NICOLAS FRIEDERICI & VILI LEHDONVIRTA

PLATFORM ALTERNATIVES: THE STRATEGIC GUIDE TO RESPONSIBLE PLATFORM BUSINESS

AN OUTPUT OF THE PLATFORM ALTERNATIVES PROJECT

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An output of the Platform Alternatives project, a collaboration between the Alexander von Humboldt Institute for Internet and Society and the Oxford Internet Institute, with support from Hans Böckler Foundation.

Online publication: graphite.page/hiig-platformalternatives

DOI: 10.5281/zenodo.5705669

ABOUT THIS GUIDE

The Platform Alternatives project is a collaboration between the Alexander von Humboldt Institute for Internet and Society (HIIG) and the Oxford Internet Institute (OII), with support from Hans Böckler Foundation. It addresses the question of how platformisation can be managed to achieve fairer results for European stakeholders. The project examines differences in platformisation in Europe and the competitive strategies of European platform organisations. The project uses a combination of desk research, in-depth case studies and stakeholder consultations as data sources. The project is strongly practice-oriented and deals with platformisation in a holistic way, which means an extension of previous studies with a focus on the gig economy. The project also mediates between corporate and normative concerns, maintaining the perspective of platform organisations. Ultimately, Platform Alternatives seeks to contribute to a closer alignment of the platform economy with the European social model.

This Strategic Guide to Responsible Platform Business represents the project's key output for practice and policy. As such, it generates advice for platform companies and their stakeholders, often inspired by the ideas of co-determination (Mitbestimmung). In preparation of this Guide, platform organisations and third parties like unions, experts, and policymakers were involved through comprehensive knowledge transfer through roundtables, workshops and reviews.

ACKNOWLEDGEMENTS

The authors would like to thank all members of the *Platform Alternatives* project team for their valuable contributions and active support. Tina Krell conducted large parts of the underlying empirical research and provided several of the examples featured in the Guide. Lea Erlenwein transferred our text to the Graphite interface and patiently supported the editorial process including all its tricky details. Asal Dardan helped us frame the Guide in its early stages and she facilitated the communication and outreach. Subin Park and Lena Starke provided research assistance for the project. We would also like to extend our thanks to Larissa Wunderlich, who composed the graphics and designed the Guide in Graphite. David Mottram provided copy-editing. Hans Böckler Foundation not only provided the funding for the project, but also served as an open-minded and constructive sounding board for this work – we would like to thank Barbara Fulda in particular. Last but in no way least, we would like to express our gratitude to the participants in our research, most of them managers with European platform organisations, who offered their time to conduct interviews with us and shed light onto a new and emerging field of action. Thank you!

CONTENTS

EXECUTIVE SUMMARY

Digital platforms have left their mark on European economies and societies. Globally dominant platforms, like Google, Amazon, Facebook, Apple, and Microsoft (GAFAM), have come to be seen as a menace to fair competition, sovereignty, data protection and even democracy (van Dijck, Poell, & Waal, 2018). Platform capitalism is facing a deep spiritual crisis, which could well be the precursor to an economic one as well.

The *Strategic Guide to Responsible Platform Business* highlights alternative strategies that platform organisations can pursue if they seek to acknowledge and mitigate platform capitalism's problematic tendencies. It is based on the premise that the dominant platform business model that GAFAM have established may indeed lead to harmful outcomes for European societies, and yet, these outcomes are not inherent to all platform business models. The Guide acknowledges tensions and trade-offs in platform managers' decision-making, but it also showcases ways to balance corporate, user, and societal interests in a more sustainable fashion.

While it is informative for policymakers and civil society, the Guide is mainly meant to be a resource for decision-makers in European platform firms. It introduces five domains of responsibility that apply to any platform business: (1) responsibility towards active users, (2) wider societal and environmental impacts, (3) algorithmic management and display of information, (4) interoperability, data sharing, and standards, and (5) governance and accountability. For each domain, condensed more responsible alternative strategies are presented and illustrated with actual implementations by European platform firms. Thereby, the Guide seeks to encourage platform businesses to learn from their peers about how to act more sustainably. As such, it complements regulation that defines the contours but not the specifics of what responsible platform businesses ought to do. Ultimately, the Guide is both a call on platform businesses to be the best corporate citizens they can possibly be, and also a resource to support them in achieving this ambition.

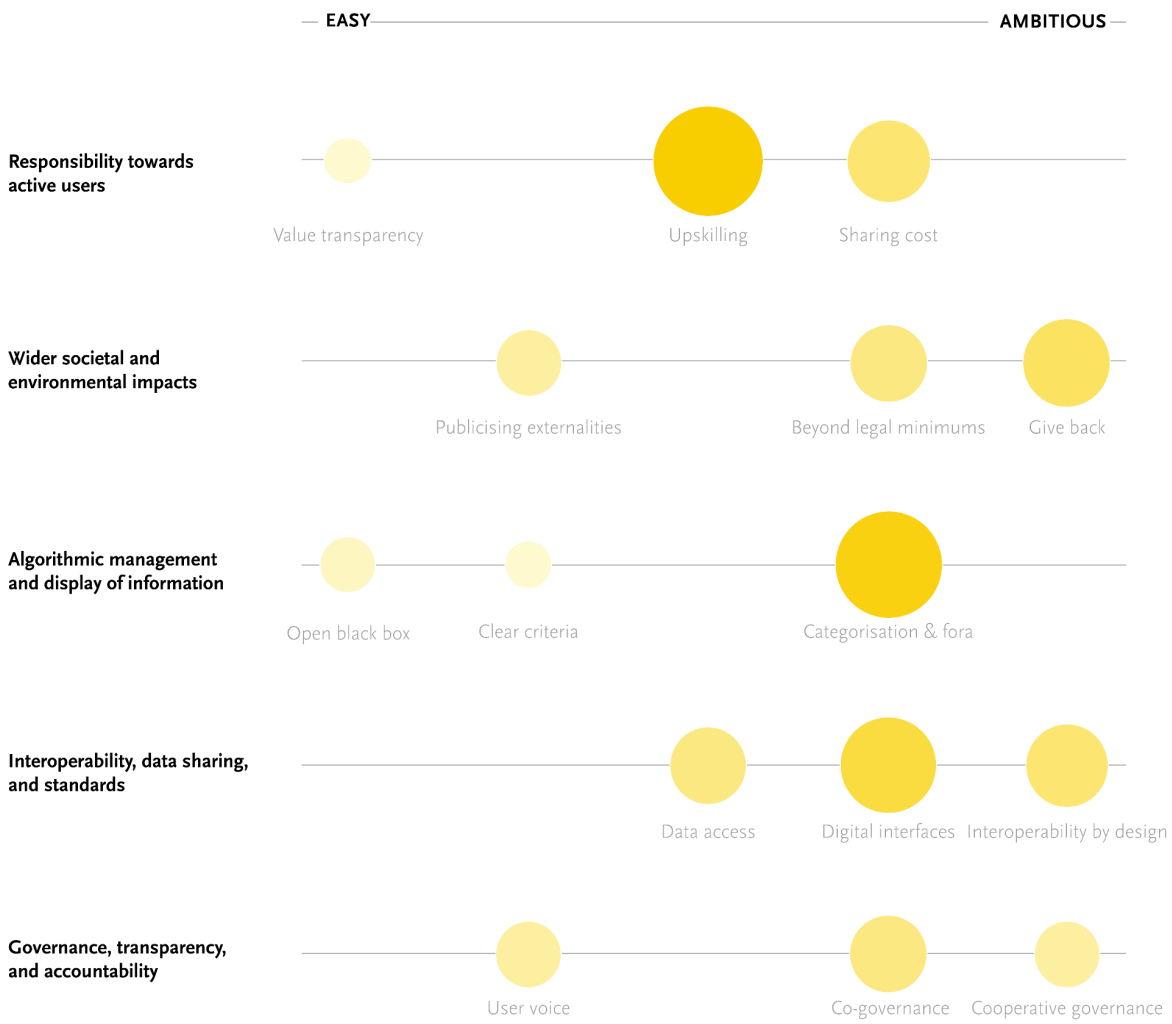
To illustrate the spectrum of possibilities, the Guide lists three alternative platform strategies for each domain, from less to more ambitious. The level of ambition is determined heuristically, based on our qualitative assessment of the level of effort and investment it takes for platform businesses to implement a given strategy. Platform businesses that seek to be more responsible should balance the level of ambition with (1) the business potential and (2) the potential societal impact of a given strategy.

1. Acting more responsibly can be financially profitable for platforms whenever customers, regulators or other stakeholders will reward the platform's improved behaviour. Most alternative strategies are the result of a mix of value-conscious decisions and the attempt to develop a differentiated market offering that appeals to customers, distinguishing the company from less responsible competitors, including GAFAM.
2. Assessments of societal impact should be as holistic as possible, considering the reach and depth of impacts, direct and indirect effects, both in the short and long term. Platforms generally have the most direct influence on their active users, but they can also have strong, though indirect, influences on stakeholders that have never actively interacted with the platform, as well as for the environment.

To steer platform firms towards strategies that maximise both business potential and impact potential, we used the qualitative research evidence available to us to attribute potential impact scores. The below scale (bubble size) represents the combination of business and social impact potential as a mathematical product: one value is multiplied with the other. If a given strategy is highly profitable but would have no positive societal impact (and vice versa), it will be marked with a small bubble size. If a strategy has both medium business and impact potential, it will be highlighted with a medium-size bubble. Only if both business and societal impact potential are large, the strategy will be marked with a large bubble.

Grades of societal impact and business potential: The individual strategies are evaluated regarding both their potential social impact and their business benefit.

The graphic below summarises the Strategic Guide's 15 alternative, more responsible platform strategies. For each domain, three strategies are arranged from left to right, from less to more ambitious. As explained above, bubble sizes indicate the product of business potential and potential societal impact.

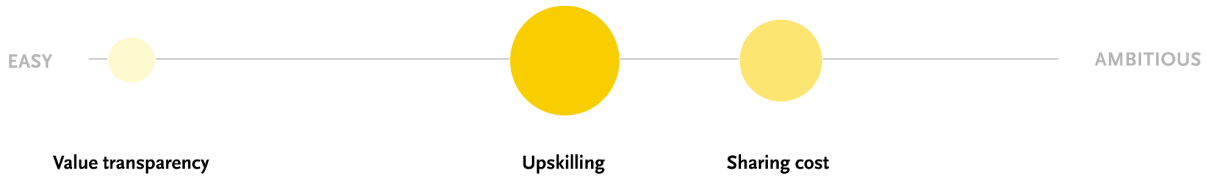


Responsible platform strategies across domains: For each domain, three strategies are arranged from left to right, from less to more ambitious. Bubble sizes indicate the authors' assessment of a given strategy's potential business impact multiplied with its potential societal impact.

This analysis can help platform businesses decide which responsible strategies they should prioritize. Ideally, platform firms should fundamentally overhaul their business models, pursuing an array of the responsible strategies outlined in this Guide. Realistically, most organisations will make stepwise improvements and prioritise some efforts over others. Our framework suggests that platforms should at the minimum consider the least ambitious, least difficult strategies we have identified (all strategies on the far left of the graphic), even if their impact may be low. Beyond that, platform business should consider the strategies for which we have identified favourable ratios of financial upside and societal impact (all strategies marked by

large bubbles). Below, we provide short descriptions of all 15 strategies, including links to the respective sections in the full Guide, which include examples and case studies.

Responsibility towards active users



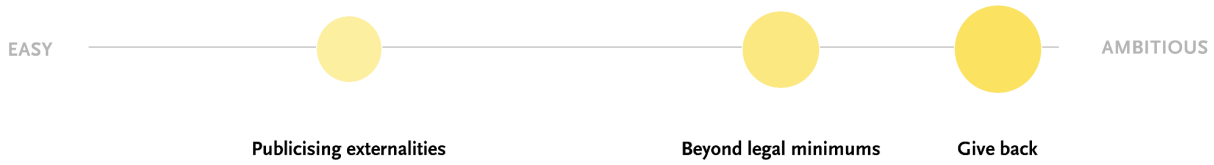
Responsible platform strategies in the domain Responsibility towards active users

Making value, cost, and risks transparent: The least radical improvement of the dominant platform model in favour of active users is to be transparent about the value contributions on all market sides, and to educate users about costs and risks. In most cases, this involves explicit communication to end users, highlighting to them that a given service generates costs and risk at the other end of the transaction.

Upskilling and value additions for suppliers, partners, and workers: A somewhat more ambitious strategy to distribute value more fairly is to enable active platform users to derive more value from the platform by offering them training, advice, and other support to improve their work. While platforms need to make a conscious strategic decision to deviate from the typical arms-length approach towards users, this strategy typically makes sense for both suppliers and the platform. For most platform business models, increasing value-contributing users' activity also increases the platform's value capture. In a nutshell, capacitating users to do better increases the size of the value pie, which means that users' slice of the pie gets bigger in absolute terms even if it remains the same in relative terms.

Protections, risk and cost sharing – in the interest of users: A more involved approach to sharing value is to set and enforce minimum protections for users who may not be fully informed about risks or may not have the means to mitigate against them. Some platforms also design their business model around a fairer distribution of value, seeing suppliers rather than end users as their central customers. In any such cases, platforms actively reach out to users, understand their needs and provide them with the means to capture more value or be better protected.

Wider societal and environmental impacts



Responsible platform strategies in the domain Wider societal and environmental impacts.

Calculate and publicise externalities: The most basic deviation from the dominant platform model is to create internal and public transparency about externalities and harms. Thereby, platforms communicate to users but also to staff that they acknowledge their wider societal role, and that they consider ways of mitigating their negative effects. Similarly, platforms make users aware of the consequences of their decisions, for instance, in favour of convenience, thereby allowing them to make more informed choices.

Doing better than legal minimums, and encouraging stakeholders to do the same: A more ambitious approach is to assess legal requirements and to deliberately go beyond them, either in the platform's own decision-making or by actively enabling users and other stakeholders. More responsible platforms look for ways they can use their role as market orchestrators to minimise their own and users' harmful impacts. Platforms have an array of more to less direct interventions at their disposal.

Channel value back to society: The most resolute strategy for a platform to improve its impact on society is to directly transfer value to the public. Such a transfer of value can consist of direct payments and activities for the benefit of external stakeholders, or of sharing a platform's unique private assets, especially data.

Algorithmic management and display of information

Responsible platform strategies in the domain Algorithmic management and display of information.

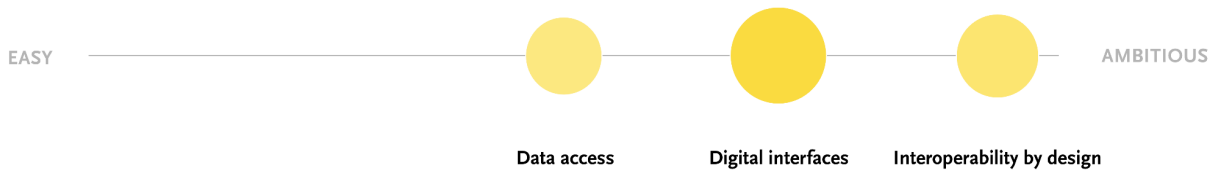
Opening the algorithm's black box, making criteria transparent. A first step to tackle users' challenges in dealing with algorithmic information management is to keep algorithms in place, but to simplify and explain them. In effect, the black box of algorithmic decision-making is opened. Users, with minimal investment of time and effort, can find out why certain information is shown to them. Responsible platforms offer such explanations in understandable language and make them easily findable from users' typical entry points. If algorithms are too complex to be explained, the algorithms themselves may have to be simplified.

Using simple and clear criteria. A basic yet powerful strategy is truly neutral and comprehensive display of information; this can consist either of simplifying algorithmic ranking around one clear and intuitive criterion, or of making all information equally accessible in a single searchable database. Platforms may choose to reduce the opacity of algorithms by limiting the criteria of content selection to a single factor. Recency is the most common attribute that is easily understood and objective for users, but other single measures to rank results also fulfill this purpose, such as number of user ratings, average user rating, or a simple score of upvotes and downvotes. Some objective factors lead to the same results for any users, while others show user-specific rankings that are organized by the same objective principle. For search, objective and intuitive categories and filters fulfill a similar purpose.

User-centered product categorisation and dedicated fora. A more challenging and less clearly defined strategy to reduce ambiguity in algorithmic information management is the introduction of minimum, guaranteed standards and scoping criteria, coupled with explicit classifying information, or the provision of fora that map suppliers' offerings directly. While this approach does not directly tackle the opacity of algorithmic decision-making, it provides users with a clear and intuitive frame of reference for the content they see. Users are assured that, while they may not have found their exact match, any match that was facilitated by the platform adheres to minimum criteria, or that they fully understand the reasons why some

products are shown and not others. Products are further classified to allow for targeted searches, using filters. This approach can be useful for platforms where optimal matching is ambiguous (e.g., a matter of taste) and where users welcome a degree of steering and exploration. The approach also makes more direct connections between end users and suppliers possible.

Interoperability, data sharing and standards



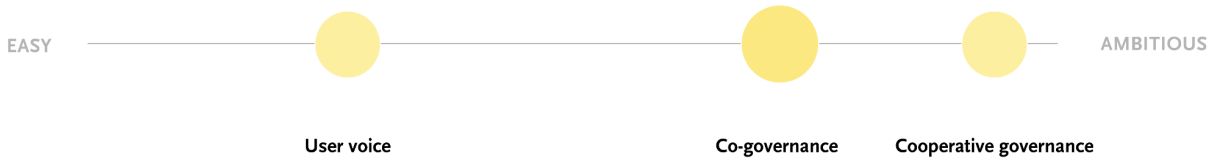
Responsible platform strategies in the domain: Interoperability, data sharing and standards.

Providing data access to researchers, public agencies, and assistive technologies. Even when a platform company wants to restrict data access for competitive and security reasons, it can still at minimum provide access to accredited researchers and public agencies. This way, at least some of the data is put to uses that benefit society, including academic research and statistics production. Platform companies should also ensure that their services support standard third-party assistive technologies, such as screen readers, which allow differently abled people to interact with the platform.

Interfaces for digital innovation (APIs, open source, and standards). A more ambitious set of strategies involves providing external parties with interfaces that enable them to make other existing solutions interoperate with the platform's technology through application programming interfaces (APIs), develop new digital products that integrate with the platform's APIs, or access elements of the code underlying the platform's technology for further software development and product innovation. In all these cases, the platform gives up a degree of control of its technological base; it cannot fully determine what others do with the access they are given. In many cases, other parties' developments can actually enhance the platform's own value proposition, especially where APIs are used to program and integrate add-on solutions that are appealing for the platform's own users.

Designing the platform as an interoperability layer. The most radical approach is to make interoperability and standards the whole purpose for the platform's creation. Instead of the platform being a star that other firms complement, the platform exists to complement the other firms' businesses. The platform is designed and operated with the shared needs of a group of companies or users in mind. To ensure that this focus on business needs is sustained over time, more responsible platforms may also be owned and governed differently from a venture-funded start-up that aims at maximising shareholder value.

Governance and accountability



Responsible platform strategies in the domain: Governance and accountability.

Providing users with transparency and voice. The simplest more responsible strategy is to provide users with meaningful transparency over planned changes to platform rules, policies and priorities, above and beyond what is already required by regulation. This allows users to adjust their activities accordingly, and also to give feedback on the plans which the platform company may find valuable. If users also have a public venue in which they can safely discuss and formulate collective views concerning the plans, the platform's governance takes a step from a mere "customer feedback" paradigm towards real user voice.

Co-governance and codetermination. A more advanced governance strategy is to create formal mechanisms through which the platform company's decision-making processes incorporate the voice of its users (consumers, workers, complementors, etc). Here platform companies can draw on codetermination practices, already used by numerous businesses in countries such as Germany, to incorporate workers' voices into top-level decision making. Under this strategy, users are guaranteed to have their views included in decision making processes, though they are not guaranteed to be followed. A formal consultation can help managers obtain buy-in for their decisions from the user community, but it can also turn opinion against management if users' views are routinely disregarded.

Cooperative governance. The most radical alternative to the dominant platform governance model is to adopt a cooperative governance model where the platform is ultimately governed

by its users. User collectives can cooperate to build and finance their own platforms or they can try to buy struggling platforms off venture capitalists' hands. Such platforms can then be governed democratically for the benefit of their user-owners or other stakeholders. However, cooperatives struggle to attract the kind of massive investment that venture-funded platforms enjoy, and as a result tend to remain small.

THE STRATEGIC GUIDE TO RESPONSIBLE PLATFORM BUSINESS

RATIONALE

From Ethical Principles to Responsible Practice

The Strategic Guide highlights responsible platform strategy alternatives while pointing to tensions in platform managers' decision-making. This is an important step beyond ethical codes of conduct that are merely aspirational.

Digital platforms have left their mark on European economies and societies. If current public and policy discourse is to be believed, the platform economy's impact has mostly been for the worse. In particular, globally dominant platforms, like Google, Amazon, Facebook, Apple and Microsoft (GAFAM), have come to be seen as a menace to fair competition, sovereignty, data protection, and even democracy (van Dijck, Poell, & Waal, 2018). Since a widespread tech backlash gathered steam in the late 2010s, public opinion has shifted against Big Tech and large platform firms. Meanwhile, regulators are preparing unparalleled interventions, with the Digital Services and Digital Markets Acts (DSA/DMA) chief among them. Platform capitalism is facing a deep spiritual crisis – which could well be the precursor to an economic one as well.

The Strategic Guide to Responsible Platform Business challenges the assumption that platforms are necessarily detrimental to European society. We believe that the dominant platform business model structurally and systematically leads to problematic outcomes. Yet we are also

convinced that these outcomes are not inherent to *all* platform business models. Instead, the dominant model's problems are a function of a select few platforms' strategies, histories and cultures. If we widen our gaze beyond GAFAM, countless other digital platform-based business models become visible. Many – if not most – of these alternative strategies acknowledge and manage platform capitalism's problematic tendencies. In fact, where managers make conscious decisions and markets and policymakers offer the right incentives, platforms can exploit their reach and connector function to make a positive impact.

It is neither possible nor helpful to identify obvious heroes and villains. The Guide instead highlights a spectrum of strategies that deviate from the dominant platform business model, ranging from more to even-more responsible.

This document offers a *Strategic Guide* in the sense that it highlights more responsible strategy alternatives. It also explicitly names the companies that have begun to implement such strategies. We believe that this is an important step that goes beyond ethical codes of conduct and lists of normative principles. While such publications are important to highlight normative goals, they often remain aspirational. Instead, this Guide seeks to highlight real tensions in platform managers' day-to-day decision-making. Ultimately, the problematic outcomes of platform capitalism arise from business rationales, meaning that a platform capitalism that seeks to be more responsible must be founded on entirely new rationales rather than just on old ones that are curtailed. We show that more responsible strategies can indeed be born out of sheer idealism, but they are more often the result of a mix of value-conscious decisions and an attempt to develop a distinct market offering that appeals to customers. In most of the cases we highlight, not only are the more responsible platform strategies the right thing to do, they also allow companies to compete and survive in the marketplace – even if they do not usually make those companies the "winner that takes it all". In total, we outline 15 more responsible platform strategies, illustrated with 33 examples and five in-depth case studies. We also call on readers to turn the Guide into a living document by highlighting new examples for us.

In line with our ambition to highlight practical tensions and tradeoffs, we do not endorse the companies presented in this Guide. In fact, while many of the mentioned firms do meritable things on some fronts, they could also, in our view, do a lot better on others. We believe that it is neither possible nor helpful to single out organisations as obvious heroes and villains. Instead, we draw on the notion of *corporate citizenship* to illustrate that, like individual citizens, platform firms have to at least observe the law, but they are also free to do better than this minimum standard. But such corporate behaviour is a choice that takes effort and has to be repeated over time. We also want to note that we are silent on whether the observed behaviour

reflects companies' good intentions; sometimes they may only act because of public pressure while at other times, idealistic motivations are the main drivers of change.

Ultimately, we implore platform businesses to be the best citizens they can possibly be, given the market conditions they are facing. Platforms are free to do what is good business for them, but they can also do some good in the process. At the minimum, they have to ensure that they do not negatively impact society. In other words, the alternative strategies we show are *more responsible* than the dominant model, but they do not represent the most ethical approach imaginable. To illustrate the spectrum of possibilities, the Guide lists alternative platform strategies from less to more ambitious, thereby pointing to various mixtures of business and ideology-led strategy outcomes. The Guide showcases the spectrum of good corporate citizenship, from more to even-more responsible, in comparison to the dominant platform business model.

As such, the Guide is an effort to push platform businesses to learn from their peers about how to be better corporate citizens, out of their own initiative. The Guide is a complement to laws and regulations, in that it outlines what is desirable and possible beyond the minimum legal requirements. This implies a mutually reinforcing relationship between regulation and the prescriptions in this document; as regulations set ever more concrete and rigorous boundaries, they define the contours for what is societally acceptable behaviour from platforms and also trigger businesses to be more conscious and proactive about controlling their wider impacts. The Guide then provides orientation for legal grey areas; it outlines what platforms can and should do, even where no clear legal restrictions apply.

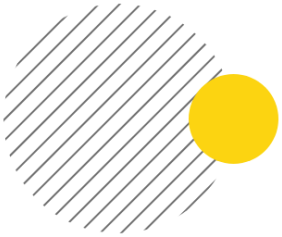
A unique aspect of this Strategic Guide is that it seeks to provide insight for European platform businesses across all sectors and of all sizes. To this end, it discusses five domains of responsibility that apply in some form to any platform business, namely: (1) responsibility towards active users, (2) wider societal and environmental impacts, (3) algorithmic management and display of information, (4) interoperability, standards and data sharing, and (5) governance, transparency, and accountability. These domains have been chosen to represent ethical concerns that are specific to digital platforms, even if they may at times also relate to AI and other digital firms. In view of the platform economy's diversity, it is unavoidable that some domains apply to some sectors more than to others.

The general content and the specific selection of examples is affected by our personal networks and viewpoint on Europe's platform economy. We draw heavily from desk research, expert interviews, as well as in-depth case studies of platform organisations, conducted as part of the Platform Alternatives project. We believe that this sampling bias is not a bug but a feature; it helps the Guide to be evidence-based while we do not claim to be representative of the

European platform economy as a whole. In any case, we strongly encourage readers to provide feedback and broaden and refine our case set by flagging more examples of companies and more responsible strategies to us.

To achieve our goal of providing strategic direction aligned with normative goals, for each domain, the Guide:

1. states a general principle that more responsible platform firms should subscribe to.
2. discusses how the dominant platform business model has led to problematic outcomes, illustrated by short sector-specific business rationales.
3. provides three condensed alternative strategies for any domain, each illustrated with one or more examples of an actual implementation by a European platform firm; the strategies are listed from least to most ambitious.
4. presents one in-depth case study to illustrate responsible platform business through more complex and insightful examples of company decision-making.



DOMAIN #1

Responsibility towards active users (end users, workers, and suppliers)

> Responsible platforms are aware of their role as gatekeepers. They accept responsibility for active users and any value-contributing stakeholders on both sides of the market. They make sure that stakeholders are fairly rewarded for their contribution, and that stakeholders are aware of risks and have the means to mitigate against them.

Dominant strategy: Skimming off value while offloading risk and cost to value contributors

Dominant platform companies tend to maximise flexibility while minimising liability. Platform companies, once they have achieved a certain size, are central gatekeepers in market-based value creation ecosystems (Amit & Han, 2017). Such ecosystems are composed of at least two market sides (Gawer, 2014). While bringing the two sides together generates economic value in itself (for example, by reducing transaction cost and making markets more efficient), it also enables dominant platforms to skim off more of the platform ecosystem's overall value than is fair. Meanwhile, dominant platforms may offload as much of the risk and cost as possible from the platform towards active users that depend on it.

While dominant platforms can offload cost and risk to either market side, they typically offer compelling value propositions to end users and pressure suppliers who rely on access to those end users. Platforms argue that they are not responsible or liable for platform stakeholders, framing them as independent economic actors. However, especially where platforms have become monopolies – where they effectively control the work and contributions of platform stakeholders or have otherwise achieved user lock-in (e.g. through technical standards), platforms can drive suppliers to take on most of the value creation independently while effectively controlling suppliers' market access (Teece, D. J., 2018). Often, suppliers are pushed to operate at thin margins and face most of the risk associated with the transaction, even though they have limited visibility and control over the selection and terms of their transactions.

- **In ecommerce, merchants bear the cost and risk of introducing new products to the market** (Zhu, F., & Liu, Q., 2018). If a product succeeds, a dominant platform may capture a bulk of the value by increasing fees or by introducing knock-off products. If the product fails, the loss is borne by the merchant alone. Merchants are also typically required to adhere to high standards of execution and offer consumer privileges, leaving them at the mercy of end users and the rules set by the platform.
- **Delivery and mobility platforms may insist on maintaining an independent contractor status for service providers and gig workers, even where their work is effectively under the control of the platform.** Platforms may also not provide protections for workers like drivers and couriers. These workers may have to bring their own bikes or vehicles, and they carry the subtle cost of value depreciation of their assets as well as the risk of accidents, abuse or sickness.
- **App stores may charge high commissions on app revenue, irrespective of app developers' costs.** They also reserve the right to ban apps based on unilateral policies, exposing app developers to existential business risk.
- **Payment platforms mandate merchants to cover transaction fees and use platform-determined exchange rates.** While fees and conditions may be hidden from end users, they can represent significant cuts to margins for merchants who may in turn be required by the platform to offer even those payment options that are more costly to them.

Such behaviour allows dominant platforms to grow rapidly by offering convenience and cost savings to consumers in the short term, but it undermines the long-term sustainability of the business for workers, service providers, merchants and other suppliers. Admittedly, sustainability can be hard to assess in concrete terms and in some cases, suppliers may be perfectly happy with the conditions they are being offered by platforms. Still, once platforms obtain a dominant position and active users become dependent and disempowered, overtly

unfair outcomes are common. Suppliers and other value-contributing users generally suffer from information asymmetry as a structural disadvantage; while the dominant platform, through data analysis, may be fully informed about risks and value, any individual stakeholder may not be.

More responsible alternatives

More responsible platform strategies change the distribution of value, cost, and risk, or they provide value-contributing users with more information, thereby allowing them to make truly independent and informed decisions. Even where such changes may seem subtle, they can amount to a significant revision of the core of the platform business model (that is, who makes how much money off of the overall created value).

MAKING VALUE, COST AND RISKS TRANSPARENT

The least radical improvement of the dominant platform model in favour of active users is to be transparent about the value contributions on all market sides, and to educate users about costs and risks. In most cases, this involves explicit communication to end users, highlighting to them that a given service generates costs and risk at the other end of the transaction.

- The Finnish food delivery provider **Wolt** charges end users a delivery fee that is paid in full to couriers. Wolt couriers receive the fee plus roughly half of the 25–30% commission charged to restaurants. This is different to other delivery platforms that offer (seemingly) free delivery while requiring restaurants to offer the same prices as when customers order at the location, meaning that couriers have to be paid fully from commissions charged to the restaurant. Wolt holds that with its model, couriers attain higher effective wages and in addition, consumers are made aware that there is no such thing as a "free" delivery.
- Engineers at the Spanish delivery platform **Glovo** publish transparently about their approach to the platform's algorithmic match-making. The company admits that it is in the nature of its business model that it balances the interests of end users and restaurants on the one hand (the more couriers, the faster the delivery) and couriers on the other hand (the fewer couriers, the more work for any given courier). Specifically, the publication outlines how the platform measures average customer delivery time and percentage of cancellations, trading this off with the earnings per hour worked by couriers, represented by the "utilisation rate of the fleet" and the number of orders delivered per hour.

- **EstateGuru**, an Estonian crowdfunding platform for property-focused loans that are each backed by a mortgage, seeks to create transparency for lenders (that is, suppliers of capital). While it may be in the platform's short-term interest to entice lenders to offer more and riskier loans, it chooses to provide users with detailed portfolio overviews on a monthly basis, as well as audited annual reports. Thereby, lenders are encouraged to balance their investment profile and make future decisions based on detailed information about past results.

UPSKILLING AND VALUE ADDITIONS FOR SUPPLIERS, PARTNERS, AND WORKERS

A somewhat more ambitious strategy to distribute value more fairly is to enable active platform users to derive more value from the platform by offering them training, advice, and other support to improve their work. While platforms need to make a conscious strategic decision to deviate from the typical arms-length approach towards users, this strategy often makes sense for both suppliers and the platform. For most platform business models, increasing value-contributing users' activity also increases the platform's value capture. In a nutshell, capacitating users to do better increases the size of the value pie, which means that users' slice of the pie gets bigger in absolute terms even if it remains the same in relative terms (Donner, J., Dean, M., Osborn, J., & Schiff, A., 2020).

- **Glovo** is training its couriers to obtain further qualifications. The company also supports their SME partners (like restaurants) to improve their business practices and expand.
- **Wolt** offers restaurants professional photography services to both achieve a streamlined visual menu for end users within its user interface and enable restaurants to communicate their offering to diners in an appealing way.
- **Zalando** gives its brand partners more insights into their data than what is mandated by the EU's platform-to-business (P2B) regulation.
- **Qida** offers training to caregivers. This has the dual purpose of ensuring standards and quality care for care seekers and of responding to caregivers' requests for skill enhancement that allows them to retain customers and build trust over time. Overall, this approach feeds into Qida's mission to change people's perceptions of the caregiving profession.

PROTECTIONS, RISK AND COST SHARING – IN THE INTEREST OF USERS

A more involved approach to sharing value is to set and enforce minimum protections for users who may not be fully informed about risks or may not have the means to mitigate against them. Some platforms also design their business model around a fairer distribution of value, seeing

suppliers rather than end users as their central customers. In any such cases, platforms actively reach out to users, understand their needs and provide them with the means to capture more value or be better protected.

- Delivery platforms that offer couriers accident insurance to cover medical expenses for personal injuries are a basic example of platform-enabled risk mitigation. For instance, British food delivery provider **Deliveroo** brokers insurance for all their couriers in Europe and the United Kingdom. **Wolt** provides a similar offer for its couriers in Finland, Norway, and Denmark. Some delivery platforms integrate contactless delivery as the default option for deliveries, such as in the Wolt app. Customers can then indicate in a comment box where couriers should leave the order.

- The Spanish provider **Qida** focuses on caregivers' need for job and income security. Whereas caregivers usually work across ad hoc contracts for various clients which only cover a few hours each and involve significant time commuting, Qida matches caregivers with clients in a way that allows them to work on average 6.5 hours per day. To achieve this, Qida either matches caregivers to families who employ them for sustained periods of time, or it even employs carers directly, observing labour protections in Spain.

- The French peer-to-peer lending platform **October** offers SME loans equally to institutional investors, family offices and retail investors, thereby prohibiting preferential access to the deals for investors with more capital at hand, and sharing the risk equally across investors of different sizes. To share risk fairly across platform users and decision-makers, October managers also invest their personal funds in the platform's loan portfolio.

- Equitable value distribution can also be ingrained in a platform's overall design. For instance, **Wolt**, instead of being solely end user-focused, attempts to find optimal and fair balances towards all of its three active user groups (see case study below.)

- The Italian platform coop **FairBnB** operates in the short-term/mid-term rental sector. Hosts can offer short-term rental spaces online without paying a fee; they only pay a commission to FairBnB when their space is actually rented out. Users renting out their apartment for longer periods pay an annual subscription fee to FairBnB for advertising their space, but they do not contribute further through commissions, due to their different contract situation.

Case study #1: Wolt

Food delivery platforms typically follow a clear-cut, low-margin, high-volume business model; restaurants are charged a commission for access to end users out of which couriers and the platform are compensated. Technically, this business model is easy to replicate, but running it profitably is hard.

The Finnish food delivery platform Wolt seeks to differentiate itself from other delivery platforms by optimising delivery processes and its technology. It also tries to stand out by placing equal emphasis on each of its three active user groups: end users, couriers, and restaurants.

For couriers, optimising routes in a way that incoming delivery requests are frequent, predictable and stable is essential. Order management algorithms are hard to get right for a variety of technical reasons, ranging from unstable GPS connections to complicated software processes and engineering challenges. Wolt argues that it operates them more efficiently than other platforms, in effect giving couriers more orders per hour. As a Nordic company, it also identifies with the notion that labour should be embedded into social security and welfare schemes. The platform believes that encouraging couriers to enrol in national or bespoke schemes is the right thing to do, but also good business, because it allows Wolt to appear as a fair employer to couriers who can easily switch between platforms.

For end users, the platform takes pride in offering a seamless user interface, but it also deliberately invests in offering real human engagement, with customer service agents readily available to customers via phone or in-app chat. It always charges end users a delivery fee and informs them that 30 minutes is the minimum time that a delivery will require. Thereby, Wolt attempts to signal that it is a premium platform that pays couriers fairly.

For restaurants, Wolt seeks to improve its technical offering. In some cities, each restaurant receives an iPad for dealing with incoming orders. Wolt employs restaurant development managers to support restaurants in the setup phase, helping them digitise their menus and visualise them with photos.

Ultimately, Wolt, like any other delivery platform, faces market conditions that can incentivise it to squeeze couriers' and restaurants' contributions for the benefit of end users and the platform. Being a Wolt courier or restaurant partner can be tough work, and it comes with demands that

are in many ways similar to other delivery platforms. Yet, Wolt is also a case of a platform that seeks to make small adjustments to enhance collective value creation and distribute value capture more fairly, even if this comes at the cost of short-term scaling or profit. It is therefore an example of a company that modifies and augments a standard business model, thereby marginally improving outcomes for all market sides, even if its approach does not undo all the problematic outcomes of delivery platforms.

DOMAIN #2

Wider societal and environmental impacts

> Responsible platforms account for and minimise their total and real cost to society and the environment. They do not make use of loopholes in taxation and legal regimes, they calculate and reduce the excess waste and pollution they cause, and they consider those who are indirectly affected by their own and their stakeholders' actions.

Dominant strategy: Bypassing or influencing legal regimes while externalising cost and ignoring the burden to public goods

Dominant platforms have become wide-reaching socio-technical infrastructures that broadly affect societies far beyond the impact on their immediate users and stakeholders (Bohn, S., Friederici, N., & Gümüsay, A. A., 2020). As market orchestrators, platforms differ from traditional firms that function as atomised and autonomous actors subject to rules and regulations that exist outside of them. Instead, platforms (even though they are private commercial entities) themselves set rules for markets, governing foundational spheres like information flows, trade, mobility etc (Gorwa, R., 2019). Platforms also form a digital layer that lies on top of public and private infrastructures, including the internet, telecommunications infrastructure, open source code, credit cards and bank accounts, and transport and logistics (Straube, T. 2016). Thereby, platforms are major beneficiaries of public goods while they privatise gains and internalise control.

Dominant platforms often try to operate outside of established institutions, exploiting the fast

pace of technological change, the slow pace of legal reforms and the complexity and the transnational nature of the way they function. Many platforms have taken advantage of their unique positioning as transnational actors in (initially) underregulated markets. They focus on scaling fast and providing compelling value propositions to end users, even where this leads to excessive energy use, over-consumption, waste and structural harms for society. When confronted with legal challenges, dominant platforms often simply pay the imposed fines without addressing the basis of the legal challenges.

- Transnational platforms eschew traditional **tax regimes**, anchored in the location of value creation. Users around the world create the bulk of platform ecosystems' overall value; they pay taxes on their productive activity as they would if they did not exchange through platforms, while the value they add to platform-mediated transactions only registers with the platform itself. In turn, platforms exploit the unclearly bounded nature of transactional value and intangible digital assets (like code, data, and intellectual property rights) by formally shifting them to low-tax locations, or by not accounting for them at all. For example, users on social networks create value by posting content, but this value is only partially and indirectly accounted for where users reside (e.g. through advertising revenue that accrues within a country). This is especially the case within the EU; where non-EU platforms are able to operate across various markets while incorporating only in countries like Ireland or Luxembourg, total tax payments remain small in relation to platforms' revenue and largely accrue in individual countries rather than where the platforms' value is created (a system that has infamously been captured through the notion of the "Double Irish with a Dutch Sandwich"). Platforms' digital and transnational nature allows them to face a much lower tax burden, thereby circumventing states' major means of economic redistribution.

- Transnational platforms frequently try to circumvent corporate **licensing, social protection and liability provisions**. While legal statutes are often more clearly attributable to the purview of a given local authority than taxes, transnational platforms often seek to exploit grey areas that arise in digital economies. Examples range from worker status (Are gig workers like drivers, cleaners and couriers employees or independent contractors? Can they have an employment relationship with a foreign entity, and if so, which social security regime applies?), to hospitality (Is room sharing subject to hotel taxes?), to consumer protection (Are individual vendors on ecommerce platforms subject to the same warranty requirements as large retailers?), to content moderation (Are platforms or users responsible for taking down hate speech?). Reforms in response to newly arising grey areas are typically slow and internationally fragmented.

- Dominant platforms often prioritise end user convenience above all else, while **ignoring negative ecological externalities**. Ecommerce providers tend to offer comprehensive

return policies, incentivising users to order more articles than they actually want and send back articles with minor or no flaws. Through recommender systems and algorithmic management, they increase consumption and online activity. Ecommerce platforms often discard returned articles, as this is cheaper than processing, repackaging and reshipping them. Search engines and video conferencing platforms exploit maximally available bandwidth and data center and server capacities, regardless of energy consumption. Delivery platforms increase plastic waste by urging restaurants to use spillage-resistant packaging and include non-reusable cutlery. Delivery platforms and mobility platforms also increase traffic and congestion by offering individualised transport at subsidised rates.

More responsible alternatives

More responsible platform strategies come to terms with their role within society and their effects on the environment, recognising and limiting the ways in which they create negative externalities for stakeholders beyond immediate active users. They understand that, as platforms, their decisions and the rules they set can indirectly affect far-reaching networks of people and organisations, to the point where they can have systemic effects on markets, cities, democracy and other public domains.

CALCULATE AND PUBLICISE EXTERNALITIES

The most basic deviation from the dominant platform model is to create internal and public transparency about externalities and harms. Thereby, platforms communicate to users but also to staff that they acknowledge their wider societal role, and that they consider ways of mitigating their negative effects. Similarly, platforms make users aware of the consequences of their decisions, for instance, in favour of convenience, thereby allowing them to make more informed choices.

- The Estonian mobility provider **Bolt** publicly recognises its role as a potential contributor to ecological harms, and committed its e-scooter program to remove more carbon from the atmosphere than it produces by the end of 2020. In the Bolt E-Scooter Sustainability Pledge, the company acknowledges four pillars within which its ecosystem may have the biggest impact, such as a sustainable development chain, switching to renewable energy sources, sharing its data and engaging in dialogue with cities they operate in, and supporting CO2-offsetting products.
- The ecommerce platform **Otto** engages with its users on the ecological sustainability of

packaging, highlighting to them that recyclable plastic can be more environmentally friendly than paper. It also prompts users to avoid ordering duplicate articles which are sure to be returned.

DOING BETTER THAN LEGAL MINIMUMS, AND ENCOURAGING STAKEHOLDERS TO DO THE SAME

A more ambitious approach is to assess legal requirements and to deliberately go beyond them, either in the platform's own decision-making or by actively enabling users and other stakeholders. More responsible platforms look for ways they can use their role as market orchestrators to minimise their own and users' harmful impacts. Platforms have an array of more to less direct interventions at their disposal.

- As one of Poland's major tech companies, the ecommerce platform **Allegro** takes its domestic tax obligations rather seriously. The company obligates itself in a self-published EU Tech Credo to forgo any possible tax loopholes, instead paying its total tax liability to the Polish state. For 2020, Allegro was recognised by the Polish Minister of Finance as one of the Top 10 corporate income tax payers, paying PLN 232.7 million in corporate income tax in that year.

- **Glovo** actively decides to open subsidiaries in each country it operates in, avoiding exploring statutory loopholes that could be available to a digital service provider that operates in different countries, cities, and legislations. Through this choice, Glovo binds itself to nationally specific labour laws and digital service use regulations.

- Glovo also has a dedicated corporate volunteering program for its employees, called Glovo Cares, in which employees have the opportunity to deliver products as couriers for a good cause. The scheme has the immediate impact of free deliveries for charitable organisations, but it also gives well-paid, white-collar employees increased awareness of the livelihoods of couriers, thereby nudging corporate culture towards greater awareness of the platforms' issues and societal role.

- **Zalando** instituted the fulfilment principle of "one box", meaning that a single customer's order should be served with a single delivered package. The credo applies equally to Zalando's partners and to its own fulfilment process. Zalando implemented the change as its data showed an unsustainable pattern of customers ordering a range of small items with free shipping cost.

CHANNEL VALUE BACK TO SOCIETY

The most resolute strategy for a platform to improve its impact on society is to directly transfer value to the public. Such a transfer of value can consist of direct payments and activities for the benefit of external stakeholders, or of sharing a platform's unique private assets, especially data.

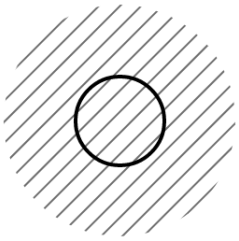
- **FairBnB**, a platform cooperative, relies on a business model that explicitly avoids capturing maximum value for the platform itself. Instead, the platform receives only half of the commission paid by guests renting apartments, while the other half is channelled directly to local projects in the neighbourhoods and cities where the apartment was rented. Thereby, the platform seeks to directly channel value back to the urban environment that added to the renter's experience – and which was possibly the main driver of their decision to choose the apartment (see case study below).
- Through Glovo Access, the Spanish delivery provider **Glovo** uses its commercial technology for social and ecological purposes. At its core, the service offers free deliveries or bespoke logistics support for registered non-governmental organisations (NGOs). To optimize the service, Glovo also asks its software engineers to dedicate some of their time to developing sustainability focused changes to its app.

Case study #2: FairBnB

"One host, one home" was the starting point for the platform cooperative FairBnB, an Italian-Spanish-born fair tourism and travel alternative to AirBnB. Witnessing the destructive forces of gentrification in densely populated touristic cities in Italy and Spain, the founders felt that a responsible short-rental housing alternative was needed.

FairBnB instituted a clear set of rules for how the platform should work. In touristic areas, rental owners (hosts) can offer only one rental place (home) on the platform; in remote areas it is encouraged to offer more homes to attract tourists to the outskirts. 50% of the platform's fees are directly channelled back to the communities on-site. The platform in fact encourages visitors to directly fund local projects of their choice. The remainder of the fee is used by the coop to maintain its operations and network, such as their national and regional ambassadors who serve as onboarding hosts, engage with local authorities, and keep in touch with local communities. Communities in return define the social projects in their area that are a priority

for their sustainable development. The scheme is designed to directly channel the resources generated by tourism into the neighbourhood.



DOMAIN #3

Algorithmic management and display of information

> Responsible platforms have clear and transparent rules for what appears and is accessible on their platform. They are mindful of their responsibility as intermediaries that select and contextualise information, thereby capturing users' attention for one thing and not for another. For concerns about their algorithms' decisions, responsible platforms establish processes of recourse and arbitration, involving neutral third parties. They are aware that content selection is never neutral, and that arbitration cannot be fully automated. They qualitatively and explicitly justify their algorithms' decisions.

Dominant strategy: Letting black-box algorithms select content that maximises platform engagement

Platforms seek to automate the decision over which content gets shown to which users, employing ranking and search algorithms that learn which information maximises platform usage. Such automated algorithmic decision-making enables a kind of mass customisation; individual users are shown different content based on their individual profiles, without the need for costly human labour to guide this process. Platforms meticulously exploit the affordances of user interfaces, guiding users' attention in sophisticated ways while obscuring both the reasons for content selection and the alternative forms of content that could have been available to users (Rietveld, J., Schilling, M. A., & Bellavitis, C., 2019). Content selection is geared towards maximising the platform's private value, itself related to some quantitative notion of user

engagement (e.g. "time spent" or "click-through rate" for advertising-based business models in social media and search, "purchase value of products" for ecommerce platforms, "purchase value of meals ordered" for a delivery platform, etc.). Meanwhile, platforms argue that algorithms are objective and neutral decision-makers, making them inherently consistent, fair and unbiased.

Engagement-maximising, automated content selection often runs counter to platform stakeholders' private and public value. Content selection algorithms are attuned to the dynamics of the attention economy (Vaidhyanathan, S., 2018), for example, exploiting users' habit of avoiding in-depth searches and instead choosing the most readily available content (i.e. displayed highest up). By maximising for user engagement and convenience, dominant platforms may steer user decisions away from a result that would maximise the collective value of transacting parties and of the wider public. For example, users benefit from finding specific content that appeals to them and is of high quality, while platforms may prioritise content that triggers emotions that keep the user engaged.

- **Social media platforms are the most apparent example: they prioritise content that keeps users on the platform, irrespective of its informational value and dangers to the user.** Social media selection algorithms often preferentially display clickbait or radical political material (Vaidhyanathan, S., 2018). These platforms argue that they are neutral information brokers and that content providers are ultimately responsible for the quality and messages while users are responsible for their choices of what they engage with. However, individual users may not be aware of alternative content options, and systematic misinformation can endanger the wider public discourse and democratic processes.

- **Ecommerce platforms may present their own products more prominently (so-called self-preferencing), and omit meaningful background information on products.** Ecommerce platforms' ranking algorithms are optimized for users' past purchasing behaviour and user reviews. Platforms often do not actively tackle fake user reviews, putting vendors with high quality products but without aggressive marketing strategies at a disadvantage. Objective quality criteria or ethical labels (e.g. supply chain transparency or a product's ecological footprint) are not typically included, and generally ecommerce platforms entice over-consumption.

- **Delivery platforms may have partnership deals with restaurants to display those partners' offering more prominently within user interfaces, without this being communicated to end users.** Partnership deals with restaurants can be quite varied and specific, while the app may suggest to consumers that it functions as a neutral search engine that privileges the most relevant results.

- **App stores show lists of popular apps and recommend downloads of related apps, without making the underlying criteria transparent to end users.** Users can only find niche apps through targeted keyword searches, while dominant or promoted apps get downloaded even if superior alternatives exist.
- **Dating apps rely on matching algorithms and user interfaces that keep users active on the platform (e.g. through gamification) while not necessarily matching them based on criteria of partner fit.** Platforms have an incentive to make their service less successful (from the user perspective) than it technically could be.

More responsible alternatives

More responsible platform strategies acknowledge that algorithmic decision making and the selection of information have a variety of impacts on stakeholders that may be at odds with the platform's business interest, and that some stakeholders may be put at an advantage and others at disadvantage. To mitigate negative and unfair effects, responsible platform businesses think through their algorithms' impacts and inform and involve stakeholders about these impacts.

OPENING THE ALGORITHM'S BLACK BOX, MAKING CRITERIA TRANSPARENT

A first step to tackling users' challenges in dealing with algorithmic information management is to keep algorithms in place, but to simplify and explain them. In effect, the black box of algorithmic decision-making is opened. Users, with minimal investment of time and effort, can find out why certain information is shown to them. Responsible platforms offer such explanations in understandable language and make them easily findable from users' typical entry points. If algorithms are too complex to be explained, the algorithms themselves may have to be simplified.

- The Spanish news aggregator and social network **Menéame** (see case study below) allows registered users to share news stories. Other users can up- or downvote these stories, leading to +1 or -1 scores. The stories with the highest scores are promoted to the main page by applying an algorithm that unifies several parameters into a single numerical value, internally called 'karma'. Explicitly, contributions are not algorithmically prefiltered by potential interest, and Menéame makes its rules available and accessible on its website.

USING SIMPLE AND CLEAR CRITERIA

A basic yet powerful strategy is to drastically simplify the organisation and display of information, making it intuitive and controllable for users. This can consist either of simplifying algorithmic ranking around one clear and intuitive criterion, or of making all information equally accessible in a single searchable database. Platforms may choose to reduce the opacity of algorithms by limiting the criteria of content selection to a single factor. Recency is the most common attribute that is easily understood and objective for users, but other single measures to rank results also fulfill this purpose, such as number of user ratings, average user rating, or a simple score of upvotes and downvotes. Some objective factors lead to the same results for any user, while others show user-specific rankings that are organised by the same objective principle. For searches, objective and intuitive categories and filters fulfill a similar purpose.

- **October**, a platform that allows individuals to loan to small and medium-sized businesses, makes its entire portfolio of loans transparent in real time on its website. The database of loans is comprehensive and includes all defaults, even though these could potentially scare off lenders and thus limit platform engagement. The platform determined that its overall low default rates could be used as a selling point, conveying to risk-averse users that no bad decisions are swept under the table. Through this approach, October turns individual lenders' scepticism and curiosity into trust; users browse through the database and feel enabled to make informed-decisions. The platform deliberately lowers any access barriers; the database is searchable even for non-registered users without a log-in, and a download function is available.

USER-CENTERED PRODUCT CATEGORISATION AND DEDICATED FORA

A more challenging and less clearly defined strategy to reduce ambiguity in algorithmic information management is the introduction of minimum, guaranteed standards and scoping criteria, coupled with explicit classifying information, or the provision of fora that map suppliers' offerings directly. While this approach does not directly tackle the opacity of algorithmic decision-making, it provides users with a clear and intuitive frame of reference for the content they see. Users are assured that, while they may not have found their exact match, any match that was facilitated by the platform adheres to minimum criteria, or that they fully understand the reasons why some products are shown and not others. Products are further classified to allow for targeted searches, using filters. This approach can be useful for platforms where optimal matching is ambiguous (e.g. a matter of taste) and where users welcome a degree of steering and exploration. The approach also makes more direct connections between end users and suppliers possible.

- **Zalando** carefully manages its portfolio of fashion items, betting that its brand- and quality-oriented value proposition allows for differentiation from large all-purpose ecommerce providers. While explicit curation of its product portfolio (so-called category management) is costly, Zalando found that users value the platform's ability to maintain high quality standards and provide a virtual shopping environment that invites browsing and discovery. The platform recorded increased interest in small boutique brands while realising that the exclusive character of such brands would get lost if they were displayed within general lists of search results or recommendations. Zalando ultimately explicitly onboarded such brands and gave them the opportunity to directly feature their product assortment in a virtual store on the platform. This campaign became part of Zalando's response to the Covid-19 outbreak (small physical stores were offered quick access to online stores) and triggered further special sales events and preferential campaigns for boutique brands.
- The industrial internet of things platform **Adamos** allows suppliers to maintain online stores under their own brand (see below for full case study).

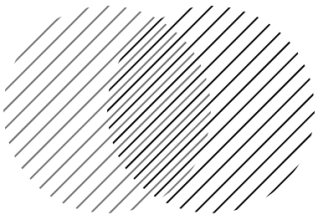
Case #3: Menéame

The Spanish platform Menéame is a blend of a user-driven news aggregator and a social network that was created as the Spanish answer to Digg. Menéame's vision is to democratise news and media, and to tackle the tendency for a select few media companies to have control over which content reaches the mainstream. From the beginning they have made their source code free and publically available.

On Menéame, registered users can share news stories that other users (registered or not) can up- or downvote based on how interesting or important they deem them to be. The site's deliberately simple algorithm explicitly does not filter contributions by potential interest. Instead, stories with the most votes are promoted to the main page through the 'karma' algorithm, which aggregates a range of public parameters into a single numerical value.

Over time, the platform realised that algorithms are never neutral; it is often difficult to guarantee that individual user groups do not dominate and strategically influence the content selection process by pushing their particular interests to the top. Menéame introduced several policies and actions to safeguard a fair, non-discriminatory and inclusive environment for all

participants. A central element of this effort was the development of transparent and clearly communicated community guidelines on terms of use, healthy conversations, and penalties. Another measure involved allowing users to report inappropriate behaviour, which would then be cross-validated by administrators. A conflict resolution committee of multiple admins is in charge of solving doubtful cases when users are potentially incorrectly penalised. The case shows that fair and appropriate content selection can hardly be automated, instead requiring deliberate and ongoing adjustments and engagement with users.



DOMAIN #4

Interoperability, data sharing and standards

Responsible platforms balance their legitimate need to maintain and evolve boundaries with the longer-term value of interoperability, competition and third-party innovation.

Dominant strategy: Create a walled garden that locks users in, fragments the Internet and prevents third-party innovation

Dominant platform companies tend to erect "walls" around their ecosystems with legal and technical restrictions that shut out third-party innovators and make it difficult for users to take their data to competing services (Kretschmer, T., Leiponen, A., Schilling, M., & Vasudeva, G., n.d.). Often they do this after first being more open and compatible so as to attract users and complementary innovations while the platform grows. Once they have achieved dominance, they deviate from shared standards and insist that users use their own proprietary complements or those of their favoured partners (Teece, D. J., 2018).

The walled garden strategy has merits for the platform's users, while it limits the long-term, inclusive and structural benefits of open and interconnected digital innovation. A walled garden gives platforms more control over the user experience, allows them to deliver a more integrated service, helps them to protect users against privacy risks and fraud, and allows them to capture a larger share of the value being generated. But the strategy also undermines some of digital technologies' longer-term potential for society. It creates a fragmented digital world in which users must choose between incompatible alternatives. It leaves third-party innovators, who

helped the platforms to grow, out in the cold (Rietveld et al., 2020; Rietveld et al., 2019), reducing incentives for future innovation. And it locks away a lot of potentially valuable data into corporations' proprietary systems.

- Many social media platforms were originally more open about letting users access the platform via third-party apps that could download data and utilise platform features. Once a few platforms became dominant – and suffered major security breaches – they restricted access. This improved security, but has also **reduced accessibility and the scope for third-party innovation and academic research**, for instance, on social media's effects on society.
- Mobile app platforms require app developers to use the platforms' integrated payment systems. This allows the platform owners to deliver a smooth experience to consumers and capture a large share of the developers' gross income in fees. But **app stores also tilt the playing field in favour of the platform's own or designated apps**, making some apps unviable and limiting business model innovation.
- Ecommerce platforms and gig economy platforms accumulate customer feedback data on merchants and gig workers while **revealing only a fraction of feedback data to merchants and workers.** These stakeholders are thereby dependent on the platform in how they attract more business, and they also find it difficult to switch to a competing platform where they would have to start from zero.

More responsible alternatives

Platform companies have legitimate business and security reasons to maintain their technological and data boundaries, and to update their boundaries as required. More responsible platform business strategies balance these needs with the longer-term value of interoperability, competition and third-party innovation for the platforms themselves, for active users, for other innovators, and for society in general.

PROVIDING DATA ACCESS TO RESEARCHERS, PUBLIC AGENCIES, AND ASSISTIVE TECHNOLOGIES

Even when a platform company wants to restrict data access for competitive and security reasons, it can still at minimum provide access to accredited researchers and public agencies. This way, at least some of the data is put to uses that benefit society, including academic

research and statistics production. Platform companies should also ensure that their services support standard third-party assistive technologies, such as screen readers, which allow differently abled people to interact with the platform.

- The German ride-hailing and car-sharing provider **FreeNow** shared its data on movement patterns with municipalities, transport organisations and other private and public companies across Europe.

INTERFACES FOR DIGITAL INNOVATION (APIS, OPEN SOURCE, AND STANDARDS)

A more ambitious set of strategies involves providing external parties with interfaces that enable them to make other existing solutions interoperate with the platform's technology through application programming interfaces (APIs), develop new digital products that integrate with the platform's APIs, or access elements of the code underlying the platform's technology for further software development and product innovation. In all these cases, the platform gives up a degree of control of its technological base; it cannot fully determine what others do with the access they are given. In many cases, other parties' developments can actually enhance the platform's own value proposition, especially where APIs are used to program and integrate add-on solutions that are appealing for the platform's own users.

- The music streaming service **Spotify** offers an API to developers and sound engineers, which lets them access metadata about music tracks calculated by Spotify's algorithm, such as a song's energy or the ratio of lyrics and instruments. This in turn enables users to compile tracklists that are potentially better balanced and harmonious. As tracklists are made available for other users, the platform.

DESIGNING THE PLATFORM AS AN INTEROPERABILITY LAYER

The most radical approach is to make interoperability and standards the whole purpose for the platform's creation. Instead of the platform being a star that other firms complement, the platform exists to complement the other firms' businesses. The platform is designed and operated with the shared needs of a group of companies or users in mind. To ensure that this focus on business needs is sustained over time, more responsible platforms may also be owned and governed differently from a venture-funded start-up that aims at maximising shareholder value.

- The cooperative **MIDATA**, founded in Switzerland, offers an open source data platform, designed to enable users to contribute their personal and health data while gaining control and ownership over the platform as such. MIDATA users can thereby contribute

actively to medical research and clinical studies, giving the platform selective access to data. As an open source solution, the platform also allows and encourages new cooperatives to use and build on its technology.

- **Adamos** is a German industrial Internet of Things (IIoT) platform founded by a consortium of industrial machinery makers. The platform functions as a standard interoperability layer that mediates flows of data, services and payments between the machine makers and their customers (see case 4).

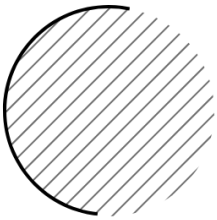
Case #4: Adamos

Adamos[1] is an alliance of German industrial machinery manufacturers seeking to establish an industrial internet of things (IIoT) platform, founded in 2017. Adamos was founded as a private corporation with a consortium as its shareholders. The consortium consists of a handful of machine makers and Software AG, a German IT and software provider. The founding organisations are established specialised machine makers, most of them German market leaders. Crucially, the founding organisations have similar production processes but do not compete with each other, covering different types of machines. The consortium organisations themselves would represent the suppliers (or complementors) of the platform, while manufacturers (that is, buyers of machines) were meant to use the platform to monitor and steer their machines through platform-based applications, and to upload and manage data.

While initially the Software AG was directly and solely tasked with platform development, Adamos quickly realised that users would not enroll onto the platform until data standards and use cases had been established. Manufacturers had diverse levels of digital readiness. They also had idiosyncratic requirements towards data management through the platform. At the same time, machine makers themselves struggled to integrate their offering, given varying product specifications in their respective segments.

[1] For the full case study in German language, see Friederici, N., Krell, T., Meier, P., Braesemann, F., & Stephany, F. (2020). Plattforminnovation im Mittelstand. Alexander von Humboldt Institute for Internet and Society. https://doi.org/10.5281/ZENODO.4291999

In the end, the Adamos platform itself implemented a broad and reconfigurable IIoT data standard, requiring machine makers to develop bespoke applications on top of the basic infrastructure. Machine makers even maintained their own branded application stores, with Adamos merely providing a whitelabel framework. This case demonstrates the complexities of data integration through platforms in specialised business to business segments like machine making and manufacturing. Ultimately, Adamos provided a basic digital infrastructure, while complementors continued to operate their individual offerings for their customers through the platform.



DOMAIN #5

Governance and accountability

> Responsible platform governance strategies recognize that when users, workers and complementors rely on a platform in their daily lives and even for their livelihoods, the platform's governance and accountability mechanisms should be commensurate with that reliance – even if this means that managers lose some of their strategic flexibility.

Dominant strategy: Govern the platform autocratically

Dominant platforms often govern the organisation as a corporate fiefdom, only considering user and stakeholder needs through the paradigm of marketing and customer feedback, and without actively involving them in decision-making. Platform companies set and enforce the rules that govern participants' interactions in their ecosystems. The rules are only partially transparent in that some of them are expressed as written Terms and Conditions whereas others are opaque internal policies whose effects are experienced by users but whose precise contents cannot be known. Platform companies unilaterally change the rules as it suits them without necessarily offering any consultation of implementation periods for users. Users, workers, and complementors are conceived of as "customers" who at best can send individual "feedback" to the company, but who have no formal voice in how the platform is governed, or recourse if they suffer losses from it.

This type of governance gives platforms the flexibility to pursue the strategies most beneficial to them, while it leaves users disempowered and at their mercy. The dominant approach of

centralised control allows platforms to keep their strategies secret from competitors and move fast. But it leaves users, who are to varying extents dependent on the platforms, in a vulnerable position. Ordinarily we would expect customers to vote with their feet if they are not happy with the services they are receiving. But dominant platform companies often monopolise their markets, leaving users with few alternatives. Switching from one platform to another can also involve significant costs, such as having to write off the value of the data the user has accumulated on a platform.

More responsible alternatives

More responsible platform governance strategies recognise that users are asked to rely on the platform in their daily lives or even for their livelihoods, and that the platform's governance should be commensurate with that responsibility – even if this means losing some strategic flexibility. More responsible governance strategies start with giving users greater transparency into the platform's rules and how they are set, and the ability to express their views. The most progressive platform governance strategies give users real power in how the platform is governed.

PROVIDING USERS WITH TRANSPARENCY AND VOICE

The simplest more responsible strategy is to provide users with meaningful transparency over planned changes to platform rules, policies and priorities, above and beyond what is already required by regulation. This allows users to adjust their activities accordingly, and also to give feedback on the plans which the platform company may find valuable. If users also have a public venue in which they can safely discuss and formulate collective views concerning the plans, the platform's governance takes a step from a mere "customer feedback" paradigm towards real user voice.

- Siemens **MindSphere** is an industrial internet of things (IIoT) platform, enabling service providers to develop applications that are complementary to Siemens products, while letting service providers, Siemens engineers, and Siemens customers interact. Over time, strong demand for exchange among service providers and customers, but without Siemens direct involvement, became apparent, mostly because customer needs were too complex and diverse to be met by the platform's own architecture and customer service. As a result, **Mindsphere World** was formed as an independent association of IIoT users. The forum provides members with a space to exchange about technical specifics, use cases and product quality. While the formation of an off-platform forum meant a loss of

control for Siemens, it refrained from getting involved directly in Mindsphere World, instead letting users exchange advice and feedback independently. In turn, Siemens informally supports and monitors the community, using it as a sounding board and deriving the insights to improve Siemens Mindsphere and its IIoT products more generally.

CO-GOVERNANCE AND CODETERMINATION

A more advanced governance strategy is to create formal mechanisms through which the platform company's decision-making processes incorporate the voice of its users (consumers, workers, complementors, etc). Here platform companies can draw on codetermination practices, already used by numerous businesses in countries such as Germany, to incorporate workers' voices into top-level decision making. Under this strategy, users are guaranteed to have their views included in decision making processes, though they are not guaranteed to be followed. A formal consultation can help managers obtain buy-in for their decisions from the user community, but it can also turn opinion against management if users' views are routinely disregarded.

- **CCP Games** is an Icelandic video game company that operates a massive virtual world platform. The company asks its users to elect a council tasked with formally representing the users' views to the platform's top management (see case 5).

COOPERATIVE GOVERNANCE

The most radical alternative to the dominant platform governance model is to adopt a cooperative governance model where the platform is ultimately governed by its users. User collectives can cooperate to build and finance their own platforms or they can try to buy struggling platforms off venture capitalists' hands. Such platforms can then be governed democratically for the benefit of their user-owners or other stakeholders. However, cooperatives struggle to attract the kind of massive investment that venture-funded platforms enjoy, and as a result tend to remain small.

- **FairBnB** follows a mixed governance model. It has external investors, but the investors' voting power is strictly limited. Other stakeholders, including accommodation providers, are included in its decision-making processes.

Case #5: CCP Games

CCP Games is a video game publisher that maintains a popular online game called EVE Online. It is more of a sci-fi themed virtual world platform than a traditional video game, since most of the game's content and drama is generated by the players themselves.

Every twelve months, EVE's half a million players elect a Council of Stellar Management from among themselves that represents the views of the player-base to CCP. This ten-member council is empowered to bring players' wishes and grievances directly to the developers' attention through special online channels and regular physical meetings. To get their voices heard, individual players can petition council members on a forum provided for the purpose, support the election of candidates who share their views, and stand for election themselves.

CCP gives the council credibility by showing that it takes its recommendations into account in its decision making, and also supports the council financially by regularly flying its members to Reykjavik, Iceland. Moreover, CCP provides the council with access to business confidential information, such as statistics and strategic plans, which the council needs to perform its role effectively. Minutes of the meetings between the Council of Stellar Management and CCP are published online.

This system of player representatives benefits CCP's developers in several ways. It deflects a great deal of the lobbying and hate mail that they would otherwise face themselves, but also gives the developers a good idea of what players want. It also functions as a sounding board for the developers' plans and ideas, and helps in winning players' support for new features and policies. It also appeases players by giving them an official process through which to vent their frustrations and express their desires.

In October 2021, the council was in its 16th session. Over a decade and a half, it has deliberated with CCP's developers on thousands of issues and initiatives, ranging from small user interface fixes to major economic adjustments.

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Alexander von Humboldt Institute for Internet and Society

This research project is part of the Innovation, Entrepreneurship & Society Research Group at Alexander von Humboldt Institute for Internet and Society (HIIG). The aim of the research group is to understand, inform and help shape innovation and entrepreneurship in a rapidly changing, globally connected digital economy and society. Current research focuses on four areas: Digital Technologies and Value Creation; Collaboration and Openness; Platforms and Ecosystems; Digital Social Innovation and Entrepreneurship.

The HIIG researches the dynamic relationship between the Internet and society. As the first institute in Germany with this focus, HIIG has developed an understanding that emphasises the embedding of digital innovations in social processes. The emergence of digital infrastructures and their interconnection with different areas of everyday life is becoming increasingly important. The aim is to understand the interplay between socio-cultural, legal, economic and technical norms in the digitisation process. Based on the processing of fundamental research questions, new insights are gained that contribute to the discussion on the challenges of digitisation. In doing so, HIIG sees itself as a platform for researchers in the field of internet and society. It also promotes the cooperative development of projects, applications and research networks at national and international level.

Oxford Internet Institute

The Oxford Internet Institute (OII) is a multidisciplinary research and teaching department of the University of Oxford, dedicated to the social science of the Internet. Digital connections are now embedded in almost every aspect of our daily lives, and research on individual and collective behaviour online is crucial to understanding our social, economic and political world.

The OII has unprecedented access to a huge volume of rich social data, and are developing new theories, concepts and methods to analyse it. The Masters and doctoral programmes bring students from all over the world, to work with our faculty at the cutting-edge of their fields. OII provides the empirical data and conceptual analysis that is so needed to design policy solutions to societal problems. The academic faculty and graduate students are drawn from many different disciplines: OII believes this combined approach is essential to tackle society's 'big questions' – to positively shape the development of our digital world for the public good.

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