIAN* (July 12, 2016), <https://www.theguardian.com/technology/2016/jul/12/pokemon-go-becomes-global-phenomenon-as-number-of-us-users-overtakes-twitter> [https://perma.cc/33LA-3RKX]; Nick Wingfield & Mike Isaac, *Pokémon Go Brings Augmented Reality to a Mass*

no other game had before. Players armed with smartphones ventured into parks, malls, and city streets, capturing digital creatures superimposed on the real world through augmented reality. With over 500 million downloads in its first year,¹⁰ *Pokémon Go* generated staggering revenues¹¹ through in-app purchases, including PokéCoins, lures, and other gameplay-enhancing items.¹² By 2024, the game had reportedly surpassed \$6 billion in lifetime revenue, solidifying its place as one of the most lucrative mobile games in history.¹³

A. *The Business Behind the Game*

Niantic, a U.S.-based mobile app company,¹⁴ and the developer of *Pokémon Go*, capitalized on the game's success not only through direct revenues but also through a more subtle and transformative endeavor. While hundreds of millions of players from all over the world enjoyed catching virtual Pokémon, they were simultaneously, and probably unknowingly, helping Niantic build an AI-powered geolocation mapping system.¹⁵ This

Audience, N.Y. TIMES (July 12, 2016), <https://www.nytimes.com/2016/07/12/technology/pokemon-go-brings-augmented-reality-to-a-mass-audience.html> [<https://perma.cc/3V5Z-3FR5>]; Emily Dreyfuss, Brian Barrett, Kevin McFarland, Emma Ellis, Jake Muncy & Chris Kohler, *The Weekend Pokémon Go Took Over America*, WIRED (July 11, 2016), <https://www.wired.com/2016/07/weekend-pokemon-go-took-america/> [<https://perma.cc/CK7Z-NS9Q>].

10. Ben Gilbert, *Pokémon Go Has Been Downloaded Over 500 Million Times*, BUS. INSIDER: TECH (Sep. 7, 2016), <https://www.businessinsider.com/pokemon-go-500-million-downloads-2016-9> [<https://perma.cc/QDB5-KHHL>]; *Number of Pokémon GO App Downloads Worldwide from 3rd Quarter 2016 to 2nd Quarter 2025*, STATISTA, <https://www.statista.com/statistics/641690/pokemon-go-number-of-downloads-worldwide/> [<https://perma.cc/EDN6-7NE6>].

11. *Annual Revenue Generated by Pokémon GO Worldwide from 2016 to 2025 YTD*, STATISTA, <https://www.statista.com/statistics/882474/pokemon-go-all-time-player-spending/> [<https://perma.cc/ZQF8-FVL8>].

12. See Dreyfuss et al., *supra* note 9 (“[T]he fact that [*Pokémon* is] making more money means lots of players are spending on in-app purchases.”).

13. Craig Chapple, *Pokémon GO Catches \$6 Billion in Lifetime Player Spending*, SENSOR TOWER (June 2022), <https://sensortower.com/blog/pokemon-go-6-billion-revenue> [<https://perma.cc/4MXR-EVJJ>].

14. Niantic Labs, <https://nianticlabs.com/?hl=en> [<https://perma.cc/ML2X-ZSRL>].

15. See Brian Foster, *Pokémon GO Data Now Powering AI for Robotics*, GLASS ALMANAC (Nov. 28, 2024), <https://glassalmanac.com/pokemon-go-data-now-powering-ai-for-robotics/> [<https://perma.cc/D9D5-2BHG>] (discussing the game as a part of the development of a large geospatial model); Ben Turner, *Gotta Catch 'Em All: How Pokémon Go Covertly Captured Your Data for Years to Train a Massive AI Model*, LIVE SCI. (Nov. 21, 2024), <https://www.livescience.com/technology/artificial-intelligence/gotta-catch-em-all-how-pokemon-go-covertly-captured-your-data-for-years-to-train-a-massive-ai-model> [<https://perma.cc/3XJP-EPGV>] (explaining the game's data scraping goal of “enabl[ing] robots . . . to better navigate the physical world . . .”); Eric Brachmann & Victor Adrian Prisacariu, *Building a Large Geospatial Model to Achieve Spatial Intelligence*, Niantic Labs (Nov. 12, 2024), <https://nianticlabs.com/news/largegeospatialmodel?hl=en> [<https://perma.cc/2XT8-MCJH>] (discussing the uniqueness in Niantic's VPS in being taken from pedestrian perspective).

mapping infrastructure was constructed using vast amounts of player-generated data, including GPS coordinates, augmented reality interactions, and user behavior patterns.

The result? A dual economic–business model. On one side, Niantic enjoyed immediate revenues from the game’s microtransactions, which were presumably subject to income tax like any other source of business income. On the other side the company amassed an untaxed intangible asset: a cutting-edge geolocation database that has applications far beyond gaming. This map is not only valuable for future Niantic projects but also holds enormous potential for partnerships with other industries, such as urban planning, autonomous vehicles, and AI development. It is an asset that was created by the same players who often paid Niantic to play the game and “catch Pokémon.”

B. *The Hidden Value of Data*

The AI mapping system represents a new frontier in value creation: one built on player activity rather than traditional investment in physical or financial assets. Players’ in-game movements essentially served as unpaid labor, generating data that Niantic refined into a proprietary tool.¹⁶ Since, on its face, Niantic’s collection and aggregation of individual data points, such as a person’s name, location, or preferences, may seem to carry minimal value on their own, users often do not think twice before volunteering this data to companies.

However, their true market value emerges when these data points are combined with vast amounts of other data points and are subjected to advanced processing, analytical techniques, and complex algorithms. Through this process, data generates powerful insights and perceptions that drive economic activity.¹⁷ For example, combining purchase history with

16. See Christian Camerota, *What Will Come of Pokémon Go?*, HARV. BUS. SCH. (July 25, 2016), <https://www.hbs.edu/news/articles/Pages/pokemon-shih.aspx> [<https://perma.cc/UP6N-FZN6>] (discussing how Niantic has been collecting “an immense pool of data that they can mine and that’s very powerful.”); NYU Center for Data Science, *How Is Pokémon Go Collecting Data on Its Users?*, MEDIUM (July 28, 2016), <https://nyudatascience.medium.com/how-is-pok%C3%A9mon-go-collecting-data-on-its-users-2b329aa862a6> [<https://perma.cc/JAG3-HPWV>] (explaining how the data *Pokémon Go* has compiled “can be used for various commercial purposes, such as location-aware advertising.”); Denis Manyinsa, *What Data Does Pokémon Go Collect and Share About You?*, MAKEUSEOF (Mar. 17, 2023), <https://www.makeuseof.com/data-pokmon-go-collects-shares/> [<https://perma.cc/M2RB-9DZQ>] (describing how *Pokémon Go* collects data like “where you are, how long you’ve been there, and events during gameplay” to use “as a ‘business asset.’”); Craig Donaldson, *Pokémon Go Has Been Quietly Harvesting Player Data to Train AI*, POCKET-LINT (Nov. 20, 2024), <https://www.pocket-lint.com/niantic-pokemon-go-lgm-data/> [<https://perma.cc/6U8Y-JSYS>] (highlighting the “Large Geospatial Model” tool *Pokémon Go* created with user-generated data).

17. See Omri Marian, *Taxing Data*, 47 BYU L. REV. 511, 516–17 (2022) (arguing that personal data becomes wealth when combined with other data); see also Adam B. Thimmesch, *Transacting*

location data can allow retailers to predict demand for seasonal products, such as offering winter apparel in areas expecting early snowfall or adjusting inventory levels to match regional shopping trends. Similarly, analyzing consumer trends alongside demographic data can inform targeted advertising strategies or product development. This transformative process of aggregation and analysis elevates data from a raw, undervalued resource to a cornerstone of modern business models, fueling profitability and innovation.¹⁸

Unlike the game's revenue, however, this intangible asset has yet to trigger significant tax obligations, despite its estimated worth in the billions. This divergence in tax treatment raises fundamental questions about how the tax system addresses intangible value in the modern economy,¹⁹ questions that most tax systems are currently unable to answer efficiently and satisfactorily. As the collection, use, and value of data, across various types and points, continue to grow, the economic significance of such intangible assets will also expand. This evolution will redefine the old saying, "Knowledge is our most powerful engine of production."²⁰

C. Economic and Legal Implications

The dual economic–business model of *Pokémon Go* exemplifies the importance of intangible assets in the digital economy,²¹ in which the lines between consumption, creation, and value generation are increasingly blurred. By monetizing the game itself through in-app microtransactions, Niantic capitalizes on traditional revenue streams that are relatively straightforward to tax. However, the true innovation lies in the secondary, less visible aspect of the business—the accumulation and utilization of user-generated data to create proprietary AI-driven map models, an intangible asset that would have cost Niantic billions of dollars to achieve without the

in Data: Tax, Privacy, and the New Economy, 94 DENV. L. REV. 145, 151 (2016) (stating that popular social media platforms collect and monetize users' information to generate revenue); Brauner, *supra* note 6, at 1962 (endorsing the proposition that transactions involving information play a major role in the economy and providing a hypothetical example of how a company could generate income from the information it collects and sells).

18. See Marian, *supra* note 17, at 516–17 (discussing when personal data becomes valuable).

19. See Brauner, *supra* note 6, at 1962 (arguing that the tax system that currently exists is "incapable of effectively taxing [intangible goods like] information" and "inherently incompatible with an economy in which transactions involving information play a major role.").

20. See Yao-Su Hu, *The Impact of Increasing Returns on Knowledge and Big Data: From Adam Smith and Allyn Young to the Age of Machine Learning and Digital Platforms*, 36 PROMETHEUS 10, 10 (2020) (attributing the quote to Alfred Marshall, who made the declaration in 1920).

21. See, e.g., Patricia Meredith, in ACCOUNTING FOR THE DIGITAL ECONOMY: TIME FOR A FRESH APPROACH, CTR. FOR INT'L GOVERNANCE INNOVATION, at 2–3 (Susan Bubak & Jennifer Goyder eds., 2022) (asserting that intangible assets drive the information economy, dominate the corporate giants' businesses, and are "increasingly the main source of long-term success" for many different kinds of companies).

game. These digital assets, developed indirectly through the gameplay of millions of users, hold immense value, yet they often escape the tax implications typically associated with wealth creation.²² This duality not only bolsters Niantic's financial position but also exposes significant vulnerabilities in current tax frameworks. Historically, tax systems were designed to capture value from tangible assets and direct income streams, such as wages, profits, or sales. However, the rise of digital business models challenges these assumptions,²³ as wealth increasingly resides in intangible assets such as algorithms, datasets, cloud computing, and intellectual property, categories that can be undervalued, strategically relocated, or entirely overlooked for tax purposes.

Moreover, this case highlights broader policy concerns about fairness and equity in taxation. By enabling companies like Niantic to leverage user-generated contributions without corresponding tax obligations, existing frameworks risk creating a system where the burden of funding public goods falls disproportionately on traditional industries and individuals, while highly profitable and powerful corporations do not pay their fair share in taxes. This dynamic not only worsens wealth inequality but also incentivizes further exploitation of these regulatory gaps by other digital businesses.

In essence, Niantic's model is a microcosm of the challenges faced by governments as they strive to modernize tax laws to align with a rapidly evolving digital landscape.²⁴ Addressing these gaps will require innovative solutions, such as reassessing the definition of taxable income,²⁵

22. Vladimir Starkov & Oceana Wang, *What Is the Value of Users, Anyway? How to Value the User Contribution to Digital Enterprises*, 98 TAX NOTES INT'L 283, 283 (2020).

23. See Marian, *supra* note 17, at 514 (asserting that income in the digital economy is not "easily valued in monetary terms"); Brauner, *supra* note 16, at 1987–88 (discussing that new economy rules challenge old ones); see also Thimmesch, *supra* note 17, at 157–58 (arguing that personal data transactions within the digital economy are difficult to characterize for tax purposes).

24. See Graetz & Doud, *supra* note 6, at 351–52 (discussing the tax challenges governments face in promoting technological innovations and offering recommendations); Tax Challenges in the Digital Economy, EUR. PARL. DOC. (PE 579.002) 8–10, [https://www.europarl.europa.eu/RegData/etudes/STUD/2016/579002/IPOL_STU\(2016\)579002_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2016/579002/IPOL_STU(2016)579002_EN.pdf) [<https://perma.cc/EZ9H-84E7>] (listing various measures that governments have taken to align tax law with digital enterprises); Cristina Enache, *Digital Taxation Around the World*, TAX FOUND. (Apr. 30, 2024), <https://taxfoundation.org/research/all/global/digital-taxation/> [<https://perma.cc/TSSR-TCBU>] (examining various approaches taken by governments to adapt their tax systems to the growing digital economy); Sean Keegan, Joanna Black & Andrew Moore, *Global Trends in Digital Taxation: An In-Depth Look*, ALVAREZ & MARSAL (Apr. 28, 2024), <https://www.alvarezandmarsal.com/insights/global-trends-digital-taxation-depth-look> [<https://perma.cc/66EF-WJRE>] (identifying key challenges in taxing the digital economy); NL Law, *Digital Profit Taxation: Navigating Global Challenges in the Digital Revolution*, LEXQUIRE (Dec. 18, 2023), <https://lexquire.com/digital-profit-taxation-navigating-global-challenges-in-the-digital-revolution/> [<https://perma.cc/5Z7S-CRK8>] (emphasizing how "tax authorities worldwide are grappling with the need to adapt to a constantly evolving business landscape.").

25. See, e.g., John R. Brooks, *The Definitions of Income*, 71 TAX L. REV. 253, 253 (2018) (explaining that income is a flexible concept that can be redefined to meet specific policy needs).

implementing robust mechanisms to value intangible assets accurately,²⁶ and fostering international cooperation to curb profit-shifting and tax base erosion in the digital economy. Understanding this background is crucial to analyzing the broader tax implications of Niantic's business model. It provides a foundation for exploring the legal and economic challenges posed by the rise of intangibles and the urgent need for a tax system capable of addressing these changes.

II. Dual Business Models and Tax Implications

A. Taxed Revenue

At first glance, Niantic's primary revenue stream from *Pokémon Go* fits neatly into the traditional framework of income taxation. The game generates significant income through microtransactions, such as the purchase of PokéCoins, Lucky Eggs, and other in-game items that enhance gameplay and overall user experience.²⁷ These revenues, like other business incomes, are subject to corporate income tax at the applicable rates in jurisdictions where Niantic operates and generates profits.

Niantic's revenue model for *Pokémon Go* mirrors that of many other digital products:²⁸ users pay directly for digital goods or services,²⁹ and the company reports this income as taxable revenue. In this case, the taxable amount likely includes the gross receipts from player transactions, minus any allowable deductions such as operating expenses, server costs, and marketing expenditures. For instance, costs associated with maintaining servers for millions of daily users or developing new in-game features may be deducted under standard business expense provisions.

The "realization principle," a long-time fundamental legal concept and a requirement in the U.S. federal income tax system,³⁰ states that income is generally not subject to taxation until it is realized, typically through a

26. See, e.g., Andrea L. Eisfeldt, Edward T. Kim & Dimitris Papanikolaou, *Intangible Value*, 11 CRITICAL FIN. REV. 299, 305–08 (2022) (discussing an improved method of valuing intangible assets).

27. Sameer Singh, *Pokémon Go and Business Model Innovation*, TECH-THOUGHTS (July 12, 2016), <https://www.tech-thoughts.net/2016/07/pokemon-go-and-business-model-innovation.html> [<https://perma.cc/64C3-P4BL>]; Sree Harsha Sree Hari, *How Does Pokémon Go Make Money?*, JUEGOSTUDIO (Aug. 17, 2023), <https://www.juegostudio.com/blog/pokemon-go-revenue> [<https://perma.cc/KSE2-2PJU>].

28. See Sree Hari, *supra* note 27 (discussing how *Pokémon Go*'s revenue model primarily relies on in-app purchases); Nayden Tafradzhiyski, *In-App Purchases*, BUS. OF APPS (Mar. 18, 2025), <https://www.businessofapps.com/guide/in-app-purchases/> [<https://perma.cc/BK4L-W46T>] ("In-app purchases are one of the most common monetization models . . . 50% of non-game and 79% of game apps us[ing] it.").

29. See Sree Hari, *supra* note 27 (discussing how *Pokémon Go*'s primary revenue comes from users directly purchasing products in-app).

30. Sloan G. Speck, *The Realization Rule as a Legal Standard*, 16 COLUM. J. TAXL. 1, 3 (2024).

transaction where there is a measurable economic gain.³¹ In Niantic's case, the realization event arises at the point of sale, when a player purchases digital goods or services. At this time, Niantic has earned a material economic benefit, and the value of the transaction is determinable, fulfilling the realization requirement. The realization principle is well equipped to operate effectively for Niantic's microtransactions because these transactions are clear and distinct, providing a straightforward mechanism for identifying when income is earned.³² This alignment with the realization concept ensures that these transactions are included in taxable income as soon as they occur.

Given the global popularity of *Pokémon Go*, Niantic also faces the added complexity of allocating and reporting revenue across multiple tax jurisdictions. The company must adhere to international tax rules, such as transfer pricing regulations,³³ to ensure that revenue attributed to its operations in foreign countries reflects an arm's-length standard.³⁴ For example, when a player in one country purchases an item, the revenue must be allocated between jurisdictions where Niantic's operations are conducted. This raises complex issues, such as whether the realization event is tied to the player's location, the location of the server processing the payment, the location where the IP is developed or registered, where marketing, support or other services or activities are performed, or Niantic's corporate headquarters. Hence, if Niantic collects revenue in countries like Japan or Germany, it must determine how much of those revenues and expenses are attributable to those taxing jurisdictions versus other taxing jurisdictions including its U.S. headquarters.³⁵

Nevertheless, even this seemingly straightforward revenue stream is not without complications. Digital products often raise questions about sourcing rules, specifically, where income is considered earned for tax purposes. In the case of *Pokémon Go*, is the revenue sourced to the player's physical location? To the location of the servers processing the transactions? Or to

31. *Id.*; Doron Narotzki, *When Debt Gets a Makeover, Taxes Follow*, 21 U.C. L. BUS. J. 85, 106 (2024).

32. Unlike some other business models that might involve valuation challenges or deferred recognition of income, such as, for example, barter transactions or certain licensing agreements, the sale of in-game items represents a direct and clear exchange of value.

33. Treas. Reg. § 1.482-1 (2025). Outside the United States, the applicable rules and law apply within all other jurisdictions the company operates and offers its product.

34. Yariv Brauner, *Value in the Eye of the Beholder: The Valuation of Intangibles for Transfer Pricing Purposes*, 28 VA. TAX REV. 79, 96 (2008). For example, Treas. Reg. § 1.482-1(c) in the United States, and arm's length principle when operating in OECD countries. OECD, OECD TRANSFER PRICING GUIDELINES FOR MULTINATIONAL ENTERPRISES AND TAX ADMINISTRATIONS 29 (2022), https://www.oecd.org/content/dam/oecd/en/publications/reports/2022/01/oecd-transfer-pricing-guidelines-for-multinational-enterprises-and-tax-administrations-2022_57104b3a/0e655865-en.pdf [<https://perma.cc/KD9K-7AJG>].

35. See Treas. Reg. § 1.482-4 (listing the applicable regulation methods for determining Arm's Length prices for intangible property).

Niantic's headquarters? These sourcing rules can significantly impact the company's overall tax liability and often require meticulous research, legal analysis, and accounting work.

Moreover, Niantic may also benefit from tax incentives aimed at fostering innovation, such as research and development (R&D) tax credits.³⁶ Developing and maintaining the augmented reality and geolocation features that power *Pokémon Go* likely involves substantial R&D expenditures, allowing Niantic to further reduce its taxable income. These incentives, while legal and often encouraged, emphasize the ways in which existing tax laws may favor tech companies, potentially reducing the effective tax rate on even clearly taxable revenue streams.

In summary, the revenue generated from in-app purchases in *Pokémon Go* falls relatively comfortably within traditional tax frameworks, subject to corporate income tax and other regulations. Yet, the complexities of international operations, digital product sourcing, and tax incentives demonstrate that even this “taxable” side of Niantic's business model is far from straightforward.

B. *Untaxed Intangibles*

While Niantic's revenue from *Pokémon Go* is taxable under traditional income tax frameworks, the AI mapping system built using player data represents a strikingly different story. This intangible asset, likely worth billions,³⁷ not only avoids taxation due to structural gaps in current U.S. federal income tax law, but it also remains unreported under U.S. Generally Accepted Accounting Principles (US GAAP) as they are internally developed.³⁸ Furthermore, most intangible assets are generated through investments in employee development, brand building, and knowledge creation. Since these investments are typically treated as business expenses, they fail to appear on corporate balance sheets, leading to an increasing distortion in the measurement of book assets.³⁹ Understanding why this

36. See *VR/AR Development R&D Tax Credits*, ENDEAVOR ADVISORS, <https://www.endeavoradvisors.com/vr-ar-development-rd-tax-credits/> [https://perma.cc/3RGG-6MFE] (showing that mobile app and gaming industries that rely on VR and AR can potentially qualify for the R&D tax credit).

37. See *Value of Global Intangible Assets Reaches All-Time \$79.4 Trillion High*, BRAND FIN. (Oct. 30, 2024), <https://brandfinance.com/press-releases/value-of-global-intangible-assets-reaches-all-time-79-4-trillion-high> [https://perma.cc/MW2X-4YYZ] (highlighting the rise in value of global intangible assets to multiple trillions of dollars).

38. Aneel Iqbal, Shivaram Rajgopal, Anup Srivastava & Rong Zhao, *A Better Estimate of Internally Generated Intangible Capital*, MGMT. SCI (2024), <https://ssrn.com/abstract=3917998> [https://perma.cc/7YC8-XMKR]; see Meredith, *supra* note 21, at 1 (describing how previous methods of accounting no longer function when accounting for digital assets).

39. Eisfeldt et al., *supra* note 26, at 300; see Mundstock, *supra* note 6, at 1193 (explaining how “many expenditures relating to intangible value are immediately deducted as business expenses.”).

happens requires a closer analysis of how intangible assets are treated under existing rules.

Unlike tangible assets such as real estate or machinery, intangible assets, like the AI-powered geolocation mapping system developed by Niantic, are notoriously difficult to tax.⁴⁰ These assets are often created incrementally, lack clear market comparables for accurate valuation,⁴¹ and do not generate immediate revenue streams that can be directly taxed. In Niantic's case, the value of the mapping system lies in its potential future applications and uses that can generate economic values, such as licensing opportunities across various industries or enhancing future products, rather than in its current income-generating capacity.

This distinction brings us to the concept of "realization," a fundamental principle in the federal tax system.⁴² Pursuant to the realization concept, income is typically not taxed until it is realized through a sale, exchange, or another taxable event.⁴³ Since Niantic has neither sold nor directly monetized its mapping system, the asset has not been "realized" in tax terms. Consequently, the value of this intangible asset remains untaxed.⁴⁴ The players who contributed the data are not compensated, and Niantic has no current obligation to report on the mapping system as income and pay taxes on its fair market value (treating it as a barter transaction or like-kind exchange between Niantic and its users from all over the world).⁴⁵

It is also important to note that though this Essay analyzes the Niantic and *Pokémon Go* business model, this is not a one-time event, but rather a trend.⁴⁶ As the United States continues to further focus on the service-based economy rather than on manufacturing, an increasingly large share of corporations derive their value from intangible assets,⁴⁷ such as technological

40. Brauner, *supra* note 6, at 1966; Mundstock, *supra* note 6, at 1181–82.

41. Brauner, *supra* note 34, at 91.

42. Speck, *supra* note 30, at 3; Jeffrey L. Kwall, *When Should Asset Appreciation Be Taxed?: The Case for a Disposition Standard of Realization*, 86 *IND. L.J.* 77, 79 (2011).

43. See IRS, PUBLICATION 544: SALES AND OTHER DISPOSITIONS OF ASSETS, <https://www.irs.gov/pub/irs-pdf/p544.pdf> [<https://perma.cc/TN8A-FYNC>] (discussing how selling or exchanging property constitutes a disposal of property that is subject to tax consequences); Narotzki, *supra* note 31, at 107 (“[A]ny significant modification of such a[] [debt] instrument must be carefully analyzed to determine if it constitutes a taxable disposition.”).

44. See Brauner, *supra* note 6, at 1979 (explaining that information transfers remain untaxed).

45. *Id.*; Aswath Damodaran, *Invisible Value? Valuing Companies with Intangible Assets*, at 2 (Sep. 23, 2009), <https://ssrn.com/abstract=1609799> [<https://perma.cc/NP2W-YNQD>] (noting that “accountants routinely miscategorize operating and capital expenses, when firms invest in intangible assets,” thereby “skewing both reported and capital values.”).

46. See, e.g., Meredith, *supra* note 21, at 3–4 (describing how “corporate giants of the digital age, such as Amazon, Facebook, Google, and Microsoft, have some tangible assets, but their business is dominated by intangibles . . .”).

47. See Annie Brown & Annabella Garnham, Brand Finance and Anmol Kaur Grewal, Lorena Rivera Leon, Jeff Slee & Sacha Wunsch-Vincent, WIPO, *Corporate Intangible Assets Grew to USD 61.9 Trillion in 2023*, WIPO (Feb. 28, 2024), <https://www.wipo.int/web/global-innovation->

patents and human capital, and not the traditional business model of manufacturing goods and selling them.⁴⁸ Yet, it would be accurate to say that Niantic and *Pokémon Go* are unique in that they did not create their intangible asset in the same way as a company like Meta, which collects and monetizes users' personal information.⁴⁹ Instead, Niantic utilized the players of its game, who not only often paid real money to play, generating traditional revenue, but also effectively "collected" the data Niantic sought through their gameplay.⁵⁰

Furthermore, tax law requires assets to be valued for taxation purposes,⁵¹ but the valuation of intangibles, particularly those like AI systems, is fraught with uncertainty.⁵² How should Niantic's mapping system be valued? Should it be based on the cost of developing the asset, its potential revenue, or its market comparables? The lack of clear guidance on these questions creates an easy pathway for the asset to escape taxation entirely until a monetization event occurs, if ever.⁵³

index/w/blogs/2024/corporate-intangible-assets [https://perma.cc/78KA-X94B] (illustrating how in 2022, the United States was ranked as the economy with the most intangible assets and Apple was ranked as the most intangible-asset-rich firm); Bruce Berman, *\$21 Trillion in U.S. Intangible Assets Is 84% of S&P 500 Value – IP Rights and Reputation Included*, IP CLOSEUP (June 4, 2019), <https://ipcloseup.com/2019/06/04/21-trillion-in-u-s-intangible-asset-value-is-84-of-sp-500-value-ip-rights-and-reputation-included/> [https://perma.cc/4T7P-63CH] ("The importance of raw materials, inventory and equipment is relatively less of a factor today than in the past . . .").

48. Damodaran, *supra* note 45, at 2–3.

49. See Jon Keegan, *Each Facebook User Is Monitored by Thousands of Companies*, THE MARKUP (Jan. 17, 2024), <https://themarkup.org/privacy/2024/01/17/each-facebook-user-is-monitored-by-thousands-of-companies-study-indicates> [https://perma.cc/2SF4-2U7K] (noting that Meta collects personal user data to create "custom audiences" for advertisers); Matthew Johnston, *How Does Facebook (Meta) Make Money?*, Investopedia (Oct. 10, 2025), <https://www.investopedia.com/ask/answers/120114/how-does-facebook-fb-make-money.asp> [https://perma.cc/93Z8-QB5S] (describing how Meta makes money by selling the data it collects for personalized advertising).

50. Radel, *supra* note 5; see NYU Center for Data Science, *supra* note 16 (explaining how *Pokémon Go* "records a player's geospatial data" during gameplay); Bree Royce, *How Pokémon Go Company Niantic Is Collecting (and Using) Your Life's Data*, MASSIVELY OVERPOWERED (Oct. 17, 2019), <https://massivelyop.com/2019/10/17/pogo-niantic-data-collection/> [https://perma.cc/B2XB-92UF] (discussing the extent of "detailed information about the lives of these players" that *Pokémon Go* collected).

51. IRS Topic no. 703, Basis of Assets (Sep. 5, 2025), <https://www.irs.gov/taxtopics/tc703> [https://perma.cc/7ZHS-5WPA]; Tom K. Gottfried, *Intangible Asset Valuation for Tax Purposes Under Fair Market Value and Arm's-Length Standards: Some Differences Between the Two Approaches*, TAX EXEC. (Mar. 29, 2023), <https://www.taxexecutive.org/intangible-asset-valuation-for-tax-purposes-under-fair-market-value-and-arms-length-standards/> [https://perma.cc/E4Z7-TGGJ].

52. Gottfried, *supra* note 51; Damodaran, *supra* note 45, at 8–9; see also Eisfeldt et al., *supra* note 26, at 300 (proposing an "HML" valuation of intangibles to remedy deficient bookkeeping caused by difficulty valuing intangibles).

53. See Brauner, *supra* note 6, at 2015–16 (concluding that current tax policy has ignored the role of intangibles and advocating for reform); Brauner, *supra* note 34, at 82–83 (noting that

Unlike income from game transactions, which can, and often does, trigger immediate tax obligations, the AI mapping system does not produce a direct or immediate cash flow. Niantic benefits from this asset incrementally, using it to enhance its technological capabilities and market position without generating a taxable event, as “data” and “information” are not treated as “goods” for federal tax purposes.⁵⁴ This stands in stark contrast to more traditional forms of wealth creation, where value generation is often tied to income or property that is readily taxable.

Yet, the creation of this asset further highlights a broader issue in the digital economy: the exploitation of user-generated data without corresponding tax consequences. Millions of players unwittingly contributed data that trained Niantic’s AI system, but because this value was not explicitly purchased or sold, it bypassed and avoided existing tax rules. This raises ethical concerns about how corporations capture and monetize value created by the public while avoiding tax liabilities.

However, the challenges of taxing Niantic and *Pokémon Go* extend beyond this point. The global nature of *Pokémon Go*’s operations highlights several significant challenges in international tax law. Niantic’s ability to leverage player-generated data from around the world to build an untaxed intangible asset further exploits critical gaps in how international tax rules address digital business models. These issues include nexus, or in other words, the link and connection determination to a physical jurisdiction, income sourcing, transfer pricing, and profit allocation, each of which becomes increasingly complex in the context of intangible assets like data.⁵⁵

Traditionally, nexus, the threshold connection required to tax a foreign entity, has relied on physical presence, such as offices or employees within a specific jurisdiction.⁵⁶ However, digital businesses like *Pokémon Go* can generate substantial economic activity in a country without any physical

intangibles are currently undervalued for tax purposes, giving companies an incentive to “invest extensively in intangibles”).

54. See Brauner, *supra* note 6, at 1970 (describing how while information has economic value, the transfer of information is difficult to tax under the current system).

55. See *id.* (“One property of information that makes it difficult to commodify is that it is not often simple to quantify information.”); see also Harry Grubert, *Intangible Income, Intercompany Transactions, Income Shifting, and the Choice of Location*, 56 NAT’L TAX J. 221, 222 (2003) (discussing how investing in differently taxed foreign locations can be “affected by opportunities for income shifting”); Thimmesch, *supra* note 17, at 186 (discussing the difficulties of taxing jurisdiction for digital transactions).

56. See *Quill Corp. v. North Dakota*, 504 U.S. 298, 306 (1992) (“The Due Process Clause ‘requires some definite link, some minimum connection between a state and the person, property or transaction it seeks to tax’”); see also U.S. Model Income Tax Convention art. 5 (defining the term “permanent establishment”); Doron Narotzki, *Tax Treaty Models - Past, Present, and a Suggested Future*, 50 AKRON L. REV. 383, 394, 398 (2017) (explaining how the U.S. tax treaties were drafted in a way that accounted for “parity of trade and capital flows between countries,” providing the maximum double taxation deduction “given for a Permanent Establishment situated in other countries”).

footprint in that specific country. Players in diverse jurisdictions generate and transmit valuable geolocation data, which Niantic then uses to enhance its AI mapping system. Despite this, Niantic may not have a taxable nexus in many of these countries, as current international tax rules do not account for digital engagement or data collection as sufficient bases for taxation.⁵⁷ The Organisation for Economic Co-operation and Development (OECD)'s ongoing efforts aim to address this issue by reallocating taxing rights based on user participation rather than physical presence.⁵⁸ If implemented, such measures could allow countries where *Pokémon Go* players reside to tax a portion of Niantic's profits derived from their data contributions.

Sourcing rules determine where income is earned for tax purposes, yet data-driven revenue streams challenge traditional approaches.⁵⁹ Is Niantic's income sourced where the data is collected, where it is processed into the AI mapping system, or where the resulting services or products are monetized? In the case of *Pokémon Go*, players in one country may generate data that is processed in a different country, with the resulting intangible asset monetized through partnerships or licensing agreements in yet another jurisdiction. This multi-jurisdictional dynamic creates opportunities for profit shifting,⁶⁰ where Niantic could allocate income to low-tax jurisdictions by exploiting ambiguities in sourcing rules.⁶¹ Existing frameworks are ill-equipped to handle the complexity of these intangible data flows, leaving significant gaps in tax enforcement.

The transfer pricing rules under I.R.C. Section 482⁶² and the OECD's Transfer Pricing Guidelines⁶³ require multinational enterprises to price

57. Brauner, *supra* note 6, at 1962 (“The existing and universal income tax rules are inherently incompatible with an economy in which transactions involving information play a major role.”).

58. Jane G. Garvelle, *The OECD/G20 Pillar 1 and Digital Services Taxes: A Comparison*, CONG. RSCH. SERV. (2024); *What Are the OECD Pillar 1 and Pillar 2 International Taxation Reforms?*, TAX POL'Y CTR., <https://taxpolicycenter.org/briefing-book/what-are-oecd-pillar-1-and-pillar-2-international-taxation-reforms> [<https://perma.cc/ME6N-XZT5>].

59. Brauner, *supra* note 6, at 1985.

60. See ALEXANDER KLEMM & LI LIU, *The Impact of Profit Shifting on Economic Activity and Tax Competition*, in CORPORATE INCOME TAXES UNDER PRESSURE (2021), <https://www.elibrary.imf.org/display/book/9781513511771/ch009.xml> [<https://perma.cc/RD7N-LUQQ>] (discussing how profit shifting limits vary depending on amount shifted); *Base Erosion and Profit Shifting (BEPS)*, OECD, <https://www.oecd.org/en/topics/policy-issues/base-erosion-and-profit-shifting-beps.html> [<https://perma.cc/9KXP-VDJ4>] (defining base erosion and profit shifting as “where multinationals shift profits to low or no-tax locations where they have little or no economic activity or erode tax bases through deductible payments like interest or royalties”).

61. See Steven Ongena, Manthos D. Delis, Luc Laeven & Fotios Delis, *Global Evidence on Profit Shifting: The Role of Intangible Assets*, CEPR (Oct. 11, 2021), <https://cepr.org/voxeu/columns/global-evidence-profit-shifting-role-intangible-assets> [<https://perma.cc/U23T-A5QT>] (explaining the tax-motivated profit shifting strategy to increase net income).

62. For a summary of allocation of income and deductions among taxpayers, see I.R.C. § 482.

63. OECD, *supra* note 34.

transactions between related entities at arm's length.⁶⁴ However, these rules are tailored to physical goods and services, making their application to data and intangible assets difficult. For Niantic, determining an appropriate price for geolocation data collected from players and the AI mapping system it builds is a significant challenge. These assets are unique, with no comparable market benchmarks, making it nearly impossible to establish an arm's-length value.⁶⁵ This lack of clarity allows companies to shift profits across borders, underreporting the value of intangible assets in high-tax jurisdictions while inflating costs in low-tax jurisdictions.⁶⁶

Generally, the traditional model for allocating profits between jurisdictions relies heavily on tangible factors like physical assets, personnel, and sales.⁶⁷ For Niantic, however, the most valuable asset, the AI mapping system, is intangible and built using data sourced globally. This raises the question of which countries have a legitimate claim to tax the profits associated with this asset. Should profits be allocated to the jurisdictions where the data was collected, where the AI system was developed, where the corporation was incorporated or registered, or where Niantic's headquarters are located?

The OECD's Pillar Two framework, which introduces a global minimum tax, aims to reduce profit shifting by ensuring that "multinational enterprises pay a minimum level of tax" on their global income.⁶⁸ While this would mitigate some concerns, it does not fully address the need to fairly allocate taxing rights in the context of data-driven business models. In 2025,

64. Transfer Pricing, IRS, <https://www.irs.gov/businesses/international-businesses/transfer-pricing> [<https://perma.cc/SFM7-EB3U>].

65. See generally Lorraine Eden, *The Arm's Length Standard: Making It Work in a 21st Century World of Multinationals and Nation States*, GLOB. TAX FAIRNESS, 153 (2016) (discussing criticisms of the arm's length standard for MNEs); OECD, *supra* note 34 (defining the arm's length standard); Brauner, *supra* note 34, at 96 (discussing the arm's length standard).

66. See Grubert, *supra* note 55, 221–22 (2003) (studying the effects of income shifting across jurisdictions); Brauner, *supra* note 34, at 86 (explaining the principle of transfer pricing for intangibles).

67. Hamid Tahir Kabir, *Navigating Taxation Challenges in the Digital Economy* at 5 (Conf. of the Chartered Inst. of Tax'n of Nigeria, 2024); see also OECD, 2010 REPORT ON THE ATTRIBUTION OF PROFITS TO PERMANENT ESTABLISHMENTS 16 (2010), https://www.oecd.org/content/dam/oecd/en/publications/reports/2010/07/2010-report-on-the-attribution-of-profits-to-permanent-establishments_d659f672/2f94c049-en.pdf [<https://perma.cc/6VTR-HTPX>] (“[T]here is a broad consensus that assets generally are to be attributed to the part of the enterprise which performs the significant people functions relevant to the determination of economic ownership of assets.”).

68. Global Anti-Base Erosion Model Rules (Pillar Two), OECD, <https://www.oecd.org/en/topics/sub-issues/global-minimum-tax/global-anti-base-erosion-model-rules-pillar-two.html> [<https://perma.cc/6XJJ-62PZ>]; see also OECD, PILLAR TWO MODEL RULES IN A NUTSHELL (2025), <https://www.oecd.org/tax/beps/pillar-two-model-rules-in-a-nutshell.pdf> [<https://perma.cc/YGM2-TDJL>] (providing an overview of the Rules); TAX POL'Y CTR., *supra* note 58 (discussing the Pillar Reforms).

it seems that the United States is reluctant to adopt Pillar Two,⁶⁹ and therefore, its ability to achieve these goals remains questionable.

The failure to tax data adequately raises ethical concerns about fairness in the international tax system. Countries where *Pokémon Go* players reside often see no direct income tax revenues from the economic activity generated by their citizens' data contributions.⁷⁰ This dynamic disproportionately disadvantages developing countries, which provide valuable data but lack the legal infrastructure to assert taxing rights over intangible assets. By contrast, Niantic and its shareholders reap the full economic benefits of the data, while the jurisdictions providing the raw material are left without corresponding tax revenues.

Overall, the case of Niantic's untaxed mapping system demonstrates some of the weaknesses in modern tax policy and the broader inadequacies of the global tax system in addressing digital and data-driven business models. Current tax rules are designed for an economy rooted in tangible goods and direct income streams, leaving gaps when addressing the incremental and abstract nature of intangibles. While proposals such as the OECD's Pillar One framework aim to address some aspects of taxing digital services, they do not directly tackle the challenge of taxing intangible assets like Niantic's AI system. Niantic's AI mapping system demonstrates the growing divide between value creation and taxation in the digital economy. While traditional revenue streams from *Pokémon Go* are taxed, the untaxed intangible asset reflects a critical shortcoming in how tax systems adapt to such innovation. Without significant reforms, corporations like Niantic will continue to build immense untaxed wealth through intangibles while contributing little to national tax revenues.

69. Sam Sholli, *Tax Experts Divided on Likelihood of U.S. Implementing Pillar Two*, INT'L TAX REV. (May 28, 2024), <https://www.internationaltaxreview.com/article/2dal47x3n0n5v91fnjsw/direct-tax/tax-experts-divided-on-likelihood-of-us-implementing-pillar-two> [https://perma.cc/Z4YK-9G9T] (noting how the United States, unlike other major jurisdictions, 'marches to its own beat'); Ayana Martinez & Lynn Dayan, *Pillar Two—Compliant Legislation in Doubt Under Second Trump Administration*, RSM US (Nov. 20, 2024), <https://rsmus.com/insights/services/business-tax/pillar-two-compliant-legislation-in-doubt-under-second-trump-adm.html> [https://perma.cc/LH8Z-BKPK] (speculating on whether the United States will adopt Pillar Two); *Top House Republicans Back Legal Challenge to Pillar Two*, TAX AT HAND (Sep. 20, 2024), <https://www.taxathand.com/article/35917/United-States/2024/Top-House-Republicans-back-legal-challenge-to-Pillar-Two> [https://perma.cc/DZ8S-UGR9].

70. Cristina Enache, *Digital Taxation around the World*, TAX FOUND. (April 30, 2024), <https://taxfoundation.org/research/all/global/digital-taxation/> [https://perma.cc/LYK6-HG4C]; Amelia Schwanke & Joe Stanley-Smith, *Pokémon GO Could Get Caught in Tax Bubble*, INT'L TAX REV. (July 27, 2016), <https://www.internationaltaxreview.com/article/2a68rfy5bw2ycq0qbjkiu/pokemon-go-could-get-caught-in-tax-bubble> [https://www.perma.cc/6TN6-63RS].

III. The Bigger Picture: Taxing Intangibles in the Digital Age

The global economy is undergoing a seismic shift, with intangible assets like data, artificial intelligence, and intellectual property replacing traditional physical assets and physical labor as primary drivers of value.⁷¹ Companies today derive a significant portion of their market valuation not from factories, machinery, or real estate but from their ability to collect, analyze, and monetize data.⁷² In this digital age, intangible assets such as algorithms, customer data, and AI-powered systems are shaping industries from technology and finance to healthcare and entertainment.⁷³ For instance, Niantic's AI mapping system, developed from *Pokémon Go* player data, epitomizes this trend. Such assets are challenging traditional notions of value creation; they are scalable, can be deployed across borders with minimal additional cost, and often derive their worth from user participation rather than direct investment. The rise of these assets has far-reaching implications for tax systems designed for an era dominated by tangible property and localized economic activity.

Contemporary tax frameworks, including the U.S. federal tax system, remain calibrated to conventional economic models predicated upon activities that possess tangible, physical dimensions in which taxpayers primarily generate income from tangible assets or physical labor, many of which are conducted through localized transactions. As Professor Brauner well-articulated the challenges associated with transactions:

Tax law to date treats information like all other intangibles, ignoring its uniqueness. Information is intangible, but treating it in the same manner as other intangibles (a controversial unified category itself) masks, for instance, the magnitude of its scalability that dwarfs most if not all other intangibles. Anyone can realize, from personal experience, how difficult it is on the one hand to monopolize a piece of information and on the other hand the virtual indefinite opportunities to use any information. This is especially true in the age of Big Data. Such scalability makes information very difficult to commodify, and in many cases simply incompatible with the market (price) system.⁷⁴

71. Yariv Brauner, *Taxation of Information and the Data Revolution*, 109 IOWA L. REV. 1959, 1961–62 (2024); *Value of Global Intangible Assets Reaches All-Time \$79.4 Trillion High*, BRAND FIN. (Oct. 30, 2024), <https://brandfinance.com/press-releases/value-of-global-intangible-assets-reaches-all-time-79-4-trillion-high> [<https://perma.cc/MW2X-4YYZ>]; Meredith, *supra* note 21; Jean-Pierre Danthine & Xiangrong Jin, *Intangible Capital, Corporate Valuation and Asset Pricing*, 32 ECON. THEORY 157, 158 (2007).

72. *Data Monetization: The Next Big Revenue Stream for Brands?*, CDP, <https://cdp.com/articles/data-monetization-cdp-2> [<https://perma.cc/4AZ2-DQX9>].

73. Abid Bin Rashid & Ashfakul Karim Kausik, *AI Revolutionizing Industries Worldwide: A Comprehensive Overview of Its Diverse Applications*, 4 HYBRID ADVANCES 1, 2, (2024).

74. Brauner, *supra* note 6, at 1971.

Contemporary income tax and VAT systems rely on traditional concepts like physical presence to establish taxable nexus to a jurisdiction,⁷⁵ clear “market comparables” for asset valuation,⁷⁶ and the realization principle to determine when income becomes taxable.⁷⁷ These challenges stem predominantly from the distinctive attributes of information as an economic asset, characteristics that have received inadequate scholarly attention within the established corpus of tax law literature and regulatory commentary. Current tax jurisprudence erroneously categorizes information assets within the broader classification of intangible property, thereby obscuring their fundamental economic distinctions.⁷⁸ Furthermore, while most income and VAT tax systems currently tax like-kind exchanges (barter transaction), a similar construct between data giant corporations (such as Alphabet (formerly Google), Meta (formerly Facebook), Amazon, Microsoft, Apple, Netflix, X (formerly Twitter), TikTok, LinkedIn, Uber and Niantic) and their users is universally ignored for income tax and VAT purposes.⁷⁹ However, in today’s digital economy, these foundational principles are being challenged and often fail to capture the complexities of value creation driven by intangible assets, such as data, algorithms, and AI systems. These challenges include three main issues: valuation, jurisdiction, and timing.⁸⁰

A. Valuation

As indicated earlier, most tax systems overlook information transactions for income tax and VAT purposes between data giant corporations and their users. Because the terms of service governing the relationship between these information giants and their user base contain no provisions alerting users to potential tax implications arising from their engagement with such platforms, Professor Brauner cautions that this “[makes it] impossible to tax, or not administrable in the common policy language.”⁸¹ As such the output of these

75. Daniel Shaviro, *Mobile Intellectual Property and the Shift in International Tax Policy from Determining the Source of Income to Taxing Location-Specific Rents: Part Two*, 2021 SING. J. LEGAL STUDS. 128, 150–51; Young Ran (Christine) Kim, *Digital Services Tax: A Cross-Border Variation of Consumption Tax Debate*, 72 ALA. L. REV. 131, 132–33 (2020).

76. See Brauner, *supra* note 6, at 1970 n.42 (describing how “comparable market transactions” serve to create a reference for transaction value in the absence of a market sale).

77. See Speck, *supra* note 30, at 3 (describing how realization acts a reference for taxation purposes).

78. Brauner, *supra* note 6, at 1971.

79. Thimmesch, *supra* note 17, at 146–47; Brauner, *supra* note 6, at 1967; Brad W. Setser, *The Spotty International Tax Record of Big U.S. Technology Companies*, COUNCIL ON FOREIGN RELS. (July 28, 2024), <https://www.cfr.org/blog/spotty-international-tax-record-big-us-technology-companies> [<https://perma.cc/VZF6-HAMV>]; Enache, *supra* note 70.

80. Brauner, *supra* note 34, at 114–17 (discussing the challenges of valuation and timing); Grubert, *supra* note 55, at 239–40 (discussing how jurisdiction can be a challenge in capturing value creation with income shifting and high- and low-tax countries).

81. Brauner, *supra* note 6, at 1967.

data giant corporations is currently almost untaxed in both income tax and VAT systems, and the exploration of alternative IP taxation regimes presents a necessary avenue for regulatory development and statutory refinement.

Intangible assets are inherently difficult to value due to their context-dependent and evolving nature.⁸² The worth of a dataset, for example, depends on its quality, volume, and the potential insights or use it can generate.⁸³ Niantic's AI mapping system is a case in point: its value lies not in a market transaction but in its potential applications, such as licensing deals or future product development. The absence of clear market comparables or standardized valuation methods creates significant challenges for taxing authorities and makes it nearly impossible for tax authorities to assign a definitive value for taxation purposes.⁸⁴ Other examples include Amazon's recommendation algorithms or Google's search data. Both are intangible assets critical to their business models, yet their value cannot be tied to a specific transaction or asset, complicating efforts to tax them effectively.

B. Jurisdiction

Intangible assets complicate the question of where economic value and income are created.⁸⁵ With data collected in one jurisdiction, processed in another, and monetized globally, determining the appropriate taxing rights becomes a contentious issue. Current international tax rules, which often rely on physical presence, fail to capture the complex economic virtual reality of data-driven businesses and other corporations whose core business relies on intangible assets.⁸⁶ Similar challenges are evident in companies like Meta, which, for example, generate substantial revenue through advertising based on user data from around the world.⁸⁷ Countries where users reside, providing

82. See Danthine & Jin, *supra* note 8, at 159 (explaining that while physical capital accumulation is straightforward, the accumulation of intangible capital is a "process made of surprises, innovations and breakthroughs" that does not conform to a standard investment process).

83. Brauner, *supra* note 34, at 106–07; Brauner, *supra* note 6, at 1983.

84. Brauner, *supra* note 34, at 91.

85. Brauner, *supra* note 6, at 1962.

86. Mihir A. Desai & James R. Hines Jr., *Old Rules and New Realities: Corporate Tax Policy in a Global Setting*, 57 NAT'L TAX J. 937, 937 (2004).

87. Keegan, *supra* note 49; *Annual Advertising Revenue of Meta Platforms Worldwide from 2009 to 2023*, STATISTA, <https://www.statista.com/statistics/271258/facebooks-advertising-revenue-worldwide/> [<https://perma.cc/6JPF-58E8>]; Peter Westberg, *The Rise of Google, Meta, Amazon, and YouTube in Advertising*, QUARTER (Mar. 1, 2024), <https://quartr.com/insights/company-research/the-rise-of-google-meta-amazon-and-youtube-in-advertising> [<https://perma.cc/FS52-PXMP>]; Lilian V. Faulhaber, Professor of L., Geo. Univ. L. Ctr., *Is Digital Different? Economic Nexus and Other Efforts to Respond to the Changing International Tax Landscape*, Address at the Annual Conference on Taxation (Nov. 15, 2018) (on file with the National Tax Journal).

the raw material for this revenue, often lack the ability to claim taxing rights, creating inequities in the allocation of global tax revenues.⁸⁸

It should be noted that this issue is not limited to companies like Meta but arises whenever technology is offered across borders. For example, subscription-based services like Netflix face similar challenges.⁸⁹ A user in South Korea pays for a subscription, accessing content hosted and managed by servers in another jurisdiction, while the company develops its IP assets in a third jurisdiction, employs people who are responsible for sales or support in different jurisdictions, and while the company itself may be headquartered elsewhere entirely, centralizing executive management, legal operations, and financial accounting activities operate in other jurisdictions. This new reality of dispersed economic activity across multiple jurisdictions highlights the broader difficulties in attributing taxing rights, which extend beyond data-driven companies to encompass nearly all technology-dependent enterprises, and stresses the urgency of rethinking tax rules to address the realities of a highly interconnected digital economy that leaves very few physical footprints in the jurisdictions in which it operates.

C. Timing

Traditional tax law currently relies on the realization principle, taxing income when it is earned or realized through a transaction.⁹⁰ While this framework works effectively for tangible assets with immediate, measurable value, it is often ill-suited for the incremental and speculative nature of intangible assets. For example, Niantic's AI-driven mapping system accumulates value gradually through user-generated data and continuous refinement, enhancing its utility without triggering any taxable event. Unlike tangible assets, which typically produce clear cash flows or sales proceeds,

88. Faulhaber, *supra* note 87.

89. See Florence Loeve & Sudip Kar-Gupta, *Netflix Under Tax Fraud Investigation as Offices in France and Netherlands Raided*, REUTERS (Nov. 5, 2024), <https://www.reuters.com/business/media-telecom/investigators-search-netflix-offices-france-netherlands-source-2024-11-05/> [<https://perma.cc/FEF7-7CSG>] (reporting that Netflix's offices in Paris and Amsterdam were raided as part of a tax fraud investigation and noting "Large tech companies offering their online services and subscriptions across borders often run into difficulties with European tax authorities."); Michael Herh, *Netflix Files Tax Lawsuit Against Korean Tax Authorities*, BUS. KOREA (Apr. 22, 2024), <https://www.businesskorea.co.kr/news/articleView.html?idxno=215534> [<https://perma.cc/9PTT-6Y5V>] (reporting that Netflix filed an administrative lawsuit against Korea's tax authority following the imposition of an additional tax on the company's revenue); Joyce Lee, *Google, Netflix Under Scrutiny in South Korea Over Network Fees*, REUTERS (Oct. 21, 2022), <https://www.reuters.com/technology/google-netflix-under-scrutiny-south-korea-over-network-fees-2022-10-21/> [<https://perma.cc/2NFF-KUQZ>] (discussing a South Korean parliament hearing on proposed legislation relating to network fees).

90. Brauner, *supra* note 6, at 1970.

intangibles may not generate direct revenue for years, if at all, leaving their economic value untaxed.⁹¹

The lack of ability to tax such barter transactions, and consequently such value creation pursuant to the realization principle, provides significant economic advantages to companies that are generating untaxed (both income and VAT) intangible assets currently. By deferring taxation until a realization event, such as a sale or monetization through licensing, these corporations avoid immediate tax liabilities, effectively leveraging the time value of money. This deferral allows corporations to accrue economic benefits without the liquidity constraints that taxation might impose, further compounding their financial advantages. Consequently, the current framework enables substantial wealth accumulation for these companies while eroding the tax base during critical periods of value creation. Ultimately, the realization principle's inability to accommodate the complexities of intangible assets, such as Niantic's AI-driven mapping system, undermines the equity and effectiveness of the tax system. Without a comprehensive and appropriate reform, the disconnect between value creation and taxability will persist, allowing significant wealth, generated by the information and data industry, to continue and escape timely taxation.

D. Global Efforts to Address the Challenges

To address these challenges, global tax reform efforts, such as the OECD's Pillar One and Pillar Two initiatives, aim to modernize the taxation of intangibles.⁹² The first OECD initiative, Pillar One, seeks to allocate a portion of multinational enterprises' (MNEs) residual profits to the jurisdictions where users or customers are located, regardless of physical presence; in some countries, such a tax replaces VAT.⁹³ This approach directly addresses situations like Niantic's, where players' data contributes significantly to value creation but is sourced from countries that currently lack taxing rights. If implemented, this reform would ensure that countries hosting *Pokémon Go* players, who provide the raw material for Niantic's intangible assets, receive a fair share of the tax revenue generated by those assets. For example, jurisdictions with large player bases, such as Brazil,

91. Cf. Alem Hagos Yallwe & Antonino Buscemi, *An Era of Intangible Assets*, 4 J. APPLIED FIN. & BANKING 2, at 17, 22 (2014) (discussing the growth in intangible assets and associated accounting challenges).

92. See generally OECD, TAX CHALLENGES ARISING FROM DIGITALISATION – ECONOMIC IMPACT ASSESSMENT (2020), https://www.oecd.org/content/dam/oecd/en/publications/reports/2020/10/tax-challenges-arising-from-digitalisation-economic-impact-assessment_814ce768/0e3cc2d4-en.pdf [<https://perma.cc/GLQ7-B6DV>] (analyzing the economic and tax effects of Pillar One and Two proposals for the digitalization of the economy); Jane G. Gravelle, CONG. RSCH. SERV., IF11874, INT'L TAX PROPOSALS ADDRESSING PROFIT SHIFTING: PILLARS 1 AND 2 (2024) (discussing the implications of Pillars One and Two for domestic law).

93. OECD, *supra* note 92, at 12, 14.

England, Italy, India, or the United States,⁹⁴ could claim taxing rights over a portion of Niantic's global profits, which is attributable to their respective jurisdiction.

Pillar One's goal is to address the nexus issue discussed earlier,⁹⁵ which was designed for a different business environment and became an elusive requirement in the digital age.⁹⁶ It has two components: Amount A and Amount B. Amount A creates a multilateral convention to redirect around \$200 billion in profits from large MNEs to the countries where their customers are located, without requiring the MNEs to have a physical presence in those locations.⁹⁷ Amount B introduces a streamlined approach to allocating income across countries for standard marketing and distribution activities.⁹⁸ This framework aims to reduce costly and contentious transfer pricing disputes, curbing efforts by nations to aggressively broaden their tax bases.

The second OECD initiative, Pillar Two, introduces a global minimum tax rate to ensure that MNEs pay at least a minimum level of tax on their global income, regardless of where it is reported.⁹⁹ This initiative aims to

94. See Chapple, *supra* note 13 (reporting that *Pokémon Go* has been installed most in the U.S., Brazil, and India); *Number of Daily Active Users (DAU) of Pokémon GO via iPhone in Selected Countries in June 2022*, STATISTICA (July 2022), <https://www.statista.com/statistics/604551/pokemon-go-daily-active-users-in-europe/> [<https://perma.cc/P477-4FG6>] (demonstrating that the United States, Great Britain, and Italy have the highest number of daily active users in *Pokémon GO*).

95. Riley Stotzky & Arianna Fano, *Taxation in the Digital Economy: Digital Services Taxes, Pillar One, and the Path Forward*, BIPARTISAN POL'Y CTR. (Oct. 26, 2023), <https://bipartisanpolicy.org/blog/taxation-in-the-digital-economy-digital-services-taxes-pillar-one-and-the-path-forward/> [<https://perma.cc/B8WY-G2RF>].

96. See *id.* (explaining countries' interest in reforming nexus rules to adapt to the modern digital economy).

97. Jane G. Gravelle, CONG. RSCH. SERV., R47988, THE OECD/G20 PILLAR 1 AND DIGITAL SERVICES TAXES: A COMPARISON (2024); see also Reuven S. Avi-Yonah & Ajitesh Kir, *The High Road and the Low Road: What Should Be the US Reaction to the End of Pillar One?* (May 28, 2023) (unpublished manuscript), <https://ssrn.com/abstract=4457808> [<https://perma.cc/4GZK-HVV4>] (describing Amount A as "a new taxing right" that applies to MNEs in market jurisdictions); Lorraine Eden, *The Simple Analytics of Pillar One Amount A*, 50 TAX MGMT. INT'L J. 137, 138 (Mar. 5, 2021) ("[T]he Amount A formula transfers tax base into Market (i.e., 'tax base receiving' or 'winning') and out of Residence and Source (i.e., 'tax base relieving' or 'losing') jurisdictions."); Siona Robin Listokin, *Justifying Pillar One: A Qualitative Analysis of OECD Consultation Letters* (May 16, 2024), <https://ssrn.com/abstract=4815367> [<https://perma.cc/VY7Q-TNH3>] (forthcoming) (explaining how Pillar One adopts a nexus approach, which considers factors like "user participation, marketing intangibles, and significant economic presence" in order to reallocate taxing rights); Leopoldo Parada, *The Unified Approach Under Pillar 1: An Early Analysis*, 96 TAX NOTES INT'L 983, 984 (Dec. 16, 2019) (equating Amount A with residual profits that "should be allocated to market jurisdictions"); Reuven S. Avi-Yonah, Young Ran (Christine) Kim & Karen Sam, *A New Framework for Digital Taxation*, 63 HARV. INT'L L.J. 279, 280 (2022) ("Pillar One allocates part of a multinational's residual profits to market jurisdictions even if the multinational has no physical presence in those market countries.").

98. Avi-Yonah et al., *supra* note 97, at 295.

99. OECD, *supra* note 92, at 77; Gravelle, *supra* note 92.

limit profit shifting, particularly relevant for intangible-heavy companies like Niantic and other data giants, which might allocate profits to low-tax jurisdictions where the value of their intangible assets is difficult to quantify.¹⁰⁰ Overall, by implementing a minimum on global tax rates, Pillar Two would reduce the incentive for companies to exploit gaps in the international tax system.

While the OECD's Pillar One and Pillar Two initiatives both represent significant developments in modernizing global tax framework, their implementation faces considerable hurdles. The United States, in particular, exemplifies the complexities of adopting these measures, given its unique political, economic, and legal landscape. Other jurisdictions, too, encounter specific challenges that complicate global coordination and harmonization.¹⁰¹ In the United States, implementing international tax reforms like Pillar One requires legislative approval, which is far from guaranteed.¹⁰² With a polarized Congress, achieving the consensus necessary to ratify a multilateral agreement poses a significant challenge. Critics of these two initiatives argue that reallocating taxing rights under Pillar One could lead to a net revenue loss for the United States, especially as other countries gain rights to tax U.S.-headquartered tech giants. This potential loss of tax revenue makes it politically contentious, particularly in a climate of increasing fiscal pressures.¹⁰³

100. See Brauner, *supra* note 6, at 86 (explaining that transfer pricing rules are necessary to “stop MNEs from easily avoiding or significantly reducing taxation”); Grubert, *supra* note 55, at 221 (noting that MNEs shift income across jurisdictions).

101. See MATTHIAS BAUER, UNINTENDED AND UNDESIRE CONSEQUENCES: THE IMPACT OF OECD PILLAR I AND II PROPOSALS ON SMALL OPEN ECONOMIES, in EUR. CTR. FOR INT'L POL. ECON. 30 (2020) (“If profit shifting is limited through international coordination, governments may face stronger pressure to reduce tax levels directly, e.g. by cutting statutory tax rates.”).

102. Lynn Dayan & Ayana Martinez, *Pillar Two-Compliant Legislation in Doubt Under Second Trump Administration*, RSM US (Nov. 20, 2024), <https://rsmus.com/insights/services/business-tax/pillar-two-compliant-legislation-in-doubt-under-second-trump-adm.html> [<https://perma.cc/LH8Z-BKPK>]; *House Republican Leadership, Ways and Means Members Express Opposition to Pillar Two Deal in Letter to OECD*, KPMG (Sep. 18, 2024), <https://kpmg.com/us/en/taxnewsflash/news/2024/09/tnf-house-republican-leadership-opposition-pillar-two-deal.html> [<https://perma.cc/QFF4-3FUE>].

103. *At OECD, Chairman Smith Warns That Congress Will Reject New Job-Killing Global Tax Surrender*, U.S. HOUSE COMM. ON WAYS & MEANS (Sep. 1, 2023), <https://waysandmeans.house.gov/2023/09/01/at-oecd-chairman-smith-warns-that-congress-will-reject-new-job-killing-global-tax-surrender/> [<https://perma.cc/L2LK-57WK>]; *House Republicans Introduce Bill Responding to Pillar Two and Unilateral Taxes*, PWC (May 2023), <https://www.pwc.com/us/en/services/tax/library/house-republicans-introduce-bill-responding-to-pillar-two.html> [<https://perma.cc/E5P8-DG6X>]; *Top House Republicans Back Legal Challenge to Pillar Two*, TAX AT HAND (Sep. 20, 2024), <https://www.taxathand.com/article/35917/United-States/2024/Top-House-Republicans-back-legal-challenge-to-Pillar-Two> [<https://perma.cc/DZ8S-UGR9>]; “U.S. Is Not a Piggy Bank for Europe’s Socialist Policies,” HOUSE COMM. ON WAYS & MEANS (Mar. 11, 2024), <https://waysandmeans.house.gov/2024/03/11/u-s-is-not-a-piggy-bank-for-europes-socialist-policies/> [<https://perma.cc/JW23-USAE>]; *JCT: U.S. Stands to Lose Revenue Under OECD Tax Deal*, U.S. SENATE COMM. ON FIN. (June 20, 2023), <https://www.finance.senate.gov/ranking->

Pillar One has faced criticism for its perceived inequity and complexity.¹⁰⁴ Many developing nations argue that its allocation formula disproportionately favors countries with large consumer markets while offering limited benefits to smaller, resource-contributing jurisdictions.¹⁰⁵ Furthermore, defining and calculating “residual profits” and determining the share attributable to user jurisdictions involves inherently subjective judgments, leading to concerns about fairness and potential disputes.¹⁰⁶ Likewise, both initiatives require sophisticated infrastructure for monitoring and compliance, not to mention international close cooperation.

For example, Amount A under Pillar One demands detailed reporting on global profits and the allocation of those profits across jurisdictions based on user or customer location.¹⁰⁷ This requires a level of transparency and data sharing that many MNEs may resist, citing confidentiality and logistical concerns. Similarly, the global minimum tax under Pillar Two entails complex calculations to ensure compliance with its provisions, adding a significant compliance burden on tax authorities and businesses alike.

From a broader policy perspective, Pillar Two’s global minimum corporate income tax rate, while conceptually appealing, has drawn criticism for potentially undermining tax sovereignty.¹⁰⁸ Countries with historically

members-news/jct-us-stands-to-lose-revenue-under-oecd-tax-deal [https://perma.cc/QBH8-ZZY8]; Alan Cole & Cody Kallen, *Risks to the U.S. Tax Base from Pillar Two*, TAX FOUND. (Aug. 30, 2023), <https://taxfoundation.org/research/all/federal/global-minimum-tax-us-tax-base/> [https://perma.cc/FTN8-6C8C]; STAFF OF JOINT COMM. ON TAX’N, 118TH CONG., POSSIBLE EFFECTS OF ADOPTING THE OECD’S PILLAR TWO, BOTH WORLDWIDE AND IN THE U.S. 8 (June 2023).

104. E.g., JULIE MCCARTHY, BROOKINGS: CTR. FOR SUSTAINABLE DEV., A BAD DEAL FOR DEVELOPMENT: ASSESSING THE IMPACTS OF THE NEW INCLUSIVE FRAMEWORK TAX DEAL ON LOW- AND MIDDLE-INCOME COUNTRIES, BROOKINGS (2022), https://www.brookings.edu/wp-content/uploads/2022/05/Tax-and-Bad-Deal-for-Development_Final.pdf [https://perma.cc/Z22Z-PAJU]; Dave Murray, *Complexity or Chaos?* TAX ADVISER MAG. (Feb. 5, 2021), <https://www.taxadvisermagazine.com/article/complexity-or-chaos> [https://perma.cc/9ZSW-APLY]; Adam N. Michel, *OECD’s Pillar One: A Step Toward Chaos Rather Than Stability*, CATO INST.: BLOG (Oct. 30, 2023), <https://www.cato.org/blog/oecd-pillar-one-step-towards-chaos-rather-stability> [https://perma.cc/P6G8-DYC3].

105. McCarthy, *supra* note 104.

106. Sebastian Beer, Ruud A. De Mooij, Shafik Hebous, Michael Keen & Li Liu, *Exploring Residual Profit Allocation* 5–6 (Int’l Monetary Fund, IMF Working Paper No. 20/49, Feb. 2020), <https://ssrn.com/abstract=3583408> [https://perma.cc/X2AX-3AYW]; Michael P. Devereux, Alan J. Auerbach, Paul Oosterhuis, Wolfgang Schön & John Vella, *Residual Profit Allocation by Income*, OXFORD INT’L TAX GRP. (Mar. 2019), https://eml.berkeley.edu/~auerbach/WP1901_0.pdf [https://perma.cc/N97S-MQNG]; OECD, *supra* note 92, at 12. For additional background, see generally OECD, FACT SHEET AMOUNT A: PROGRESS REPORT ON AMOUNT A OF PILLAR ONE, <https://www.oecd.org/tax/beps/pillar-one-amount-a-fact-sheet.pdf> [https://perma.cc/2283-3WGS].

107. OECD, *supra* note 92.

108. Alan Cole, *The Fatal Flaw of Pillar Two*, TAX FOUND. (Feb. 27, 2024), <https://taxfoundation.org/blog/pillar-two-flaw/> [https://perma.cc/LPX6-MEBE]; Alan Cole & Cody Kallen, *Risks to the U.S. Tax Base from Pillar Two*, TAX FOUND. (Aug. 30, 2023), <https://taxfoundation.org/research/all/federal/global-minimum-tax-us-tax-base/> [https://perma.cc/

low tax rates, like Ireland or certain Caribbean nations, argue that the initiative erodes their ability to attract investment by offering favorable tax regimes, and that about 60% of the revenue it would generate would be collected by the G-7 economies.¹⁰⁹

The United States, as home to many of the largest MNEs targeted by these reforms,¹¹⁰ is under particular scrutiny to lead by example. However, the potential misalignment between domestic tax policies, such as the Global Intangible Low-Taxed Income (GILTI) provision,¹¹¹ and the OECD's proposals complicates United States' participation. Harmonizing these regimes without disadvantaging United States-based companies remains a key challenge.

In addition to the OECD's BEPS initiatives, some countries and approximately half of the E.U. OECD member countries, intend to, or have already, introduced unilateral measures regarding the taxation of digital services,¹¹² referred to as digital services taxes (DSTs), which impose taxes on revenues derived from digital activities.¹¹³ While these measures may be temporary and controversial, they reflect the growing recognition of the need and importance to tax intangible value more effectively.¹¹⁴ For example, France's DST specifically targets revenue generated by user data, addressing part of the tax gap left by traditional rules.¹¹⁵ The DST departs from the

FTN8-6C8C]; INT'L MONETARY FUND, INTERNATIONAL CORPORATE TAX REFORM 16–17 (2023), <https://www.imf.org/-/media/Files/Publications/PP/2023/English/PPEA2023001.ashx> [https://perma.cc/M4DH-42JF]; Reuven Avi-Yonah & Young R. Kim, *Tax Harmony: The Promise and Pitfalls of the Global Minimum Tax*, 43 MICH. J. INT'L L. 505, 547–48 (2022).

109. See Julie McCarthy, *The New Global Tax Is Bad for Development*, BROOKINGS (May 16, 2022), <https://www.brookings.edu/articles/the-new-global-tax-deal-is-bad-for-development/> [https://perma.cc/7C5H-UYXY] (explaining how LMICs might lose tax sovereignty from Pillar Two, while also getting an unequal share of new revenues); Rupan Bharanidaran, *Ending the Race to the Bottom: Analyzing a Recent Global Agreement on Corporate Taxation*, 3 CHI. J. INT'L L. ONLINE 38, 65–66 (2023), <https://cjl.uchicago.edu/online-archive/ending-race-bottom-analyzing-recent-global-agreement-corporate-taxation> [https://perma.cc/SN22-RRYC].

110. Christopher Ahn, *Taxing the Digital Giants: What the OECD Global Tax Deal Means for the U.S.*, FORDHAM J. CORP. & FIN. L. (Oct. 8, 2024), <https://news.law.fordham.edu/jcfl/2024/10/08/taxing-the-digital-giants-what-the-oecd-global-tax-deal-means-for-the-u-s/> [https://perma.cc/9HP6-VT7U].

111. I.R.C. § 951(A).

112. Such as France, Switzerland, and the United Kingdom. *Digital Tax in Europe 2024*, TAX FOUND. (May 7, 2024), <https://taxfoundation.org/data/all/eu/digital-tax-europe-2024> [https://perma.cc/3SPX-3KXK].

113. See, e.g., Doron Narotzki, *A Tax in Form, a Tariff in Function: Reclassifying Digital Services Taxes to Restore Trade Law Coherence*, 45 VA. TAX REV. 53, 56, 60–62 (2025).

114. PWC, *Digital service taxes: Are they here to stay?*, <https://www.pwc.com/us/en/services/tax/library/digital-service-taxes.html> [https://perma.cc/4FBP-2EPM]; Narotzki, *id.*, at 60–61.

115. Narotzki, *supra* note 113, at 66–69.

income-focused strategies of Pillar One and Pillar Two by imposing a turnover tax on gross revenues linked to digital services.¹¹⁶

In general, a turnover tax is imposed on a company's gross revenues (total sales) rather than its profits, so essentially the tax base is different.¹¹⁷ Unlike corporate income taxes, which are based on net income after deducting all allowed expenses, a turnover tax applies to the total income generated from business activities, regardless of profitability.¹¹⁸ This approach alleviates the complexities of profit attribution and, as an alternative, links tax liabilities directly to the economic activities occurring within the taxing jurisdiction.¹¹⁹ For companies like Niantic, which generate revenue through microtransactions and ad-driven income from region-specific players,¹²⁰ the DST provides a straightforward, though sometimes imprecise, mechanism to align taxation with market presence.

One of the first and obvious issues with the OECD initiatives and some countries' unilateral DST policy is that it risks fragmentation. For example, companies like Niantic may face multiple overlapping DSTs in jurisdictions where its services engage millions of users. This raises concerns about double taxation and heavy compliance burdens, which among other things can lead to slow implementation of new technologies, goods, and services.

However, it is important to note that while Pillar One, Pillar Two, and the unilateral DSTs introduced by various countries that aim to address the challenges of taxing digital businesses, they fall short of effectively capturing the value of intangible assets generated by Niantic's users.¹²¹ Niantic's unique business model leverages its user base not only to generate direct revenue through in-game purchases but also to create an immensely valuable, intangible asset: its AI-driven mapping technology. This asset, built from the real-world activities and data contributions of millions of users, remains largely untaxed under the existing tax frameworks.¹²² The current measures focus primarily on revenue or residual profits but fail to account for the

116. Young Ran (Christine) Kim, *Digital Services Tax: A Cross-Border Variation of Consumption Tax Debate*, 112 PROC. ANN. CONF. ON TAX'N & MINUTES ANN. MEETING NAT'L TAX ASS'N 1 (2019), <https://www.jstor.org/stable/27067489> [<https://perma.cc/4VSD-63MF>]; see also Narotzki, *supra* note 113, at 63–74 (analyzing the different DSTs).

117. William H. Oakland, *The Theory of the Value-Added Tax: I A Comparison of Tax Bases*, 20 NAT'L TAX J. 119, 119 (1967); Richard Pomp, *Turnover Taxes: Their Origin, Fall from Grace, and Resurrection*, J. ST. TAX'N, Winter 2021, at 17.

118. Pomp, *supra* note 117.

119. Narotzki, *supra* note 113, at 63–74 (analyzing the different DSTs).

120. See Sponsored Gifts, POKÉMON GO HELP CENTER, <https://niantic.helpshift.com/hc/en/6-pokemon-go/faq/3626-sponsored-gifts/> [<https://perma.cc/L4UL-8LP9>] (describing how gift pop-ups shown to users are particularized to a user's location).

121. Starkov & Wang, *supra* note 22, at 283.

122. See *id.* (arguing that user activity creates business value in OECD countries).

economic value embedded in such user-generated, location-specific intangibles, leaving a significant gap in the global tax system.

IV. Policy Analysis: Addressing the Digital Gap

As discussed earlier, the digitalization of the global economy has exposed critical gaps in the international tax system, particularly in its ability to adequately tax digital business models.¹²³ While frameworks like Pillar One, Pillar Two, and unilateral measures such as DSTs represent steps toward addressing these challenges, significant gaps persist. The case of Niantic's *Pokémon Go* demonstrates the challenges current international tax frameworks face in taxing the full economic value generated by digital businesses. These challenges stem from the dual nature of *Pokémon Go*'s business model: while it generates direct revenue through microtransactions, it also creates highly valuable intangible assets, such as AI-driven mapping data, which remain, at least for the most part, currently untaxed. Addressing these gaps requires rethinking of the realization principle, as well as other traditional tax paradigms and proposing novel approaches that capture the full spectrum of value creation currently. This calls for innovative frameworks that not only recognize the economic significance of user contributions but also adapt to the unique complexities of digital platforms. The following proposals outline potential pathways for creating a more equitable and effective taxation system.

A. *Dynamic Tax Nexus for User-Generated Value*

One of the main obstacles in taxing *Pokémon Go* is the lack of a physical nexus in the jurisdictions where its value is created. A potential solution lies in adopting a "Dynamic Tax Nexus" based on high user activity and data generation. Under this framework, Niantic's tax liability would be tied to "User Interaction Metrics" (the frequency and intensity of user engagement in a jurisdiction, such as the number of active players, events hosted, or interactions facilitated), and "Data Contribution Value" (the economic value of data generated by users in specific jurisdictions). By assigning taxing rights based on these dynamic factors, jurisdictions can claim their fair share of income and VAT taxes aligned with the economic contributions (value creation) of local users. In essence, this approach leans toward abandoning the physical nexus—i.e., physical presence—in a specific jurisdiction, and adopting the economic nexus approach (as used in the U.S. for state taxation¹²⁴), because it reflects more accurately contemporary business

123. Brauner, *supra* note 6, at 1962.

124. Andrew W. Swain & John D. Snethen, *A Taxing Question: The Nexus Quagmire Strikes Again*, 15 BUS. L. TODAY, 50, 51 (2006); Adam B. Thimmesch, *The Illusory Promise of Economic Nexus*, 13 FLA. TAX REV. 157, 161 (2012).

models, and ensures that nonresident corporations would contribute to the jurisdictions in which they operate and benefit from.¹²⁵ The key though, for an economic nexus to be successful, is to create a uniformed standard.

User Interaction Metrics, the first element of the Dynamic Tax Nexus, focuses on quantifying user engagement:

- i. Active Players: Metrics such as daily or monthly active users provide a clear indication of a platform's penetration and economic activity in a jurisdiction.¹²⁶
- ii. Special Events: Niantic frequently organizes local events (e.g., *Pokémon Go* Community Days or special challenges),¹²⁷ which generate economic spillovers, such as increased foot traffic to local businesses. These events could serve as taxable triggers based on their scale and impact.
- iii. In-App Purchases: Revenue from microtransactions tied to specific geolocations (e.g., purchases made during regional events) can provide another measurable metric for taxation.¹²⁸

Using these interaction metrics ensures that tax liabilities correlate with the scale of economic activity, addressing the current disconnect between value creation and taxation.

Data Contribution Value, the second element of the Dynamic Tax Nexus, emphasizes the economic value of data generated by the users themselves:

- i. Mapping Enhancements: Gameplay data may be used to refine AR mapping technology, an intangible asset with global commercial applications. Jurisdictions contributing disproportionately to this data pool should have taxing rights reflective of their contributions.
- ii. Geolocation Data: User movements and interactions with physical landmarks provide critical data that enhances Niantic's platform.¹²⁹ This data, often tied to specific locations, represents a clear avenue for taxation based on its origin.

125. Megan A. Stombeck, *Economic Nexus and Nonresident Corporate Taxpayers: How Far Will It Go?*, 61 *TAX LAW.* 1225, 1235–37 (2008).

126. For statistics on active user data and live player count on *Pokémon Go*, see, for example, *Pokémon Go Live Player Count and Statistics*, ACTIVEPLAYER, <https://activeplayer.io/pokemongo/> [<https://perma.cc/FQ3F-9KMP>].

127. E.g., *Events*, POKÉMON GO, <https://pokemongolive.com/events/?hl=en> [<https://perma.cc/CEZ8-3A8D>].

128. Sworup Behuria, *Microtransactions as a Business Model in the Video Gaming Industry: Its Comparison with the Traditional Model and Effect on Other Industries* (Aug. 2, 2022) (MSc. Thesis), <https://ssrn.com/abstract=4418003> [<https://perma.cc/KDN3-JC4T>].

129. Brachmann & Priscariu, *supra* note 15.

- iii. Real-Time Data Valuation: Advances in machine learning and AI could allow jurisdictions to estimate the value of data contributions in real time, ensuring tax liabilities remain current and accurate. For example, Niantic's *Pokémon Go* collects geolocation and interaction data from players, which then in return enhances its AI-driven mapping technology.¹³⁰ Using AI, jurisdictions could assign value to this data based on its frequency, accuracy, and relevance, as well as the intensity of user interactions, such as visits to Pokéstops or participation in events. By applying these real-time assessments, tax systems could fairly attribute value to the economic contributions of users in specific regions, ensuring a more equitable and dynamic taxation framework. This, of course, relies on jurisdictions adopting advanced technologies and harnessing their capabilities to create a more accurate and efficient system for valuing intangible assets, while also addressing potential challenges such as privacy concerns, regulatory compliance, and cross-border coordination.

Our proposal for a Dynamic Tax Nexus offers several key benefits that address the challenges of taxing digital businesses by our version of the economic nexus. By tying VAT and income tax liabilities to user activity, it ensures that jurisdictions benefit proportionally from the economic value created within their borders, promoting equity and fairness, a key factor in good tax policy.¹³¹ Its flexible design allows it to adapt to the fluid and borderless nature of digital businesses, overcoming the limitations of traditional, rigid physical nexus rules. Additionally, the requirement for digital companies to report metrics such as active users and data contributions enhances transparency, fosters accountability, and simplifies tax enforcement, making it a practical and forward-looking solution for the digital economy.

B. *A Hybrid Approach to Source-Based Taxation*

Traditional source-based tax rules, which allocate income based on the location of profits or sales, are increasingly inadequate in the digital economy.¹³² These rules overlook a critical component of value creation: user-generated contributions. On digital platforms like *Pokémon Go*, user interactions, geolocation data, and other inputs directly enhance the company's core assets, such as AI-driven mapping technologies. Yet, these

130. *Id.* note 15.

131. Avi-Yonah et al., *supra* note 97, at 332.

132. Jürgen Stehn, *International Trade in Cyberspace: How to Tax Digital Goods*, 18 J. ECON. INTEGRATION 243, 244, 248 (2003).

unique and valuable contributions often remain untaxed. To address this issue, a Hybrid Source-Based Tax System could be introduced, blending revenue attribution with user-based data royalties to create a more equitable taxation framework.

The first component of the hybrid model involves revenue attribution based on direct sales within a jurisdiction, such as in-game purchases made by users.

This approach aligns with existing practices but refines them to ensure revenues are accurately tied to the jurisdiction where economic activity occurs. For example, in-game purchases like PokéCoins or event tickets can be tracked to the location of the user making the purchase, and sales revenues are apportioned to jurisdictions based on clear, measurable criteria, such as the user's billing address or IP location. This would ensure that jurisdictions hosting a significant portion of the platform's user base receive their fair share of taxes from direct revenue streams.

A novel addition to this is the concept of user-based data royalties, which involves taxing the economic value that is directly derived from user-generated data, that is increasingly central to digital businesses.¹³³ In this model, jurisdictions would impose royalty on companies like Niantic for data generated by their residents. Such royalty would reflect the value of contributions such as geolocation data, gameplay patterns, and other user activities that directly enhance the platform's intangible assets. For example, if *Pokémon Go* uses geolocation data collected in a specific country to refine its global mapping systems, that country could justifiably impose royalties based on the value derived from its residents' contributions. This element ensures that users, as economic participants, are recognized as part of the value-creation chain and that jurisdictions, where this activity occurs are adequately compensated.

The hybrid model addresses the dual nature of value creation in digital businesses by combining these two elements: Revenue from direct sales captures the traditional corporate income component of value creation, and data royalties ensure that the intangible value derived from users is also accounted for in the tax base. This balance ensures that both the company's operations and the users' economic activities are taxed in a fair manner, avoiding the under-taxation of one at the expense of the other.

133. *Data Licensing: Taking into Account Data Ownership and Use*, THOMSON REUTERS, <https://legal.thomsonreuters.com/en/insights/articles/data-licensing-taking-into-account-data-ownership> [<https://perma.cc/7FRE-8WS5>]; Aqib Aslam & Alpa Shah, *Tec(h)tonic Shifts: The Value of User Data as a Tax Base*, AUSTL. TAX POL'Y BLOG (Mar. 2, 2021), <https://www.austaxpolicy.com/techtone-shifts-the-value-of-user-data-as-a-tax-base/> [<https://perma.cc/UX3S-S2Z2>]; Aqib Aslam & Alpa Shah, *Tec(h)tonic Shifts: Taxing the "Digital Economy"* (Int'l Monetary Fund, IMF Working Paper No. 20/49, Feb. 2020).

This Hybrid Source-Based Tax System requires cautious implementation and attention to several key non-tax issues, including data valuation, developing standardized methods to assess the value of user-generated data, addressing users' privacy concerns and compliance with regulations like GDPR,¹³⁴ and ensuring international coordination to prevent double taxation and maintain consistency across jurisdictions. Overall, we believe that integrating revenue attribution and data royalties aligns tax liabilities with the realities of digital value creation, ensuring a fairer and more sustainable approach to taxing digital platforms.

C. User Licensing Fees

An alternative approach is to completely rethink how we view such situations and address the digital gap by implementing user licensing fees. This approach redefines the contributions of users to digital companies,¹³⁵ such as Niantic's *Pokémon Go*, as a licensable resource like other public assets such as airwaves or natural resources.¹³⁶ Governments in market jurisdictions would charge companies a fee for the economic value their users create. This approach not only ensures that countries with engaged user populations share the benefits but also provides a sustainable revenue source to address inequalities in digital access and infrastructure.¹³⁷

Under this alternative approach, governments would issue licenses to companies operating digital platforms that derive significant value from user activity. These licenses would grant companies the right to utilize user contributions within a country, encompassing activities such as engagement, data generation, and participation in network effects. The licensing fee would be calculated based on metrics like the size of the user base, engagement levels, data collection volume, and the company's revenue attributable to

134. *General Data Protection Regulation (GDPR)*, GDPR-INFO, <https://gdpr-info.eu/> [<https://perma.cc/EBU9-6G8E>].

135. Starkov & Wang, *supra* note 22, at 290.

136. See Christian Peukert & Margaritha Windisch, *The Economics of Copyright in the Digital Age* 19–20 (Munich Soc'y for the Promotion of Econ. Rsch., CESifo Working Paper No. 10687) (2023), <https://ssrn.com/abstract=4608809> [<https://perma.cc/5K8K-2DH9>] (describing the importance of user-generated data in the context of copyright law, and noting that training an AI algorithm on copyrighted data without the permission of the copyright owner has been held legal under the fair use doctrine); Starkov & Wang, *supra* note 21, at 294 (analogizing between broadcasting businesses and digital business models which grant users free access to their programs and profit off of ad revenues); Erika Lietzan, *User Fee Programs*, 76 ADMIN. L. REV. 375, 388 (2024) (explaining the design of user fee programs under the Independent Offices Appropriation Act).

137. Others have previously proposed a model in which users receive compensation for their data; however, this article focuses not on "data labor" from the user perspective but on the government's right to tax the process of data collection within a specific jurisdiction. For example, Ahmed Saleh Bataineh Rabeb Mizouni, Jamal Bentahar & May El Barachi, *Toward Monetizing Personal Data: A Two-Sided Market Analysis*, FUTURE GENERATION COMPUT. SYS., Oct. 2020, at 435.

those users.¹³⁸ For example, in countries with a high number of active *Pokémon Go* players, Niantic would pay a proportionately larger fee. This system could also be designed to adapt dynamically over time, scaling fees upward as user contributions increase through higher engagement or a growing user base. Conversely, fees would decrease during periods of reduced activity, ensuring fairness and proportionality across market conditions.

The main advantage of user licensing fees is their ability to generate direct revenue for countries with significant user engagement, even if those jurisdictions do not host physical operations or corporate profits. This revenue could be earmarked for programs aimed at reducing the digital gap, such as investing in broadband infrastructure, supporting technology education initiatives, or providing digital tools to underserved communities.¹³⁹ By directly tying licensing fees to user contributions, this model embodies the principle of redistributing wealth generated by the digital economy in an equitable manner.

Moreover, user licensing fees offer simplicity compared to the complex tax structures that depend on profit allocation. Unlike models that require attributing global profits to specific jurisdictions, this approach uses observable and measurable metrics like user numbers and engagement levels. This simplicity makes compliance less burdensome for companies and enforcement more practical for governments, reducing administrative costs on both sides.

Yet, this model is not without its challenges. Accurately valuing user contributions necessitates transparency and access to detailed data, which companies may resist providing.¹⁴⁰ Additionally, digital businesses operate globally, and the absence of international coordination could result in fragmented and inconsistent licensing regimes. For example, Niantic might encounter difficulties if each country defines user value and fees differently, creating a patchwork of obligations that complicate operations. Harmonization through international organizations such as the OECD would be essential to avoid inefficiencies like double counting and to establish a standardized framework.

Additionally, another potential challenge lies in ensuring equitable outcomes for smaller or less-developed markets where digital adoption may lag. While larger user bases would naturally generate higher fees, governments must also provide baseline funding to smaller markets to

138. Starkov & Wang, *supra* note 22, at 290.

139. *See, e.g.*, Lietzan, *supra* note 136, at 396, 435 (explaining that Congress can authorize agencies to place user fees into funds earmarked for specific purposes and that fee programs may be designed to achieve social policy goals beyond simple economic efficiency).

140. Peukert & Windisch, *supra* note 129, at 25; Starkov & Wang, *supra* note 22, at 294; Lietzan, *supra* note 136, at 432.

address digital inequality. A potential solution could involve setting minimum licensing fees to ensure that even jurisdictions with smaller user bases receive adequate resources to improve digital access and infrastructure.

Overall, the user licensing fees approach better aligns with the broader policy goal of sharing the benefits of the digital economy equitably across societies. By linking fees to user contributions, this model adheres to the principle of taxing economic activity where it is generated, while simultaneously emphasizing the social contract between digital businesses and the jurisdictions that enable their success.¹⁴¹ The revenue generated offers a practical means to reduce digital disparities, fostering a more inclusive global digital economy. In the long term, user licensing fees could serve as a template for other areas of the digital economy, offering a pathway to regulate and monetize emerging business models that rely heavily on user engagement. For companies like Niantic, this approach provides clarity and predictability in their financial obligations, while also reinforcing their social responsibility to the communities that contribute to their success.

As a side note, another issue that should be addressed by policymakers is the potential unintended consequences of regulating the amount of data corporations collect. On the one hand, imposing fees or taxes on data collection could deter companies from gathering excessive amounts of data that they do not immediately need, promoting more responsible data management practices. By reducing data hoarding, companies would minimize the risks associated with maintaining large volumes of unused or unnecessary data, such as breaches or improper uses. Moreover, it encourages companies to align their data collection practices with operational necessities, rather than speculative or unfocused purposes, ensuring that only essential data is collected and retained.

On the other hand, such regulations might inadvertently drive companies to collect every possible bit of data and find ways to use it, regardless of its original purpose. Faced with a cost associated with data collection, corporations may feel compelled to maximize the value of every piece of data they gather to justify the expense. This could lead to aggressive data monetization strategies, such as selling or repurposing data in ways that may conflict with user expectations or privacy norms.

The challenge for policymakers lies in striking a balance between these two extremes. Regulations should aim to prevent over-collection while avoiding unintended incentives that push corporations toward exploiting

141. See Starkov & Wang, *supra* note 22, at 290 (describing various digital business models where value is derived from user data and contributions).

every piece of data they gather, and level the playing field between the different players in the relevant market.¹⁴²

One potential solution could involve creating tiered fees based on data types,¹⁴³ where certain sensitive or high-value data is taxed at a higher rate than less critical information. Alternatively, policymakers could explore frameworks that incentivize transparency in data usage and penalize companies that fail to demonstrate clear, ethical purposes for their data collection practices.¹⁴⁴ Ultimately, any regulation of data collection must consider these competing risks and ensure that the measures taken encourage companies to handle data responsibly, without stifling innovation or promoting exploitative practices. This is a delicate balance, but addressing it is crucial for creating a fair and sustainable digital economy.

D. *Establishing a Standard for Valuing Intangible Assets*

Though this is not an original recommendation,¹⁴⁵ the need for an agreed-upon standard for valuing intangible assets remains one of the most pressing issues for our context. Until such a standard is established, the challenge of effectively taxing intangible assets is unlikely to be fully resolved, as often times even the most basic notion of what constitutes “value” is subjective and depends on different perspectives.¹⁴⁶ We strongly

142. A study by the George Washington University Regulatory Studies Center found that while GDPR enhances privacy rights, it also disproportionately benefits large tech firms, as smaller companies struggle with compliance, increasing market concentration. This highlights the importance of ensuring compliance remains reasonable and not overly costly to implement. ARYAMALA PRASAD, GEO. WASH. UNIV. REGUL. STUDS. CTR., *GDPR TWO YEARS LATER* (Sep. 2, 2020), <https://regulatorystudies.columbian.gwu.edu/sites/g/files/zaxdzs4751/files/downloads/Commentaries/GW%20Reg%20Studies%20-%20GDPR%20Two%20Years%20Later%20-%20APrasad-.pdf> [https://perma.cc/7VAH-JUGC]. Another study found that certain regulations may harm the competitiveness of small businesses. Jean-Pierre H. Dube et al., *The Intended and Unintended Consequences of Privacy Regulation for Consumer Marketing: A Marketing Science Institute Report* (MIT Sloan Research Paper, Paper No. 7129–24, May 2, 2024), <https://ssrn.com/abstract=4847653> [https://perma.cc/9SB9-T4T8].

143. Which is not a foreign concept to the tech industry as they have been using this concept in various scenarios. See, e.g., Amir Fazli, Ying Bao & Antino Kim, *Trick or Treat? The Effects of Online App Platforms’ Tiered Commission Schemes on Innovation, Entry, and Profits 2* (Apr. 8, 2023) (unpublished manuscript), <https://ssrn.com/abstract=4820568> [https://perma.cc/2GMJ-F5BN] (describing how corporations like Valve, Apple, and Google provide tiered service fees).

144. Uri Y. Hacoen, Amit Elazari & Talia Schwartz, *A Penny for Their Creations - Apprising Users’ Value of Copyrights in Their Social Media Content*, 36 *BERKELEY TECH. L.J.* 511, 587–89 (2021), shows how companies’ Terms of Use are too broadly defined to allow them to collect broad range of data and information.

145. For example, Henri Hussinki, Tatiana King, John Dumay & Erik Steinhöfel, *Accounting for Intangibles: A Critical Review*, 18 *J. ACCT. LITERATURE* 1, 31 (2023); MIMI SONG, *EXACTERA, TRANSFER PRICING AND INTANGIBLE ASSETS 2* (2023).

146. Daoud Jerab, *Value, Value Drivers & Valuation: Basics and Principles* (Aug. 12, 2023) (unpublished manuscript), <https://ssrn.com/abstract=4539493> [https://perma.cc/6UGN-EAE9]; SONG, *supra* note 145 at 5.

believe that by following key elements such as clarity, consistency, and international alignment, tax systems can better capture the true value derived from intangible assets while minimizing compliance burdens for businesses and enhancing global tax coherence.

Hence, in order to address this issue, we recommend adopting a unified standard for intangible asset valuation that incorporates the following principles: a clear definition for the term “intangible assets,” consistency in valuation methodologies, standardized guidelines for application, mechanisms to address uncertainty, and alignment with international frameworks.¹⁴⁷ These principles aim to provide transparency, reduce legal disputes, and ensure fairness in the taxation of intangible assets, and deserve closer examination to understand their role in creating a fair and effective framework for valuing intangible assets.

A unified standard for intangible asset valuation must begin with a clear and comprehensive definition of “intangible assets.”¹⁴⁸ Such definition should encompass not only traditional forms of intellectual property, such as patents, trademarks, and copyrights, but also emerging categories like AI-generated datasets, machine learning models, and other proprietary technologies. Additionally, it should account for hybrid models that derive value from user interactions, such as Niantic’s AI map models, ensuring that all relevant forms of intangibles are effectively captured within the valuation framework.

Next, a valuation standard must provide a flexible yet consistent framework that accommodates the diverse nature of intangible assets. This framework should allow taxpayers to choose from established approaches: cost-based, market-based, or income-based, depending on the specific characteristics of the asset and the availability of reliable data.¹⁴⁹ Such flexibility ensures that valuations are both accurate and practical, while consistency in methodology promotes fairness and reduces the potential for disputes. Furthermore, to streamline compliance and reduce administrative burdens, especially for smaller taxpayers or less complex assets, the standard should incorporate safe harbor provisions. These would include pre-approved ranges and benchmarks for valuation, providing a simplified and predictable framework that minimizes the potential for disputes and ensures a more efficient valuation process.

For example, tax authorities could create industry-specific safe harbor guidelines for intangible assets commonly encountered in certain sectors. In

147. Elena-Mirela Nichita, *Intangible Assets – Insights from a Literature Review*, 18 ACCT. & MGMT. INFO. SYS. 224, 226 (2019).

148. *Id.* at 226–27.

149. See Feng Xiong Maoyue Xie, Lingjuan Zhao, Cheng Li & Xuan Fan, *Recognition and Evaluation of Data as Intangible Assets*, SAGE OPEN, Apr.–June 2022, at 1, 8–9 (2022).

the software and technology industry, safe harbors could establish standard valuation ranges for internally developed software based on metrics such as development costs, the number of users, or the annual revenue generated by the software. Similarly, in the pharmaceutical industry, safe harbor benchmarks could be based on the average cost of R&D for a drug in the same therapeutic class, with adjustments made for its stage of development, whether pre-clinical, in Phase II trials, or already FDA-approved.

In the entertainment and media sector, copyrights for films or music could be valued using benchmarks derived from average production budgets and typical revenue multiples observed in the industry. In the context of cross-border transactions, safe harbors could address common valuation disputes, particularly in transfer pricing.¹⁵⁰ For instance, pre-approved royalty rate ranges for licensing intellectual property could be established based on industry norms, ensuring consistency and reducing litigation risks. Similarly, for multinationals engaged in joint development of intangibles, benchmarks for shared R&D costs could be introduced, considering factors such as geographic location and labor costs. Smaller businesses or those with low-value intangibles could also benefit from simplified valuation thresholds under safe harbor provisions. De-minimis rules, for example, could allow taxpayers with intangible assets valued below a certain threshold, for example \$100,000, to use a flat-rate valuation method or forgo complex documentation requirements altogether. For startups or small businesses, valuations could instead be tied to a fixed percentage of their annual turnover, providing a straightforward and practical approach to compliance.

We believe that by implementing safe harbor provisions, tax systems would provide clarity and predictability, allowing businesses to allocate resources more efficiently while enabling tax authorities to focus enforcement efforts on high-value or complex cases. These provisions would reduce compliance burdens, minimize litigation risks, and foster a more cooperative tax environment.

To reduce subjectivity and the potential for manipulation in income-based valuations, it is essential to introduce uniform guidelines for key metrics. These guidelines would provide a standardized approach, ensuring consistency and fairness in the valuation process while minimizing disputes between taxpayers and tax authorities. One critical metric is the discount rate,¹⁵¹ which should be tailored to specific industries and pre-approved by

150. See SONG, *supra* note 145, at 6 (explaining that transfer pricing relating to intangibles has caused disputes between taxpayers and tax authorities, costing companies significantly).

151. The discount rate, a fundamental concept used across several disciplines, including finance, economics, and valuation, represents the rate of return used to convert future cash flows into their present value, reflecting both the time value of money and the risk associated with the asset. It serves as a key metric in valuation methodologies such as the Discounted Cash Flow (DCF) model. Higher discount rates are applied to riskier assets to account for increased uncertainty, while

tax authorities. By standardizing discount rates, tax systems can ensure that future cash flows are discounted at rates that accurately reflect industry-specific risks and economic conditions.

For instance, the discount rate for technology startups might differ significantly from that of established pharmaceutical companies, given the distinct risk profiles of these industries. Another important consideration is the projection period used to calculate future cash flows. Establishing fixed time horizons, such as a standard five- or ten-year period (depending on the industry), would prevent arbitrary assumptions about long-term growth or decline. Fixed projection periods create a level playing field, ensuring that all valuations are based on a consistent timeline regardless of the nature of the intangible asset. Additionally, location-specific factors must be incorporated into the valuation process to account for regional tax incentives or jurisdictional differences.

For example, intangible assets developed in jurisdictions offering significant R&D tax credits may warrant adjustments to their valuations. Similarly, differences in labor costs, infrastructure, and market conditions across locations should be factored into the valuation to reflect the true economic context in which the intangible asset was created or exploited.

By implementing uniform metrics for income-based valuation, tax authorities can foster greater transparency and predictability while safeguarding against overly aggressive or overly conservative valuations. This approach would enhance the credibility of the valuation process and ensure that the resulting figures align more closely with economic reality.

Last, a unified standard for valuing intangible assets must be aligned with existing international frameworks, such as the OECD Transfer Pricing Guidelines,¹⁵² to ensure consistency and fairness in cross-border transactions.¹⁵³ Given the global nature of intangible assets, which are often created, utilized, and monetized across multiple jurisdictions, international alignment is essential in order to effectively reduce the risk of double taxation

lower rates reflect greater predictability or stability in returns. In the context of intangible assets, the discount rate captures industry-specific risks, asset-specific uncertainties (*e.g.*, technological obsolescence), and broader market conditions, ensuring the valuation aligns with investor expectations and economic reality. *See* IAIN CLACHER, ALAN DEBOISÉ DE RICQUEBOURG, MARK C. FREEMAN & CON KEATING, EURO. FIN. REPORTING ADVISORY GRP., THE THEORY AND PRACTICE OF DISCOUNTING IN FINANCIAL REPORTING UNDER IFRS, <https://www.efrag.org/sites/default/files/sites/webpublishing/SiteAssets/Academic%20Study%20The%20Theory%20and%20Practice%20of%20Discounting%20in%20Financial%20Reporting%20under%20IFRS.pdf> [<https://perma.cc/2XP6-3ETW>] (analyzing discount rates and describing the use of discount rates as a regulatory tool).

152. *See* OECD, *supra* note 34, at 11–12 (prefacing the role of MNEs and international rules).

153. *See* SONG, *supra* note 145 (discussing purpose of international frameworks as being to “ensure that transfer pricing outcomes are in line with value creation”).

on the one hand, and base erosion on the other.¹⁵⁴ This alignment would ensure that valuation methodologies are harmonized across countries, providing a common framework for tax authorities and multinational corporations. Additionally, international alignment would facilitate the application of emerging global tax policies, such as the OECD's Pillar One and Pillar Two frameworks. These initiatives, designed to address the challenges of taxing digital and globalized businesses, require consistent valuation standards to determine appropriate tax bases for intangibles. Aligning valuation standards with these frameworks would provide clarity for taxpayers and support coordinated enforcement efforts.

Moreover, international consistency would benefit taxpayers too by reducing compliance burdens as multinational corporations often face significant costs in preparing documentation to satisfy varying valuation rules across jurisdictions.¹⁵⁵ A harmonized standard would streamline these processes, enabling businesses to allocate resources more efficiently. By promoting international alignment, tax authorities can ensure that intangible asset valuations are conducted in a fair and predictable manner, fostering greater cooperation among jurisdictions while addressing the challenges posed by a globalized economy. This approach not only reduces uncertainty for businesses but also strengthens the integrity of the international tax system

Conclusion

Niantic's *Pokémon Go* offers more than just a glimpse into the exciting world of augmented reality; it exemplifies the challenges posed by the digital economy to contemporary tax frameworks and the reality that "Knowledge is our most powerful engine of production." The game's dual business model, with its taxable in-app purchases and untaxed AI-driven mapping system, emphasizes the urgent need for tax systems to evolve in response to intangible assets, user-generated value, and cross-border digital operations. The fact is that traditional tax frameworks simply are not equipped to deal with this kind of virtual and digital cross-border economy.

As discussed earlier, current tax regimes were not designed to address value and wealth creation in the digital economy and therefore struggle to adapt to the evolving realities of data-driven value creation, where wealth is no longer tied to physical assets but is instead embedded in algorithms, datasets, and artificial intelligence. Niantic's success story highlights the

154. MAKING INTANGIBLES MORE TANGIBLE: SERIES LESSONS, INT'L VALUATION STANDARDS COUNCIL PERSP. PAPER 4–5, 16 (2024).

155. *Id.*

growing divide between value generation and taxability, exposing structural inadequacies in how jurisdictions capture economic benefits.¹⁵⁶

The proposals explored in this paper—cross-border dynamic tax nexus, hybrid source-based taxation, and user licensing fees—illustrate the potential pathways for bridging this divide. Each approach recognizes the economic contributions of users, redefines taxing rights, and promotes equity in the allocation of tax revenues, across jurisdictions. At the same time, these solutions acknowledge the complexities of implementation, including valuation challenges, jurisdictional coordination, and potential unintended consequences of regulation.

As policymakers tackle these issues, the case of *Pokémon Go* should serve as a wake-up call. The digital economy is not an anomaly but the new normal, and the tax system must rise to the challenge of capturing its value. Whether through innovative frameworks or international cooperation, the goal should remain clear: a fair and sustainable system that aligns taxation with value creation and ensures that the benefits of the digital revolution are shared equitably.

In the end, *Pokémon Go* is more than just a game—it is a microcosm of the modern economy, reflecting both the opportunities and challenges of the digital age. It illustrates how intangible assets, data-driven innovation, and global user participation have transformed traditional notions of value creation. The game's dual business model, offering immediate revenue through in-app purchases while simultaneously generating long-term value through AI-driven mapping technologies, mirrors the broader shift in how companies operate and generate wealth in a data-centric world.

Addressing the tax implications of *Pokémon Go* is not merely about ensuring compliance with outdated tax frameworks. It is an opportunity to rethink how we design systems that can keep pace with technological progress while maintaining principles of equity and justice. The economic value generated by millions of users worldwide, the reliance on intangible assets, and the cross-border nature of operations all highlight the need for a tax system that aligns with these new realities.

Policymakers must rise to the challenge of creating non-conventional regulatory tax frameworks that not only capture this value but also ensure that the wealth generated is distributed fairly and taxed currently by each relevant taxing jurisdiction in accordance with the economic benefit it contributed. By doing so, we can design a future where innovation thrives without worsening inequality, and where the economic benefits of

156. For example, *Facebook, Google and Microsoft 'Avoiding \$3bn in Tax in Poorer Nations,'* BBC (Oct. 26, 2020), <https://www.bbc.com/news/business-54691572> [<https://perma.cc/3W5V-NQUE>]; Rebecca Christie, *Taxing Tech: Digital Services Taxes Take Shape in the Shadow of the Pandemic*, FIN. & DEV. (Spring 2021), <https://www.imf.org/external/pubs/ft/fandd/2021/03/taxing-big-tech-and-the-future-of-digital-services-tax-christie.htm> [<https://perma.cc/FV9E-RJ9S>].

technological advancements are shared equitably across jurisdictions. *Pokémon Go*'s tax implications represent a larger and more critical issue: the need to harmonize the dynamic, borderless nature of the digital economy with the foundational principles of fairness, accountability, and sustainability in taxation.

In this sense, addressing *Pokémon Go*'s tax challenges transcends the specifics of one company or industry, and represents a call to action for global policymakers to embrace innovative solutions that balance the competing demands of fostering innovation, protecting user interests, and ensuring that no one jurisdiction suffers from an unfair burden. By designing tax systems that reflect the realities of the digital age, we can ensure that the relationship between governments, companies, and users is built on fairness and mutual benefit, setting the stage for a truly inclusive global economy.