Three Futures: exploring the future of web monetization

A paper by Stephanie Rieger

Welcome to the future. It's 2030...

You're surfing the web and come across an interesting website. Perhaps it contains a collection of gluten-free recipes or a unique multi-episode knitting course, or maybe it's a community for people learning to speak Spanish. Now imagine being able to easily send its creator money as a token of your appreciation. Rather than subscribing to that site specifically, you use a service that automatically streams tiny payments as you browse. The donations you make are paid in real-time into the creator's digital wallet, and sometimes, you are directly rewarded with a thank you message or a small piece of bonus content.

This is the vision proposed by the creators of Web Monetization, an API and proposed web standard that enables users to stream tiny payments (usually fractions of a cent) to websites as they browse the web. In exchange for this payment, websites can provide the user with a "premium" experience such as allowing access to exclusive content or removing advertising. All of this is made possible by Interledger, an open protocol that applies many of the principles of network design, to payments.

Why this paper?

> *Talk, loudly and frequently and in detail, about the future you want. You can't manifest what you don't share.* — Madeline Ashby

With more than half the planet now online, and so many of us relying on the web for our livelihoods, our education, and the very functioning of our democratic processes, it's become critical to carefully consider the potential impact of every new technology we invent. This includes not only imagining all its positive effects but how it might be misused, or cause accidental harm through poor design, a misalignment of incentives, or the eventual impacts of scale.

This paper aims to kick-start this sort of discussion for Web Monetization by exploring its potential long-term impacts; positing both positive and negative ways the technology may change to how we use the web, and providing recommendations to ensure they result in a more equitable, open, and diverse web.

This paper contains three sections.

- **Section one introduces the Interledger protocol and Web Monetization API**, explaining the problems they aim to solve, how they work. This section doesn't attempt to be exhaustive but provides sufficient context to enrich the scenarios in section two. *If you already understand these technologies, feel free to skip to the next section.*

- **Section two presents three futures**, each depicting a world where Web Monetization has become mainstream yet resulted in different behaviours, patterns of equity, and degrees of openness and interoperability on the web.
- **Section three presents my thoughts and recommendations** for the many stakeholders who will take this technology forward—including us, its users.

The stories in this paper aren't blueprints or business plans. Nothing is yet cast in stone. We *can* build this. But we can also choose *not to*. My goal in writing this isn't to predict that future but to spark discussion around each scenario's benefits and pitfalls. *Whom will they favour? Whom might they harm?*

These questions are important, as they stimulate discussion, challenge assumptions, and motivate stakeholders to more clearly describe (and agree on) a future that is not only possible but *preferable*. Discussions such as these will be critical as the technology begins its journey towards becoming a web standard; a clearly defined process, as practised in the World Wide Web Consortium (W3C), that attempts to ensure that new technologies are created in the open and are subject to wide review (including ethical review) before they can be called a web standard.

To that end, success for me would be to see this paper widely read, debated, and disputed, as a small step towards ensuring these technologies go on to provide useful and meaningful change; empowering new creators and audiences to use the web, and ensuring it remains accessible to everyone—especially those who need it the most.

i. The present: a technology in two parts

Web Monetization, in its current form, is a technology in two parts.

The first is **Interledger**, a protocol that enables the transfer of money over the internet. The second is **Web Monetization** itself, an Interledger-powered API that enables users to stream tiny payments to participating websites as they browse the web. Those who have been involved in the web community for a while may be tempted to exclaim that micropayments are old news. They've been repeatedly tried and (outside parts of Asia) have never amounted to much. Why should this time be any different?

One answer to this has a great deal to do with the unique properties of Interledger, a payment technology modelled after the internet and therefore uniquely suited to not only live natively within it—but work alongside the browser to enable streaming payments. **In this section, we introduce these technologies, explain how they currently work, and what may be just around the corner.**

If you're already familiar with these technologies, feel free to skip to the next

chapter, **which peers into the future using fiction to reveal three speculative scenarios** that explore a different web monetization business model and its impact on the future of the web, and it's users.

What is the Interledger protocol?

The Interledger protocol was first envisioned (PDF) in 2016, with the aim to solve a very specific problem: quickly and cheaply sending money from a random sender to a random recipient.

Let's begin by breaking down what this means, and why it's useful compared to what exists today. The financial system consists of billions of ledgers. Your bank account is a ledger, as is your PayPal account, that balance you store in your Starbucks app, or the Patreon account you send $3 to each month in return for a short story. Despite this, few are designed to interoperate.

Sending money from your bank account to another at the same bank is quick (and probably free) because the bank is merely moving money around its own systems. For this reason, you may also be able to quickly and cheaply send money to a friend who uses the same bank. And if you're lucky, major financial institutions within your country will have agreed on a local standard to enable money to flow easily and cheaply between them.

What all of these scenarios have in common is trust. A bank knows who it's customers are, and local institutions typically follow the same standards, so have more reliable signals with which to trust each other. In cases where despite all this, trust remains low, sheer proximity may prove enough to incentivize collaboration towards some form of local interoperability.

All of this changes with distance. Instructing your bank to pay a random person in another country requires they not only interact with often unknown systems but ensure they have the most trustworthy partners with which to do so. The cost of this complexity and uncertainty is passed on to you, either in the form or high transfer fees, or the time it may take to ensure the risk of fraud has been sufficiently minimized.

When using a bank to transfer funds isn't possible, there are also third parties. From Western Union to Wise, these companies find clever ways to fill gaps and build bespoke interoperability layers atop the existing system. Western Union for example has a network of 500,000 agents around the world that can send or receive funds from another branch. The fees they charge can be high, but customers pay for the convenience of knowing their recipient won't have to travel far to find a receiving branch, and that neither they nor the person they are paying needs a bank account to complete the transaction. (For this reason, Western Union processes 10-20% of the nearly $700 billion in annual global remittances, typically sent by foreign workers to their families in emerging economies).

The current system is so needlessly costly and complex that it prevents us from considering more creative ways that money might flow between a sender and recipient. For example, both Patreon and Starbucks operate in the UK, and although I may have an account with each of them, it would take an unusually creative partnership for Patreon to enable creators to pay their earnings to a Starbucks account.

Part of the reason is that there is no cheap, out of the box way to connect the millions of Patreon ledgers to those at Starbucks. And while the companies could no doubt devise a way to do so, it's easy to imagine the feasibility of this decreasing (and the cost of using it, increasing) were the companies far smaller, and more geographically diverse.

Interledger is an open protocol that seeks to solve many of these challenges by building an interoperability layer atop all of these disparate systems. A system that is faster, smarter, and more efficient; that can be implemented worldwide; and isn't immediately dependent on agreements between countries, regions, providers, or financial institutions. To bring this idea to life, Interledger's creators have chosen to emulate the architecture and principles of another technology that cheaply, quickly, and efficiently routes data from one random party to another—the internet.

The internet applied to money

Using the internet is easy. You can access the network using your choice of device, internet provider, wired or wireless networking technology, and application. And while some of these choices may be limited (there are for example just a few mobile operating systems, and your country may only have a handful of broadband providers), enough interoperability is baked into the system to ensure you can make frequent, meaningful choices that don't close the door to future change.

This degree of interoperability is possible as the network has been designed to anticipate changing conditions. It doesn't care if you're using a smartphone, connected television, or connected thermostat to access data, or whether you're viewing that data through a web browser or native app embedded on your car dashboard, nor does it expect you to understand or anticipate how the packets reaching you be routed, whether the 4G you are using is facilitated by a Nokia base-station or one built by Huawei, or whether you are temporarily piggybacking off a mobile operator's wi-fi hotspot. And while the handover between these actors isn't always seamless, it's sufficiently resilient to common problems (such as network connectivity issues, or differing browser implementations), that you can go for days without thinking about it.

Now imagine if you could do the same with money. Open an app and say "Please pay Tobie $20" without needing to first check that you both have accounts with the same bank, cryptocurrency wallet, or third party providers such as PayPal or AliPay; or that although you can only send Euros, Tobie will be able to receive them in Pounds, Bitcoin, or Twitch Bits. Once sent, the funds would arrive in

minutes (or seconds) rather than days, the fees would be negligible, and the provider would be just as happy to enable a five-cent transaction, as one for five hundred or five thousand dollars.

The Interledger Protocol enables all of this, by applying the principles of network design to the movement of money.

Technology and currency agnostic: Interledger isn't tied to or owned by, any single company or currency. This means people can send and receive payments without being tied to a single currency or payment provider (or network, or bank, or payment method).

Tiny packets to represent money: If you need to send a large amount of data from one person to another, you can split it into smaller, standard-sized packets, send it across different paths, then reassemble it at the recipient. The internet has proven this works for communication, and Interledger has borrowed this pattern to route packets of money, instead of packets of data.

Keeping the packets small also solves several common payment problems: liquidity, exchange rates, and errors. Say for example that the fastest route for payment includes a network path that doesn't have the necessary liquidity to handle a payment of that size. Or maybe that route includes partners with dramatically different exchange rates (because one might for example save their best rates for the largest transactions).

If you were trying to send the entire payment in one go, each of these challenges (let alone both) might warrant an additional fee or processing delay as you negotiate a different route. Interledger solves these problems by keeping packets tiny (the average "transaction" size is $0.00001) and consistently sized. Doing so makes them less route-dependent, enables you to apply a single exchange rate to each packet, and vary the route on the fly to ensure the necessary liquidity.

Connectors to route payments: Ledgers track accounts and balance but not everyone is on the same ledger or has the same currency, so Interledger uses a system of connectors (similar to the nodes that relay data on the internet) whose job it is to relay packets, and provide a rate between currencies. You can read more about connectors on the Interledger website.

An escrow system to enable trust: Connectors work as a chain to forge a path through the network, competing to provide the best rate, and speed. Some payments may require a short chain, consisting of only a few connectors, while others a much longer one. This design may be efficient from a cost and speed perspective, but as there may be millions of connectors—each effectively indistinguishable from the other, and tasked with relaying bytes of money in fractions of a second—it also introduces the problem of trust. Interledger solves this by routing payment requests in a loop and using holds (a form of escrow) to provide security until both the sender and receiver have certified the payment is complete. See the first ten minutes of this video for an excellent explanation of the process.

But will it work?

The scenarios in this paper are **a thought experiment** driven by the assumption that Interledger will be adopted, and become a widely used component of the global payments infrastructure.

This is far from a foregone conclusion. The current payments infrastructure is controlled by powerful actors (including governments and large corporations) and relied upon to power billions of daily transactions. It may not always be cheap or efficient, but we understand it's boundaries, and guardrails exist to ensure its safety and resilience.

It's perhaps for this reason that Interledger's creators chose a prototypical use case that *had nothing to do* with disrupting financial payments—the absence of a *built-in* monetization technology for web sites.

What is Web Monetization?

Web Monetization is a proposed API standard that enables a person viewing a webpage to stream very small payments (micropayments) to its creator in real-time, and in a privacy-preserving way. In exchange for this payment, a website can provide the user with a premium experience such as removing ads, allowing access to exclusive content or removing the need to log in to access certain features. Although currently enabled using a web extension, the goal is for the technology to become a web standard with widespread implementation directly through the browser.

Although web standards already exist to facilitate payments in contexts such as e-commerce, Web Monetization doesn't seek to compete with them but instead *address the absence of a built-in revenue model for websites.* The hope is that this technology can create a meaningful alternative to today's dominant monetization methods: filling your site with ads, or hosting your content on a centralized service or platform such as Medium or Patreon.

> "*. . . micropayments and subscriptions have always been built as closed systems, which fail to capture the huge variety of content on the web. . . we need an open marketplace that makes it easy for everybody on the web to compensate and support one another: the curators, the subscription services, the content creators and, of course, the users.*"
> — Building a new business model for the web

Is the Web Monetization API a potential solution to the challenges described above? **The simple answer is that no one yet knows.**

The capabilities I'm about to describe are not only fast evolving, but doing so in a highly experimental environment. One that requires the participation of multiple actors, and where the true shape of the opportunity (and its challenges) may only become evident once the ecosystem reaches a certain size.

Not only is this an ambitious goal, but a timely one given the growing regulatory push for increased privacy, competition, and interoperability on the web. With that in mind, let's jump in and break down how Web Monetization currently works.

How it (currently) works

The Web Monetization API is still evolving, so it's important to distinguish how it works today with how it might do so once the API is accepted as a standard, and the ecosystem around it begins to grow.

In its current state, Web Monetization has three primary actors.

- **Users**, who browse the web while streaming micropayments to participating websites,
- **Publishers**, who build the sites, apps, games and other services that receive these payments,
- **Providers**, who offer Web Monetization subscriptions to users, determine how much to pay on their behalf, and serve as the originating ledger for the micropayment. With just one of these subscriptions, users can browse *all web monetized sites*. At the time of writing, there is still just one provider—a company called Coil (founded by the same people who developed Interledger).

A fourth actor is the user's **browser** (or *user agent*) which acts as an intermediary between the three of them. As no mainstream browser currently ships with support for Web Monetization, this role is currently played by a browser extension. If the technology is eventually accepted as a web standard, an important part of that process will be to clarify the *exact role* of the browser.

That role could for example be purely functional, enabling users to log into their provider, and then triggering the necessary events to initiate and manage the streaming process (you can try an early version of this by downloading the Puma mobile browser). There is however scope for the browser to play a much larger role; ensuring privacy throughout the streaming process; providing data to assist the provider in determining the correct streaming rate, and perhaps even playing the role of provider.

We'll be exploring some of these scenarios in the next chapter, but for the moment, let's look more closely at how these four actors interact.

1. **Users** sign up with a Web Monetization **Provider** (or '*sender*') capable of sending very small payments to websites.
2. **Publishers** sign up with a Web Monetization *receiver*, a specialised **digital wallet** capable of processing an incoming stream of very small payments.
3. When the user visits a web monetized site, their browser parses a link in the header of the site that contains the website's **payment pointer** (a

simple and easy-to-remember identifier for that site's payment account).

4. **The browser** contacts the website's wallet to obtain a receiving address for the payment. The addresses provided are unique to the current session (e.g. page load or refresh) so cannot be used to track a user's activity.
5. **The browser** begins sending small payments via the user's provider who is responsible for opening (and eventually closing) an Interledger connection to the payee. The provider will also in most cases set the streaming rate.
6. For each payment, **the browser** emits JavaScript events that **the publisher** can listen for to indicate a streaming session has begun, confirm payment, and ultimately decide whether to provide the user with an alternative "paid for" experience, such as not showing advertising, or delivering premium content.
7. Payment continues until **the user** closes or leaves the page, or **the browser** decides to stop payment (e.g. if the user is idle, or backgrounds the page).

This may seem like a lot of steps, but to the user, it simply feels like this.

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Alice has recently signed up with Coil, a Web Monetization provider, and has installed the C

The browser validates the pointer, and begins to stream micropayments at a rate of $0.0001 p

As Alice reaches the bottom of the article, she notices a graphic indicating that bonus cont
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A critical aspect of the proposed standard is that **all of these actors are interchangeable**.

- Alice can easily *switch to a provider* with a better offering (e.g. subscription cost, streaming rate, payment tracking features, specialized perks on certain sites)
- Publishers can monetize *any visitor*—not simply those from a specific provider.
- Publishers _can choose any receiver wallet _through which to collect their earnings and do so in any currency that the wallet supports—not merely those supported by Alice's provider.

This is made possible thanks to the open nature of Interledger, and the design of the equally open Web Monetization API. Whether this interoperability is likely to persist, and what needs might prompt such a change, is something we will explore in the next chapter.

Payment flow Q&A

How small is a micropayment? The amount streamed is expected to vary depending on the provider and plan the user has signed up for, yet (presuming the flat-rate subscription concept persists) amounts are expected to remain quite

small. Coil, for example, streams at an average rate of $0.0001 USD per second, or $0.36 USD/hour.

Is the rate included as part of the API? No. The spec includes as little as possible, leaving flexibility for ecosystem actors to build atop the technology, and devise new and innovative ways to use it.

Who can receive payments? Two things are needed to receive payments: the ability to register with a digital wallet provider to obtain a payment pointer, and the ability to associate that payment pointer with a web site.

- The number of digital wallet providers is currently limited, as are the currencies they support, and geographies they cover. They also currently all happen to be cryptocurrency wallets that have been updated to support Interledger (which doesn't *itself* rely on or require cryptocurrencies). Adoption by *at least a few* mainstream providers—be they governments, banks, or digital payment facilitators such as Apple or AliPay—seems critical to the technology's long-term viability.
- Adding the pointer requires little or no technical knowledge, and the goal is to keep it that way. There is also no need for a server technology, meaning that basic Web Monetization can be implemented on a static site or lone web page. At the time of writing, most creators receiving payments are doing so on their own (self-hosted) website, but there's nothing preventing the technology from being used on a hosted blogging service such as WordPress, or a platform such as YouTube, GitHub, or TikTok.

It's worth remembering however that once receiving payments, many site owners will want to reward visitors for their contribution, and users may eventually expect they do so. To this end, Web Monetization provider Coil currently offers a simple, cloud-hosted blogging platform that includes built-in tools to configure bonus content for paying users. To enable widespread adoption of the technology by non-technical users, the ecosystem will require far more tools such as these.

What is a payment pointer? Payment pointers are a URL that points to a secure payment endpoint (or address) on the web. They are human legible, easy-to-remember, and safe to share with third parties as (unlike bank account or credit card numbers) they can only be used to pay funds into an account.

Example:_ $stephanie.wallet.example and $wallet.example/stephanie._

Publishers simply add the pointer to the document head (or template) of each page that they want to monetize. If they are using a CMS, adding this pointer may require a new field, but popular CMSs such as WordPress already support this.

Isn't there already a W3C approved Web payments API? There is. The W3C has ratified a Payments API web standard designed for scenarios where **a specific price has been expressed by a website**. In such a use case, that API's role is to facilitate a smooth, secure, and consistent payment experience using traditional payment mechanisms such as credit cards, or on-device payment technologies that leverage these same mechanisms.

Transactions such as these tend to require explicit user interaction—either because the sum is too large to presume it's OK for payment to simply 'happen' in the background, or because completing the transaction requires the input of additional information, such as a shipping address.

The Web Monetization API sets out to address an entirely different use case. One where transactions are so small that the user will (we presume) agree to not only let them proceed in the background but do so continuously. A potential alternative to streaming micropayments is ad-hoc tipping.

Coil is expected to add this capability to their browser extension in the near future, justifying its suitability as an adjunct behaviour for the following reasons:

- while tipping requires some form of user interaction, the tip value will be small enough not to require a more robust payment flow.
- the web site isn't *asking to be paid a set amount*, it is simply letting the browser know that should someone want to send a tip, a wallet is in place to receive it,
- subscribers wanting to tip a site will appreciate the simplicity of letting their provider facilitate the transaction using the credit card they currently have on file.

There are **a lot** of assumptions at play here, any of which may prove to be incorrect, and will no doubt also be subject to nuances of culture, geography, or payment context.

Provider 1.0

At the time of writing, Coil remains the sole provider. The products they provide therefore serve as both a working prototype of the technology and a potential reference implementation for future providers. Let's have a look at how it works.

The business model: "Spotify with open characteristics"

Although Coil intends to implement the ability to tip web monetized sites, their primary offering remains a flat-rate subscription plan. Pitched to users as "a better way to access and reward the creators, publishers and platforms that create the content you love" the $5 USD monthly subscription enables users to stream payments to any web monetized website on the internet.

Coil streams at an average rate of $0.0001 USD per second (or $0.36 an hour). Once a member has streamed $4.50, this amount tapers to a lower rate, to stretch the remaining balance until the end of the month. If a member does

reach $5, Coil continues paying but continues to do so at the lowered rate. (A subscriber streaming continuously at the base rate would either max out after 14 hours or compel Coil to pay out a whopping $260 USD per month).

It's unclear whether this approach will persist. Varying the streaming rate is bound to frustrate publishers, but as the specification is open, there's nothing preventing a new provider from choosing a different rate, or an entirely different approach to both subscriptions and overages. As the ecosystem is currently small, Coil is working hard to attract both users and publishers. Covering overages (albeit at a lower stream rate) may simply be a cost they will have to bear, but it's also worth noting that if a member *doesn't* browse enough to spend their $5 allotment, Coil keeps whatever remains.

What's in the subscription? Coil's model is purely transactional. Any publisher can receive payments from Coil subscribers by placing a payment pointer on their site and requires no special permission or account to do so. *Unlike* flat-rate streaming services for film or music, Coil has no formal agreement with creators. It doesn't own or fund the creation of content, nor does it have a say in the benefits they provide to Coil subscribers. There is however nothing preventing future providers (or Coil itself) from choosing to alter these terms in an effort to increase profitability or work towards a superior product/market fit.

To encourage the growth of a healthy ecosystem, Coil does however strongly recommend sites offer subscribers *some form of benefit* or note of thanks for their contribution. This might include disabling ads or trackers, providing exclusive or early access to content, or enabling a superior quality stream when watching videos. They also recommend that sites follow a 100+20 rule—unlocking special content or benefits for visitors who are paying, but where possible keeping the rest of the content free to browse.

The end approach is however ultimately up to site owners, and as it's still early days, many are still exploring and evaluating their options.

Using and enabling Coil At the time of writing, Web Monetization is primarily available using a desktop browser extension provided by Coil. Once installed and configured with a user's credentials, the extension streams payments to any web monetized site that requests it. Beyond this, the functionality is quite limited. Users are unable to stop the stream, block a domain that they prefer not to fund, or obtain transaction details such as the amount streamed in each browsing session.

Some of these features will no doubt appear with time, but others have been *purposely left out* as they would require more data collection than Coil is happy to undertake given its strict privacy promise. They instead envision an ecosystem where users wanting such functionality can download third-party browser extensions such as PayTrackr or Akita, which provide features such as a real-time count of payments to individual domains, and a running total of

payments per day/month.

Coil's privacy promise Coil's founders started the company to experiment with alternatives to monetization through advertising, and in doing so, provide alternatives to the tracking and data collection that often accompany it. They've therefore taken a firm stance on user privacy, and have implemented a range of safeguards to ensure the technology doesn't inadvertently introduce new opportunities to gather data about users' activities on the web.

- the Coil extension is designed not to track a user's browsing history
- the extension is open source, enabling the community to scrutinize its inner workings
- built-in wallet-side privacy prevents Coil from inadvertently learning which sites a user has visited based on whom they're sending micropayments to,
- built-in sender-side privacy prevents Coil from learning which subscriber triggered the micropayment request in the first place.

The upshot of this is that Coil can only see the following:

- when a user is on a web-monetized site, but not which site.
- the Interledger address of that site, which cannot be linked back to the site unless the site configures itself to be identifiable by Interledger address.

Coil works hard to protect subscriber privacy, but it's important to remember that the only privacy-preserving pact in place is between Coil and it's users. Sites will still need to confirm a user has paid, and decide whether that payment is sufficient to unlock some form of reward, and will ultimately want to build a relationship with their audience. This means that, although Coil doesn't disclose a visitor's identity, or assist sites in keeping track of how much that user has paid in a given session, sites may utilize other means (such as third-party tools) to do so.

As there is also no built-in way to track paying visitors across sessions, larger or more capable sites may encourage users to create an account, and log-in whenever they use the site in an effort to more accurately reward visitors for their contribution.

What's likely to change?

A lot can change when it comes to new technologies, and there's nothing to indicate that Web Monetization will be any different. Here are the most likely short-term changes:

More monetization providers

To be successful, providers will need to strike a balance between providing value to both subscribers and publishers, while ensuring that doing so still enables them to turn a profit. How they will do so is yet to be defined, but is likely to

include tweaks to the flat-rate streaming business model and the tools they offer to users and publishers.

How we use this technology may also be defined by *who* chooses to become a provider, the leverage they have within the industry, and how the ability to provide these services is regulated.

Browsers and web standard support

Without widespread browser adoption, Web Monetization is unlikely to grow, as it will remain tied to a browser extension. Extensions are only used by a small subset of the desktop browser user base, they require additional time to download and install, and remain unsupported on mobile. This seems particularly likely to prevent meaningful adoption in large parts of the world where mobile use is predominant, and limit the technology's usefulness for news and journalism, a type of content that is increasingly consumed on mobile, and through social media.

For all of these reasons, Coil is working to entice browser vendors to experiment with the technology and build a potential reference implementation. At the time of writing, a small Mozilla team is working on a prototypical integration, and Coil is hoping to embed technology fellows within the Chrome and Edge teams to do the same. These early experiments will provide the sort of scrutiny that will be critical to developing a standard, and is also likely to lead to changes in the specification.

Some of these changes may be relatively minor—Coil has, for example, already adjusted the API in response to a request from browser vendors to minimize potential performance impacts—but others may be far more substantial.

Tools for publishers

In the near future, it seems likely that the payment pointer metatag will be replaced by a new syntax, similar to that currently used to specify a style sheet or JavaScript file. While seemingly minor, this change is an important reminder that, just as widespread browser implementation will be critical to user adoption, the final publisher-facing implementation will determine how easy it is for creators to experiment with the technology.

The current specification is simple enough to put the technology within reach of millions of bloggers and independent website owners, including those using turnkey hosted services such as Wix, and WordPress.com. This is an important requirement (and one that we should seek to preserve as the specification evolves) but should a creator wish to display a thank you message or unlock bonus content in thanks for a user's contribution, they will currently need to build the tech to do so on their own.

Few of these tools currently exist, and what gets built (especially early on) may go on to influence the mental models of ecosystem actors, and the capabilities that are ultimately codified (or omitted) from the standard.

ii. Three glimpses of the future

Coil is in startup mode, and so is Web Monetization. As an open technology, the API been designed with a minimal amount of functionality to encourage others to innovate and build on top of it. *Consequently, almost everything is still up for discussion* (including the concept of streaming payments, which as an early reviewer of this paper astutely noted may simply be "a quirk of the current design rather than a necessary component of this imagined future").

In the prior section, we briefly touched on the changes we can expect as the technology evolves, the user base grows, and an ecosystem develops alongside it. *But what might this future look like?*

This section proposes to explore just that using three scenarios. Each uses a different business model as a lens to explore the different paths the technology may take, and how the resulting ecosystem might impact the relationship between providers, publishers, and their users.

- **Reset the open web** : A future where streaming payments remain the primary model, with a few hiccups along the way, powered by a new approach to the role of the browser, and the growth of new audiences and ways of thinking about how we congregate and communicate on the web.
- **The bundled web** : A world where web monetization remains open yet powered by a far more centralized ecosystem inspired by the way we consume other types of media. The resulting inequities prompt hard questions about what content should be considered *essential*, and available to everyone.
- **Not your parent's web** : A future where micropayment powered e-gifting is both widespread and native to the web; leading to new relationships between fans and creators, and the evolution of the first Interledger-native currency.

These stories aren't meant to be predictions, nor are they recommendations (you'll find those in the final section. They sit somewhere at the intersection of a possible, probable, and preferable future, in the hope that describing potential outcomes can help us make better decisions about the web we hope to build.

Enjoy!

Reset the open web

It's 2030, and hundreds of millions of people around the world support the artists and creators they love by streaming payments to them as they use the web.

Here's how it happened.

Coil didn't remain the sole Web Monetization provider for long. By 2022 the ecosystem had grown to include seven companies, each with different backgrounds

including fintech, journalism, and entertainment. Yet despite all this excitement, product-market fit remained far from obvious.

Spurred on by the global push for data privacy regulation, most providers had followed Coil's lead, promising not to track a user's activities, and building layers of obfuscation to ensure publishers couldn't immediately do so as well. Publishers knew a Web Monetization subscriber was browsing their site, that a payment stream had begun, and could identify what provider was paying, but had no more than an anonymized, session-limited identifier with which to identify each visitor. This left them with a difficult choice: immediately enable perks on the assumption that the user would remain long enough (and continue paying at a high enough rate) within that session to warrant such a reward, or attempt to track their contribution across sessions and devices to reward them at a later date.

The former might have been palatable for indies who were overjoyed by the simplicity and openness of the technology, but proved far harder to justify for established brands who had jumped on the bandwagon amidst Cookiepocalypse hoping to find a viable alternative to dwindling targeted ad revenues, but balked at trading content for some unspecified payment. And so many sites chose option two, setting the expectation that there were now tiers to unlock, and that only visitors who registered, logged-in (and ideally went on to do so on each device) would be accurately and consistently rewarded for their contribution.

Caught in the middle were mid-sized sites. Too small to provide sophisticated tiers and tracking, yet too big to simply give content away in the hope it would all work out, they often fell prey to third party vendors trading cheap (or free) tools for the right to sell whatever first-party data they could quietly collect. Users who had bought into the "flat-rate premium content and zero tracking" dream were—as you can imagine—less than thrilled with this arrangement. The "Amazon Prime of the web" was starting to feel dead in the water.

Privacy, but not as we've known it

It's therefore not surprising that before too long, most providers gave up on the total privacy pitch, choosing instead to champion an approach the industry would optimistically dub Selective Privacy™. Based in-part on requirements introduced by laws such as the GDPR, providers now promised to only collect the smallest amount of data required to build features that would "stimulate innovation on the part of publishers, and deliver a high-quality service to subscribers". In keeping with emerging best practice, these promises were backed by an open-source tech layer and annual bug-bounty to stimulate scrutiny and improve trust. And although these announcements generated a small wave of subscriber churn, they proved just what the ecosystem needed.

Subscribers now enjoyed a host of tools aimed at helping them make the most of their membership. These included a monthly breakdown of how their subscription dollars were spent, tools to "boost" funding to the sites they most cared

about, and ways to easily block payments to sites they might still be happy to occasionally visit—but preferred not to support financially. Some providers went a step further, building APIs that sites could use to contribute useful data, such as a monthly recap of perks a user had enjoyed, and the approximate "paid engagement" required to reach the next tier.

When combined, these tools also addressed a common reason for subscriber churn: reaching the end of the month with little memory of where they had been, and whether their monthly fees had in fact supported sites they cared about (let alone the ones they most wanted perks from.) And while users didn't find account customization particularly enjoyable, studies revealed that boosting or blocking a mere five sites was sufficient to shift user perception and increase confidence that their fee wasn't randomly trickling away to fund a long tail they barely remembered visiting.

Sites in the meantime enjoyed a new suite of features designed to solve their primary challenge: equitable delivery of perks. These included light-touch, out of the box anonymized tracking that indies could set up with one line of code (and larger sites could integrate using an API), and real-time analytics with useful aggregate metrics such as average payment per user, and provider.

The analytics proved particularly useful, leading large sites to experiment with the delivery of perks to subscribers on-load, simply based on their trust in that provider's payment history, and average payment received per user. These improvements might not have been perfect (not knowing what the streaming rate would be from one moment to the next remained a top pain point—and some analysts suggested—the biggest barrier to further innovation) but no one would deny that these features had arrived just in time.

From user agent to user advocate

By 2026, browser support for third-party cookies had all but disappeared, and thanks to an EU ban on cross-site tracking and targeting, so had the vast ecosystem of ad-tech middlemen responsible for decades of bitstream data capture. In their place was however starting to emerge, not just a new generation of tools and standards, but an entirely new approach to the delivery of advertising, the monetization of content, and the protection of users on the web.

The primary actor in this battle was the humble browser, officially re-cast from user-agent to bona fide user advocate, and tasked with a host of jobs that had in the past been entrusted to third parties. The first of these was real-time bidding, an entirely automated process (in the past powered by vast databases of user profile data gathered from across the web, or purchased from brokers) that enabled advertisers to compete for real-estate on a site. Facilitated by gigantic ad exchanges, these systems had moved billions of pieces of ad inventory on a daily basis, often serving as the sole revenue source for millions of sites, and yet powered by algorithms and technologies whose inner workings were known only to their creators.

All of this changed once real-time bidding switched from a cloud-based activity to one that took place entirely on the client. Although the process still leveraged user data, the profiles needed to personalize web experiences were now collected by the browser and then stored in an encrypted PrivacyToolbox™ that only the browser and user could inspect. This component also contained the algorithms that would determine the best ad for each user, using underlying code that was now either open-source or subject to periodic scrutiny by a neutral third party.

The browser also took on related tasks such as the certification of view-through attribution (determining which served ad impressions were actually visible by users) and ensuring anonymization during click-through attribution (the process of only crediting a sale to an ad when someone purchases after clicking on it). In all of these cases, the browser served as both technical facilitator and user advocate, managing opt-in, ensuring most interactions between users, websites, and advertisers took place with minimal data released to the cloud, and enabling users to opt-out of data collection by simply instructing their 'advocate' to do so.

It's, therefore, no wonder that in 2028, the browser also took on the task of price negotiation and privacy-preserving payment attribution for web monetization. The new specification was bold, aiming to define the future of this emerging ecosystem by equitably balancing the needs of users and creators. This was the boost the Web Monetization API had been waiting for, and one that would arrive just in time for a new generation of sites that would desperately need it.

The collaborative web

Small creators had flocked to Web Monetization. They loved the real-time payments, the flexibility to choose how best to reward their audience, and were happy to cross-promote subscription providers to their fans as a way to support their work; yet constantly struggled to build a large enough audience to turn their small share of each subscription into a viable income.

They needed to not only gain more fans but increase the proportion of those who were able to pay while they browsed. And what better way to do so, than to collaborate with other like-minded creators.

These collaborations were wildly creative, immediately breaking new ground by not limiting themselves to posting articles or hosting a Discord server, but instead considering what that specific community might need to thrive. Shared spaces designed around a common purpose, with affordances built to suit the unique characteristics of that community and its audience. A creative role-playing-game collective might for example host a mix of game tutorials; a downloadable game and lore marketplace; and a suite of utility apps useful to gamemasters. Different parts of the site might be monetized in different ways, leveraging streaming payment to unlock apps for occasional users, hosting real-time tutorials with a flat entry fee (and plenty of opportunities to tip), and pitching full-blown memberships for their most avid users.

These early collaborations were cobbled together, repurposing publishing tools such as WordPress, leveraging social decentralized protocols such as Scuttlebutt, or open-source community-building software such as Forem, yet piece-by-piece, a new ecosystem was quietly forming. An ecosystem of tools with a robust base offering, but the flexibility to bolt on micro-services to suit new collaborators or a shift in a community's focus or maturity level.

- *Want to quickly spin up a multi-user Interledger wallet to manage earnings?*
- *How about collaboratively sourcing, managing, and paying for editorial or legal services?*
- *Maybe you've decided to convert your ad-hoc cooperative to a US social benefit corporation?*
- *Or maybe you want to find a physical space to colocate with like-minded people?*

Not only was there now an app for that, but you could either pay for it directly from the earnings in your creator wallet or incrementally stream payments with each use. This influx of very different apps not only made incidental use easy, but stimulated the growth of a new generation of "professional grade" Web Monetization subscriptions, specially designed for the higher cost, and different usage patterns of professional applications.

Whether social, practical, or creative in nature, collaborations soon become destinations in their own right. Small enough not to feel (or behave) generic or corporate, yet large enough to offer more value than the sum of their individual parts. With each new collaborator came a new audience, simultaneously growing the value of the long tail web, and the new payment technology that powered it. It had taken a while, but the web was finally, for everyone.

Reading list

Enjoyed this story? Discover ideas that inspired it, or may be of interest if this story has inspired you.

- A disturbing investigative piece by the New York Times, about a 1500 strong network of propaganda sites, purpose-built to fill the void in online local news.
- A review of Tim Hwang's Subprime Attention Crisis, and Cory Doctorow's How to Destroy Surveillance Capitalism, a series of short books that posit that the ad-funded web is headed for a crash, and explores how to build something better from the wreckage.
- Towards privacy-friendly and sustainable online advertising (PDF): a thorough and accessible paper that explores an alternative to the current surveillance-based advertising model.
- A quick primer on the death of cookies, and the battle to determine the futureof (3rd-party-cookie-less) online advertising (and who gets to set

that agenda).
- An ode to contextual advertising (which doesn't explicitly require data collection): What if we all sold non-creepy advertising?
- How to build a creative middle class. Interesting suggestions, including one of my favourites—explicitly encouraging the creation of low-replay content to reduce the concentration of mega-hits.

The bundled web

It's 2030, and hundreds of millions of people around the world support the artists and creators they love using highly personalized subscription bundles. Here's how it works.

In most countries, people sign up through their internet provider, or one of a handful of big tech companies including Apple, Amazon, and Pounce (Netflix's baby brother, founded for this purpose in 2024). Although it's still possible to purchase a standalone Web Monetization subscription, most are bundled as part of a larger offering: a residential broadband plan, a Google Apps subscription, Amazon Prime, or—if you live in a country where these still exist—your cable TV subscription.

For a flat monthly fee, users can choose from different service tiers, and thousands of independent sites or pre-assembled bundles that include top news, gaming, and entertainment properties. Some providers mandate that sites within their bundles offer the same set of benefits, while others simply stipulate an "experience floor" (such as removing ads) and then let sites determine if and how to augment it.

Although the Web Monetization API remains open (and subscribers aren't limited to browsing the sites a provider maintains a relationship with) the practical reality is somewhat different. Provider-supplied browser extensions serve as recommendation engines, driving subscribers to the most popular in-network content, and gamifying the experience through "frequent browser" clubs that offer monthly rebates if you primarily surf 'in-network'. These recommendation engines can be so effective that close to 40% of subscribers in certain markets report being unaware that their monthly fee can be used to access content or receive perks on the open web.

User privacy remains a hot topic, but the comparatively small number of providers and sway most of them enjoy in related industries has conspired to keep regulation at bay. Worries that a user's activity might be tracked by providers has also lessened due to a modified business model that places less emphasis on how often each individual subscriber accesses a site, or how much time they spend there.

Rates for Tier 1 sites are set by negotiation, the stipulations of which remain confidential, and backed by non-disclosure agreements. Rumour suggests however that in the U.S., a mere five sites now command 50% of the average user's monthly

subscription payment (and a shocking 25% in cases where users spend no time on these sites at all). Tier 2 sites receive a fixed, yet equally undisclosed, rate, and are also graded against a basket of "engagement" metrics to ensure they are performing well enough to remain within this tier. At least, that's the industry's best guess of how things work.

Below this is the long-tail, defined as anything outside Tier 2, and including out of network sites that users discover on their own. The rate these sites receive is algorithmically defined based on that user's average spend outside tiered and bundled properties, and while site owners can register to access basic analytics, calculating revenue in advance (let alone reconciling it to analytics) remains precarious.

Agreements between providers and bundled properties may also include stipulations that go well beyond revenue. Providers may for example require that Tier 2 sites agree to a period of exclusivity, while Tier 1 sites may play one provider against the other—only offering their full content catalogue to one party in a given market, and then leaving the rest to sell access as an "out of network" add-on. Deals such as these are universally frowned upon and have been the subject of several (so far unsuccessful) anti-competitive challenges.

Enter, the Essential Web

A positive side effect of the exclusivity debate has however been the widely adopted concept of the Essential Web: websites that must remain accessible outside of paid subscription tiers as they've been deemed essential to local culture, knowledge, or social wellbeing.

In the EU (which pioneered the concept, and thanks to its 32 nations offers the largest Essential bundle) a third of essential sites are entirely tax-funded, and therefore shielded from the sort of conflicts that arise when serving both public and commercial interests. The rest operate as some manner of "social benefit" corporation, rolling any profit they earn back into programming or donating a portion to social causes.

Other countries subsidize essential sites, yet still permit them to monetize through merchandise, advertising, or premium memberships. Others still stipulate that providers (under penalty of losing their operating licence) contribute a percentage of their in-country profit to fund these sites. Regardless of the model, the upshot is that in most parts of the world, a country's residents need only create a provider account to access their local Essential allotment.

Not everyone is happy with this arrangement. In 2026, a landmark ITU study revealed that more than 400 million people lived in countries where the Essential Web had been allocated through governmental decree and did not reflect the will of citizens or civil society. These countries are also more likely to have just one provider—often state-owned—leaving residents with little control over the content available in even *non-essential* bundles. This leaves the populace

not only without affordable access to the global journalism, information, and entertainment brands they may actually want, but often compelled to regularly consume content from state-mandated bundles in an effort to not draw the wrong kind of attention.

Beyond concerns of equitability, there also remains the matter of affordability; a growing problem that impacts both consumers in low-income countries, and poorer segments of the population in more affluent ones. While web monetized sites tend to offer greater privacy and are often significantly faster than their ad-funded counterparts (a boon for users on mobile, especially in countries with slow networks and high data costs), visitors are now often asked to pay a monthly fee to access the very same content they would have in the past consumed for free.

The impact of this varies depending on where these consumers live. Studies in more affluent countries have shown that although low-income residents make use of the Essential Web, they are three times as likely to opt for providers that trade discounted memberships for permission to track and sell their browsing data.

This has led to the creation of programs such as the California WebStamp Initiative, which distributes prepaid web monetization vouchers to schools, food banks, and community centres in disadvantaged neighbourhoods, and the recently launched MediWeb, which provides an annual web monetization stipend to all US Medicare and Medicaid users.

In low-income countries, the problem isn't merely affordability for consumers, but profitability for providers. Although most countries have at least one local provider, they increasingly compete with a handful of global tech companies with both the expertise and infrastructure to quickly deploy localized offerings to almost any market. Flush with cash, these providers operate at very low margins, often using web monetization subscriptions to drive value in their overall product portfolio.

This distorts both the high and low end of the market, leaving local providers to choose between catering primarily to the upper classes, or attempting to cobble together a profitable offering in a market where local economics dictate an average subscription cost of just $1-2 a month.

Big tech in the meantime is happy to target both sides, tempting affluent consumers with low-cost international news and lifestyle packages, and flooding the rest of the market with an eclectic collection of regional social, educational, and entertainment content localized using increasingly competent real-time AI translation (that only they can afford to build and deploy). The latter practice has proven particularly damaging, resulting in only a fraction of subscription fees paid out in-country contributing to the creation—let alone growth—of the local content industry.

Green shoots for the longtail web

No one knows what the future will bring, yet in a corner of the web, the indie long tail may finally be about to catch a break. Prompted by India's aim to double the number of STEM graduates in a decade, more than one hundred science and technology sites recently formed a collective to negotiate flat-rate access to all Indian residents over the age of twelve. The group has since expanded, signing agreements with five more countries, and launching a trend that looks set to define the next stage of the web.

From anime to knitting, indie sites are joining collectives to negotiate upper-tier rates and terms with providers. Thanks to this, provider bundles have already begun to diversify—or in markets such as Finland—disintegrate altogether in favour of entirely personalized packages. It's a work in progress, and providers are still experimenting with ways to bubble up the vast ocean that is the open web, yet we're already seeing tools spin up to fill the gap.

The most popular of these leverage an open specification that enables users to build "playlists" of web destinations that are easy to share, combine into personalized bundles, and then uploaded to your provider.

This last step is primarily theatre (Web Monetization remains an open standard, so users have no need to declare *intent* to browse a site) yet in doing so can support their favourite sites who benefit from an initial payment boost, and (once enough subscribers from a given provider have added them) also qualify for access to convenience APIs, tools, and analytics.

The dream of a fully open and interoperable web monetization ecosystem may not have come to fruition, but it is now down a path that champions the diversity of the web and the agency of its users and creators.

Reading list

Enjoyed this story? Discover ideas that inspired it, or may be of interest if this story has inspired you.

- Blendle's seven-year journey to create a micropayments platform for news. Interesting to contrast this model with Scroll which is building a network of sites that users can access using a single subscription service, and Flattr, which enables users to support sites they care about through a single monthly subscription.
- How do subscription streaming services work (and do they?) in countries where economics dictate a much lower ($1-$2) subscription cost? Some examples from Nigeria and Bangladesh.
- A fascinating podcast from the BBC about how streaming music services are transforming how songs are written.

- Ethan Zuckerman, who runs the recently formed Institute for Digital Public Infrastructure, has written extensively about the need for what he calls "public service media". Here are a few of his best articles.
- To mend a broken internet, create public parks.
- The changing face of local news media. Packed with contemporary examples, including cooperatives, buy-outs to non-profit, and government funding.
- Warner Music Group's (PDF) annual report to the SEC - contains interesting examples of what happens when "a small number of digital music services control much of the legitimate digital music business" (in Warner's case, Apple and Spotify are now 31% of its total revenues... and as there are only two large streaming services, and not that many music labels... that's an awful lot of concentration in one spot).
- Musings on the value of a future Spotify for news.
- A piece from Neiman Lab's excellent annual series on the future of news: Subscriptions start working for the middle.

Not your parent's web

It's 2030, and the Web Monetization offering has changed a great deal since its early experiments with flat-rate subscriptions. Streaming payments still exist, but do so in parallel with a vast virtual tipping ecosystem. Here's how it works.

Users begin by signing up for a web wallet, which they then either load up with funds or link to a credit card. Wallet providers are easy to find and typically consist of fintech startups, consumer banking spin-offs, or global tech companies with a prior background in payments and experience negotiating the intricacies of global KYC requirements. The latter is typically necessary, as providers increasingly serve both the consumers and publisher side of the ecosystem (the privacy implications of which continue to be widely debated).

Most countries have multiple wallet providers who primarily compete by offering the best user- and publisher-facing features. All wallets offer basic money management tools, including monthly spending dashboards and the ability to set monthly spend limits, but more sophisticated offerings can include family plans with per-user spend limits, parental controls, interoperability with 3rd-party (or decentralized) data storage, and dual-purpose wallets that can be subdivided to act as both sender and receiver.

Users interact with this ecosystem in ways. The first resembles the original streaming payments concept, but without the benefit of a flat-rate subscription. Most sites use streaming to augment a basket of monetization methods that may include contextual advertising, merchandise, and Interledger powered micro-subscriptions offered in increments as small as a day (which are particularly popular in countries with poor internet infrastructure). Providers set the streaming rate, which hovers around $0.0001 in most developed economies but is

set lower everywhere else, and users simply pay as they browse until their funds run out.

Given the potential for overspend, these payments are now entirely opt-in, with permissions natively managed in the browser, and clearly sign-posted so users are always aware of both the cost and their remaining balance or monthly spend. Despite this added friction, streaming payments remain popular in many parts of the developed world, with EU citizens topping usage tables by opting-in to pay-as-you-stream on an average of twenty sites per year. In all markets, however, streaming payments remain secondary to e-gifting which is now used by over 2 billion people.

The gifting web

Sites enable gifting in a similar way to streaming payments—by including a payment pointer within a signposted tag. Browsers parse these tags on load, link the site's payment details to the browser-native gifting agent, and enable a suitable interface for the user. In early iterations, this interface simply consisted of a form field into which users could type the sum they wanted to tip. This worked well enough but caused indecision in a significant proportion of users who, despite *wanting* to tip, felt uncomfortable sending tiny amounts and would have preferred a specific ask to frame larger ones (e.g. Tip me $3 for a coffee).

Some of these concerns were mere growing pains, no doubt caused by generations of purely transactional e-commerce, yet kicked off a wave of experimentation that began with the replacement of fields with pre-populated tip buttons, only to eventually settle on a model that would leverage the capabilities of Interledger far more deeply than anyone expected.

Users show their appreciation for a creator by gifting them virtual objects, commonly referred to as e-gifts. Users can purchase these in advance from their provider (who due to their often minuscule unit-cost typically sell them in packs), or on the fly using their streaming payments account. Each object is represented by an emoji-style graphic such as a lollipop, silver coin or sports car, and has a (regionally adjusted) value that ranges from a fraction of a penny to a maximum of a few dollars. Higher cost, branded items also exist, but thanks to recent regulation, their cost is now capped at a maximum of $10.

An e-gift is part-object and part-currency. An object, once gifted, lives in a publisher's wallet as would a quantity of pounds or dollars, and can then be withdrawn by converting it's pre-defined value to the owner's preferred currency type (fiat or otherwise). As e-gifts are also a standard and underpinned by the now widely-adopted Interledger, they can also be used anywhere that accepts "real money", including e-commerce sites and offline shops that accept payment via mobile wallet.

Although the look of an e-gift should matter little to the publisher or creator that receives it (and distributing them as you browse remains the primary use

case) their highly visual nature has spawned some interesting practices. One of these is the purchase of novel e-gifts as social currency; showing them off the way one might post a selfie of a new hat or a picture of the fancy ice cream cone you're about to eat. Some people instead collect them as one might collect vinyl characters or limited edition art. In this sense, gifting a particularly interesting object to your favourite creator can go beyond the purely monetary exchange. A way to show appreciation by giving them something that is of personal value to you, and you hope may be to them as well regardless of its monetary worth.

A berry by any other name

Given how widespread gifting has become, it's sobering to recall how basic the first generation gifting toolchain actually was. Wallets didn't record the type of object that had been gifted, and if the creator wanted to know what content might have led to this donation, they had to sort that out for themselves. Denominations were—by design—small enough that almost anyone could tip, so parents set up wallets for their kids, and people without access to credit cards could top wallets up through corner stores as they would a mobile SIM.

Replacing money with e-gifts had managed to abstract the act of flinging hearts or berries at a creator from the actual *value* of that gift—yet in doing so had caused a new problem. Users routinely reported forgetting what a berry was worth, and simply recalling that they would need to gift an awful lot of them to make a dent in their wallets. If you barely know the value of a berry, you're just as likely to give ten of them as you are to give one, but beyond that, numbers begin to lose meaning. Users reported not seeing the point of gifting larger quantities, and with many gifts worth a mere fraction of a penny, the resulting revenue was often barely worth it. The solution to this problem took a while to emerge and ended up doing so thanks to an interesting shift in mental models.

Paying a company for a multi-faceted product like a newspaper isn't quite the same as paying a person for an essay they've crafted. Yet, with e-gifts, users were doing a bit of both. Gifting might mean they liked the site, or had enjoyed a specific article, or wanted to send kudos to a specific author. Not being able to convey which of these they intended proved frustrating to both users and creators, and led to often heated discussions around attribution between unions and larger sites. The problem was eventually solved by the invention of tools that not only enabled users to declare gifting intent, but (rather conveniently) provided them with reasons to tip more often.

Rather than simply associate e-gifts with the page on which they occur, it's now possible to assign them to a specific phrase, paragraph, or image. This not only provides authors and editors with valuable context but results in a far larger volume of tips per user, and increased confidence in the value of their gift. Site owners can use the metadata associated with these gifts to accurately segment revenue, configure real-time author-attributed disbursement, or more easily manage the calculations required for complex, multi-creator scenarios such

as those common in industries such as film and animation.

A mode for every mood

Although providers kicked off the e-gift craze, the most dramatic growth should, in fact, be attributed to the browser. No longer content to provide a simple window to the web, browsers now serve as experience enablers that shape-shift depending on the task at hand. While it's still possible to browse unobstructed by chrome (most browsers call this Classic Mode), users now spend a shocking average of five hours a day in one of two new 'experience modes' optimized for common tasks and workflows.

The first of these is '*social mode'*, an environment designed for group consumption of media such as games, films, live music, theatre and sports, or participation in collaborative tasks within productivity apps. The mode includes a built-in chat panel, multi-contributor e-gifting support, and opt-ins to experimental web standards such as animated e-stickers and the new Live Experiences web standard.

In stark context to the chaos of social mode, '*reading mode'* offers a low-distraction environment optimized for long-form content creation and consumption. Ideal for e-books, short stories, and long-form journalism, it has spawned a revival in dedicated web support for the ePub standard and the creation of apps that enable writers to both create and publish web-native books. While e-gifting is supported in all browser modes, content consumed in reading mode is most often monetized through old fashioned streaming payments—either charged based on the amount read or as part of a flat-rate subscription.

While pundits complain that these modes were obsolete the moment they were created (and there are already calls to add social collaboration to reading mode, and writing and reading views to social mode), supporters and detractors alike do agree that they have caused a wholesale shift in mental models whose impact will be felt for years to come.

Reading list

Enjoyed this story? Discover things that inspired it, or may be of interest if this story has inspired you.

- Paper that explores the mental transaction cost (PDF) of traditional micropayments
- Micropayments are popular in China and are built into popular apps such as Tencent Music and WeChat, either in the form of tipping, virtual gifts or other micropayment-powered formats such as "bullet chats".
- An old, but still valid post by Clay Shirky that outlines the case against micropayments

- The cautionary tale of Bigo, an e-gift enabled Chinese streaming platform popular in Pakistan that takes an eye-watering 73% cut of a streamer's revenue.
- Things the web probably doesn't need: YouTube SuperChats amplify the visibility of your chat message on a live stream by making it larger, giving it some colour, and pinning it atop the chat window for a period of time.
- An excellent roundup of Chinese virtual gifting and live-streaming business models.
- Musings on what a Spotify for news might look like.
- An argument against micropayments as a solution to ad-blocking (that turns into an argument for centralized payment services).

iii. Thoughts and recommendations

The current Web Monetization business model is on the one hand quite compelling. For a flat monthly fee, users can visit a potentially unlimited number of participating websites, in full privacy, and on some sites, receive a reward for their support. *What's not to love?* The pitch to publishers seems equally rosy. Sign up for a wallet, add a line of code to your site, and watch payments stream in while experimenting with ways to reward your supporters. It's low friction, cheap and easy to experiment with, and open to almost anyone.

The practicality of turning this simple narrative into an ecosystem that offers equitable and sustainable value for both users and website owners is the challenge we will face going forward—and there are many ways we can get there. Through the prior section's scenarios, we explored a range of business models, opportunity spaces for innovation, and degrees of interoperability, privacy, and decentralization.

The goal of these stories was not to predict the future but to offer lenses through which to interrogate how Interledger-powered Web Monetization might change our use of the web, and whether the resulting environment would in fact be *an improvement* on what we have today. As a wise woman once wrote, however... "*Better doesn't always mean better for everyone... it always means worse for some.*"

It's entirely possible to imagine a future where use of the Web Monetization API becomes ubiquitous, yet primarily makes things better for only a chosen few.

Building a multi-sided ecosystem is hard enough when a centralized party controls (and is, therefore, able to design most of its touchpoints) but can be particularly so when the goal is for no one to be in charge. If today's vision of Web Monetization succeeds, we should anticipate thousands of providers, billions of web sites, and many billions of users—each with different needs, expectations, and points of view about how the technology might best serve them. Meeting these needs will require balancing the incentives of these actors, and making tradeoffs between the flexibility of an entirely decentralized ecosystem, and one

where small doses of centralization might more quickly, cheaply, or equitably unlock key benefits.

While some of us may loathe centralized services for the lack of agency and homogenized experience they often leave in their wake, billions of people around the world still welcome them—simply because they are free, easy to use, and designed to "just work" for everyone. We may not like that this is so, but pretending it is otherwise may blind us to the steps we need to take to ensure decentralization will be embraced, valued, and supported by everyone.

How we might do so from the start, and by design, is what I will focus on in this final section, through recommendations that focus on three areas.

- Balancing privacy and functionality
- Facilitating user and creator-driven bundling
- Mitigating harm

Balance privacy and functionality

Enjoying absolute privacy as you browse the web would be ideal, and I applaud Coil for building robust privacy protections into their API. Doing so sets an important precedent for future discussions with browser vendors and standards bodies, and seems particularly important given recent regulatory and browser-based initiatives to reduce arbitrary tracking and data collection.

What's not yet clear, is whether this binary approach to privacy will serve their users as well as they believe. To better understand why, it helps to consider the role, incentives, and choices of each of our three actors.

- **Providers** must gain and retain subscribers while making a profit—if not on each subscriber, then certainly across the aggregate of their user base. Thanks to the open standard, these subscribers will however be free to change providers at any time.

  To move beyond the role of transactional "dumb pipe", providers may choose to compete on aspects such as price, performance, subscriber-facing features, and the quality of any integrations they offer to publishers (which, if they enable more seamless and consistent perks experiences, could be something that even *subscribers* seek out). Providers that experiment with even a few of these may find it necessary to collect more data than is currently envisioned, or struggle to meaningfully use what they already collect if it remains fully anonymized.

- **Publishers** will in the meantime have to strike a balance between providing tangible yet proportionate value to their new sporadic micro-payers, and ensuring any long-term subscribers feel their level commitment is still worth it. They will also need to contend with an open ecosystem of possibly thousands of providers, each with a different business model and streaming

rates, and are therefore likely to welcome APIs that enable them to predict streaming rates, anticipate revenue per session, and accurately reward repeat visitors. And while this gap creates an opportunity for third parties to build tools to address these needs, these tools seem likely to almost immediately start collecting, or attempting to infer, some of the data a provider has obfuscated.

- **Users** will meanwhile want to reach the end of the month with a feeling that the amount they paid was "worth it". What this means will vary from person to person, but is likely to include being able to easily see how their money has been spent, receive perks that feel proportional to the amount they have paid (especially if they regularly frequent a site), and adjust their spend to favour sites they most care about.

This last point is particularly important. Just as sites now ask users with ad-blockers to shut them off, they will no doubt find ways to penalise users who stream while running on fumes. Users will therefore be incentivized to only pay websites they actually care about, and providers will in turn be compelled to enable them to do so. An unhappy user may choose to switch providers, stop visiting or (where available) block payments to certain sites in an effort to favour others, or stop participating in the ecosystem altogether.

All things considered—and assuming flat-rate streaming memberships remain the primary model—it seems unlikely that the current privacy vision will enable the ecosystem to simultaneously fulfil all of these promises.

Who do you trust?

This need not be a problem. Users may be happy to opt-in to limited data collection that results in tangible value such as the ability to boost the streaming rate to their favourite site, or the ability for publishers to easily identify them as someone who has already paid $3 this month. But as someone will ultimately have to manage that process, it's worth thinking about who that should preferably be.

Publishers already have relationships with an ecosystem of third parties with expertise in the design of (often proprietary) tools and APIs to gather data, build user profiles, and creatively fill in the blanks to knit together disparate user sessions. Should these companies start offering Web Monetization tooling, they would likely find an audience, setting a precedent for the degree of openness, complexity, and transparency of this new ecosystem.

While we can't prevent third parties from building web monetization tools (nor should we seek to do so), might it be possible to preempt publishers immediately turning to them for sensitive functionality such as *data collection* by more "natively" providing what they need?

Two ecosystem actors seem likely candidates to provide these capabilities: the browser, and Web Monetization providers. Both are (or presumably will be)

already trusted by users to safeguard their browsing history, credit card details—and in the case of browsers, far more besides. Both also underpin the Web Monetization (and open web) interoperability stack, designed to be interchangeable should users feel unhappy with the terms, functionality, or degree of privacy they offer.

Let's look at how this might work, the opportunities for each actor, and where they might collaborate.

Layered privacy... as a feature

Let's first look at how different layers of privacy might work at the provider level.

- **Level 0** is akin to what Coil offers today. Users can browse the web in full confidence that their provider cannot see the sites they are visiting and that this obfuscation extends to its exchanges with both the wallet and publisher. As Coil isn't gathering data, it cannot provide user-facing tools such as analytics, but users are free to install third-party browser extensions that do.
- At **Level 1,** users would opt-in to limited data collection. Doing so would unlock functionality such as charts that show their money has been spent, the ability to block sites they prefer not to pay, and boost payment to sites they most care about. The data collected to enable this would be clearly explained during opt-in, and users could at any time clear their history, or revert to Level 0.
- At **Level 2** users could opt-in to share additional data, maybe not in this case used directly by providers, but shared onward to publishers. This might unlock new APIs enabling publishers to better interface with users, track and anticipate their spend (or lack thereof if payment is blocked), or signal what perks are available. Although the specification doesn't currently envision this sort of tie-in with providers (which could result in provider consolidation to "own" the API) the downstream user experience benefits make it worth considering.

As the first provider, Coil has a unique opportunity to not only experiment with ways to achieve this at a technical level, but gain valuable insight into user sentiment, mental models, and comfort level with the trade-offs involved at each level.

These insights could then be leveraged during discussions with browsers and web standards bodies to help determine whether to change or enhance the API, what features a baseline browser implementation should offer users, and the design patterns and ethical guidelines the industry should advocate for.

Augmentations to the standard might include new data formats (ideally leveraging standardized web stack components such as the manifest) to interoperably expose

information that would improve the streaming payment experience. These might include:

- **A standard format for websites to convey the perks on offer**. Providers could leverage this data to help subscribers discover participating websites during onboarding, users could easily toggle it on and off in-browser as added context while visiting a site, and search engines could index and display it alongside search results.
- **A standard format for providers to convey their streaming rates**. Third parties could aggregate this data into convenience APIs for publishers, or leverage them to create 'provider comparison tools' for users. Agreeing this format with standards bodies would also set an important precedent, shaping future provider business models that might otherwise default to opacity, framing streaming rates as the "secret sauce" that enables their subscribers to browse longer and gain more perks compared to their competition (I'm being optimistic here, but it's early days, and we have an opportunity to bake equitable expectations into the standard).

Starting this experimentation early would also enable Coil to provide reference implementations for certain behaviours and interfaces (ideally open source, as Coil has already chosen to do with many of its tools) while modelling "good behaviour", and creating baseline expectations that would extend beyond key ecosystem actors.

- **Users** would look for and expect new providers to offer a well-documented privacy baseline, with clear opt-ins before enabling any additional data collection.
- Third-party **developers** would meanwhile understand the need (and opportunity) to provide value *above and beyond* the basics offered by providers, but with a similar expectation of clarity in regards to what data they collect, and how it will be used.
- Offering built-in tools and analytics would also enable a degree of transparency on the part of **providers**. Users would gain an understanding of where and how their money has been spent, and the impact of different decisions on the streaming rate. This would enable users to make more informed decisions about the use of any block and boost tools (and perhaps justify purchasing long-term memberships for sites that already receive most of their monthly spend).
- All of these factors would pay downstream dividends for **publishers,** who could leverage a better understanding of how providers work and how much money they are likely to receive to build stronger relationships with their (now more confident and engaged users). In an ideal world, these capabilities would also lower the bar for novice publishers, ensuring they aren't from the very start compelled to leverage potentially costly or untrusted third-party tools.

A final actor that would benefit from these early experiments is **regulators**. Providers sit in the middle of the payment process. While currently not a wallet,

it's conceivable that some might choose to also become one, opening them up to stricter data collection requirements such as KYC. Who is allowed (or can afford) to become a provider, would go on to impact *how many providers* the ecosystem may contain—potentially result in a dramatically different opportunity space for the technology.

The case for browser as advocate

At an industry level, there are already several projects proposing to leverage the browser in new ways to protect user privacy—primarily in the context of advertising and prompted in part by the upcoming decrease in support for third-party cookies.

One of these is Google's Turtledove, a proposal to enable local ad inventory bidding, executed entirely on-device, and powered by locally stored data and algorithms. A similar project by Apple, this time related to ad-click attribution, proposes to task the browser with acting on behalf of the user, managing the attribution entirely on-device, and leveraging data obfuscated from even the browser.

And while some of these initiatives have been met with concerns by both industry analysts and regulators (in Google's case due to its dominant role in the ad-tech ecosystem) it's worth considering why and how we might task the browser with privacy-preserving facilitation in the case of Web Monetization.

The why...

- **Choice:** Browser consolidation is always a risk, but there are still many browsers to choose from, and (discussions of rendering engine diversity aside), switching browsers does enable users to unlock dramatically different features.
- **Trust:** Users already trust the browser with their information. Some of this trust is aided by architecture and standards that put user safety first, but the existence of these standards and the formalized process to create new ones is proof that we should be able to do the same once again. Some browsers are also entirely open, enabling regular scrutiny, and making it relatively easy for someone to create a new browser.
- **Context:** The browser feels like a logical spot for a user to store global browsing preferences—which already often include passwords, payment credentials, and could in the future include customizations related to streaming payments.

Here are a few examples of how this might work...

- What if we normalized the privacy levels described in the prior section? All browsers would understand that Level 0 means they shouldn't collect or share browsing data and should anonymize any metadata shared with third parties. Ideally, Level 0 would be on by default.

- Rather than opt-in to Level 1 at the provider-level, users would do so in the browser, and these permissions would propagate as needed 'up' (to providers) or 'down' (to publishers).
- In a perfect world, this 'preference bundle' would be exportable, and could be loaded into a new browser, enabling users to seamlessly switch browser or provider.

This behaviour would fit right in with the goals of the multi-stakeholder group (whose members include privacy-focused tech companies, nonprofits, and publishers) currently developing the Global Privacy Control, a specification aiming to enable users to globally declare a "do not sell or share" provision that would propagate from the browser (or any other authorized agent) to any site the user visits. Currently modelled after the needs of California's CCPA privacy regulation, the long term goal is for this mechanism to be globally enforceable through related legislation such as Europe's GDPR, leading the Brave browser to set the important precedent of enabling it by default.

Facilitate bundling

Our three stories explored several approaches to bundling, each led by a different actor, and resulting in differing power dynamics.

In the first story, we saw **creators collaborate to bundle content** to gain leverage, share costs, and release content more often to like-minded audiences. These collaborations came in all shapes and sizes, yet remained creator-driven, aided by an ecosystem of services that creators could mix and match to suit their needs. While to a certain degree centralized, these were primarily tools rather than platforms, so enabled creators to retain a degree of agency.

In the second story, we saw **users bundling sites they regularly paid for** to improve discovery and get more value out of their subscriptions. These bundles were simple conveniences, but as they leveraged an open format, they could be shared, imported and exported as users change providers. The format itself was also able to evolve in response to ecosystem growth and the changing needs that often accompany scale.

The second story also included **provider-led bundling**. Providers created these bundles to improve the value proposition of their subscriptions, primarily targeting mainstream users who would welcome the convenience of a centralized payment point and the degree of choice that centralization often provides. And while this centralization created challenges including inequality of access across markets, it also created opportunities to insert regulatory tripwires, enforce privacy practices, and create minimum access requirements like the Essential Web.

In the 'real world', we are beginning to see growth in **platform-led bundling initiatives**, most of them unrelated to the Web Monetization API, and exhibiting

varying degrees of openness. Notable examples include:

- Scroll enables ad-free access to popular news and entertainment sites from around the world through a single, $5 USD monthly subscription.
- Newsletter platform SubStack recently created a Reader View that automatically bundles all of your SubStack newsletters into a single, distraction-free view. The aim of the reader is to enable users to more easily keep track of new issues, and (presumably in the future) to discover new ones.
- Ampled is a (recently web monetized) collectively owned and community supported "Patreon-like" platform for musicians. While led by a core team, it includes fully transparent governance practices such as community voting on platform rules, and the ability for co-op members to participate in site maintenance and development.
- Exploratory projects such as Forbes' paid newsletter initiative will enable journalists to launch their own paid newsletters, and split the revenue with Forbes. Writers will benefit from the marketing, editorial and salary benefits of being a part of Forbes' newsroom while retaining full editorial independence.
- Subscription platform Medium has recently added all books from the Pragmatic Programmers series to it's $5 monthly online membership.
- Honourable mention goes to non-digital Stack, a subscription program that sends you a new, independent and small creator-owned magazine every month.

While still useful for creators, platform-led bundling is in my opinion the least interesting of the models we've discussed. It often encourages the growth of an ecosystem that—while still ostensibly powered by open standards—encourages user or creator lock-in, and ends up primarily benefiting it's largest or most popular creators.

These concerns are less of a risk with user- and creator-led bundling as they not only promote user and long-tail creator agency but also encourage the growth of related services that share these values. Encouraging this sort of bundling would therefore pay dividends *independent of the monetization method*, as a means of growing and sustaining the open web. Here are a few ways that we might enable it.

For creators

- **Build tools that simplify assembling and hosting content for ad-hoc groups**, including those that might regularly increase or decrease in size, or only exist for a set period of time (think virtual pop-up shop, gallery, or "creator in residence" schemes)
- **Provide services optimized to host more formalized collectives or cooperatives**, including features such as co-ownership-friendly permission structures, built-in tools to share administrative tasks and manage community governance, and the ability to split costs across managing

participants. A great existing example is OpenCollective, a platform that enables communities to transparently raise funds, manage their finances, and even includes the ability to designate a fiscal host—a legal entity that collects money on their behalf to reduce management overhead.

- **Build more open source and/or decentralized social media alternatives**, that communities can adopt, and where needed, independently host and customize. An example of these is Forem, an open-source platform currently hosting the Dev.to software developers portal, but aiming to grow into a more turn-key offering that any community can adopt and potentially federate with like-minded peers.
- **Build lightweight discovery portals** (a sort of thin-marketplace) that enable like-minded creatives to host 'just enough content' to entice visitors over to complementary experiences dotted around the web, on social media, on an online store, or even offline.
- **Develop community management utilities** such as Policy Kit, which empowers online communities to automate common tasks such as hosting rotating elections for moderators, or spinning up a randomized jury to resolve moderation disputes.
- Build tools such as Stir, that help sole or collaborative creators **manage the financial and business aspects** of working together.
- Many of these collaborations would also need services such as editorial, legal, and accounting support; cloud-based software to stream events; or productivity and design tools to collaborate on content design or merchandise creation. And while tools such as these already exist, no one has yet considered how **they might be profitably packaged, and maybe even purchased in micro-increments** to suit collectives of small creators, as opposed to the more typical (of late) enterprise-driven offerings.
- A final step might be to **leverage on-demand offline services** such as Airbnb to help creators move beyond digital, and form ephemeral content houses.

For users

This scenario is in some ways trickier, as we've long stopped thinking of the open web in this way. Users do however regularly create, edit, and enjoy the value of bundling by creating and sharing lists on platforms such as Twitter, Spotify, and Patreon. And despite its slow death in recent years, we do still have RSS—a standard designed to syndicate content and create curated lists for regular consumption (as shown in SubStack's recently launched reader). There are of course many sites that don't support RSS, and it's not clear what an RSS enabled HTML game or Figma board might look like—*but wouldn't it be interesting to find out*?

A tool that we could leverage to encourage bundling is the browser. Most browsers already include some form of "home" tab, that enable users to craft a part-automated and part-customized entry point to their favourite sites. Why

not go a step further, and let users fill the screen with feeds from sites they care about and are keen to support? (Yes, I know, this isn't a new idea, but perhaps it's finally time to revisit it?) With built-in Web Monetization support, a contemporary RSS reader might just start to feel like a fully customizable subscription to all the things you love on the web.

As hinted in story three, this reader need not fit our legacy mental models of RSS. The experience could be beautifully optimized for long-form reading, making it ideal not just for articles, but books (including those used in educational settings). The built-in range of monetization options would enable authors to choose how best to monetize their creation (one-off payment or streaming) while enabling users to disburse ad-hoc payment to reward a particularly interesting page, paragraph, or phrase. An existing app that mixes aspects of this concept with the "social mode" described in story three is Glose (recently acquired by Medium) which enables users to socially discover, organize, read, and engage with books.

A superpower of user-led bundling would be the ability to share read lists (like playlists, but for the web), which could themselves be bundled and aggregated by third parties to help users discover new content on any topic, from sourdough bread to Brexit, or the history of the Thai monarchy.

Based on open standards, these 'bundles of bundles' would form an interoperable discovery layer atop of the Web Monetization subscription concept, helping small creators find new audiences, and (perhaps finally) providing a viable alternative to algorithmically fuelled social discovery.

Mitigate harm

Throughout this paper, I've described functionality that should, in my opinion, **be considered table-stakes** for the ethical deployment of streaming payments. This includes:

- Clearly signposting when a payment session has begun and enabling users to manually close the payment stream, or block a site from future payment.
- Briefly delaying payment (or instantly refunding it) to enable a zero-cost "bounce".
- Enabling users to understand how their money has been spent and 'boost' payment to the sites they most care about.

Although users are the web's primary constituents (a primary statement of the W3C's Web Platform Design Principles) we must also be mindful that a feature designed to help *users*, may in turn unnecessarily harm publishers, including small independent creators. Lowering the streaming payment rate to sites that users regularly block could for example be weaponized to harm small creators, or further narrow the reach of marginalized audiences (as frequently happens on social media).

A final layer that we should work to preserve is the API's interoperability. Ensuring a choice of provider, digital wallet, and browsers/extension will be critical to ensure this technology isn't merely accessible to the most affluent users and creators, those with the most popular devices, or those living in the most attractive or profitable markets. Which brings us to the topic of **access**—or lack thereof—as an opportunity for harm.

Asking hard questions

Most of us probably all agree that accessing the internet is—if not a human right per se—then at the very least a right that should not be restricted. The internet not only enables us to exercise our right to free expression, but has become a necessary tool for us to live, learn, and thrive in the modern world. It's also increasingly hard to envision how humanity will be able to successfully meet its most pressing challenges—be they the Covid pandemic or climate change—without the ability to easily communicate, collaborate, and engage as we do online. Yet if this true, what of the right to access the web (or if you prefer, the content and services that exist on the internet)?

Some things cost money at the point of use, while others habitually don't. Most people would agree that you shouldn't have to pay to access a government website because you've already paid for it through taxes. It would be equally strange to pay to use online banking, or shop for a flight, or visit a marketing site for a new car because you have (or will) pay for that in some other way. The question of when payment is necessary gets harder as the topic shifts to that ill-defined thing we call content.

Is it our right to access Netflix free of charge? Surely not. What about speciality news, covering topics such as technology, knitting, or entertainment? Here again, this seems unlikely—though the specific nature of the content might cause some to disagree. Begin to drift towards journalistic content, and confidence that *at least some of it* should be universally available begins to increase.

Content such as regional news, local or national political reporting, or long-form investigative journalism. Content that helps shape and contributes to the health of our societies, enables us to understand the diversity of people and ideas in this world and empowers us to more confidently assert our democratic rights. Surely *some* of this should be freely available to all?

And since the creation of the commercial internet, much of it has been, Primarily funded by advertisers vying for our attention, and silently fueled by that alter ego we all share—our data exhaust. We couldn't *see* our data's role in this exchange, yet 'paying' in this way (and doing so often) not only ensured many critical parts of our information ecosystem remained free but remained that way for *everyone*—including those with little data or attention to share.

Which brings us back to the topic of harm.

My goal in introducing the Essential Web was twofold: to broach the idea that

on the web, the "public interest" category might, in fact, be larger than we've so far considered, while also exploring the pitfalls of attempting to extend a model that has historically worked well enough for TV and radio, to the diversity of the open web.

Even if you dislike the Essential Web as a concept, a good reason to think we might need something akin to it is that although creating high-quality information costs money, and the health of our democracies relies on a strong independent press, sites that disseminate fake news or disinformation can be spun up, and maintained, for comparatively little cost. This challenge predates the Web Monetization API _and will continue to exist _regardless of any future monetization method we adopt.

What might alternatives to this concept look like? How about distributing provider vouchers at food banks, providing a monthly no-questions-asked browsing stipend for anyone with a provider account, or maybe tax deductions for users whose subscriptions primarily fund eligible local news organisations.

We could also leverage the fact that this technology is in its infancy to (from the very start) embed it with features and behaviours that make it easy to give back to small creators and the organizations that support them. These might include

- a tax on provider profit that would be used to fund initiatives that help small publishers and creators succeed within this new ecosystem.
- an expectation that providers donate a percentage of revenue to initiatives that promote diversity, inclusion, and equity on the web
- built-in tools enabling creators to spin up campaigns (lasting as little as an hour) that redirect a percentage of their earnings to charities, open-source initiatives such as Wikipedia, or another creator of their choice.

We will need many ideas such as these to continue growing a diverse, equitable, and future-facing web. A web where everyone can access high-quality information, and where the means of doing so are diverse enough to suit different societies, cultures, and abilities to pay.

We will also need to acknowledge that there are two sides to this problem, each requiring us to ask similar but increasingly pressing questions.

- Are certain *sites* "essential"? If so, how might we define them?
- Are certain *audiences* "essential"? If so, how might we ensure that—as we transition from a 'free' ad-funded web to one where most content has a cost—the needs of this audience are considered, by design.

There will be different answers to these questions. Defining what is essential is a deeply personal question. A question that touches on where our society places values, and as the pandemic has taught us, a question that we should be asking far more often than we currently do.

Thanks to advertising, we have avoided asking this question of the web, but the time may finally have come when we can no longer afford not to do so.

A few final words

Projects that make use of speculation are often heralded (or at times accused) of trying to *predict* the future. This was definitely not my intent. There are many possible futures, and the one we end up with is fully dependent on the decisions we make. This is the true value of exercises such as these. To stimulate discussion, challenge assumptions, and motivate stakeholders to more clearly describe (and ideally agree on) a future that is not only possible—but preferable.

In doing so, we will all have to ask hard questions about *who this future should be preferable for*. There are many ways that technologies such as Web Monetization can scale, but only some of these will result in a world we are happy to live in.

> *Remember to imagine and craft the worlds you cannot live without, just as you dismantle the ones you cannot live within.* — Ruha Benjamin

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