RESHAPING SOCIAL MEDIA: FROM PERSUASIVE TECHNOLOGY TO COLLECTIVE INTELLIGENCE

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Benjamin Kumpf, Development Co-operation Directorate, OECD
Angela Hanson, Governance Directorate, OECD

ABSTRACT

The business models of the most ubiquitous social media platforms – where Internet users spend a large part of their time – rely on gathering and leveraging personal data to predict and shape behaviour. Societies are now facing up to the negative effects of so-called 'persuasive technologies' and their influence on people's beliefs and actions, including misinformation and political polarisation. In low-income countries, the potential misuse of persuasive technologies is of special concern given the low levels of digital literacy and skills, and mistrust of institutions. Development institutions can deliver multiparty efforts that support local entrepreneurship and innovation, including the use of collective intelligence tools, to reshape prevailing social media dynamics.

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Key messages

- Social media platforms, characterised as 'persuasive technologies' designed to change the attitudes or behaviour of users, account for more than one-third of users' total Internet time.
- Governments and development actors should support local entrepreneurship and innovation that can test and scale alternative business models for social media with the goal of using these platforms and persuasive technology to promote social cohesion and public benefits.
- Because the negative impacts of persuasive technologies are compounded in contexts with low digital skills and literacy, global networks to facilitate regulation and stimulate alternatives should systematically include low- and middle-income countries.

Development co-operation providers should support collective intelligence approaches to designing and using digital systems that foster inclusivity and accountability in policy making and government. The use of persuasive technology, which seeks to capture, retain and shaper users' attention and behaviour, is of increasing concern worldwide. Evidence is mounting that the business model of major social media platforms may push users towards extremist content, amplify misinformation and disinformation, and exacerbate political and social polarisation. Low- and middle-income countries are likely more vulnerable to these negative consequences due to lower levels of digital literacy. While the share of the population that actively use social media is comparatively small in these countries today, it is growing rapidly. This suggests an opportunity to harness persuasive technologies for social good. Development actors have an important role in promoting mutual learning partnerships that build on good practices and in supporting innovation that produces new social media business models that strengthen rather than divide societies.

The rise and fall of tech giants

Imagine it is the year 2035. For almost three decades, persuasive-technology-based social media platforms designed to influence users' attitudes and behaviours dominated global markets. But now, the fall of established tech giants is in full swing.

Some emerging competitors run on open-source software; others are proprietary. Most platforms are designed for domestic or regional markets, but a few have global reach. All are powered by new business models, some commercial – including those based on free and open-source software – others not. The entrepreneurs and technologists pioneering these rising digital tools are deeply aware of the unintended consequences their products and services might have for societies. In this hypothetical future, people and governments around the world had demanded change after experiencing the negative effects of persuasive technologies in many ways (IJsselsteijn et al., 2006[1]). In low- and middle-income countries in particular, governments support digital pioneers to test and scale business models and persuasive technologies designed to advance human well-being and social cohesion, and that are also commercially viable. State institutions and development organisations work across countries and regions to shape digital futures. Development organisations play a crucial role bringing together regulators, policy makers, technologists, designers, entrepreneurs and others across the global North and South to gather evidence of the effects of persuasive technologies on individuals, societies, regulation and markets.

This is a plausible, if not yet a probable, scenario. Dominance of the technology industry by a few players currently monopolises much thinking. However, after a period of ossification, the global social media platform market is indeed shifting. OECD member states and China seem to

be entering a new phase, with second- and third-place firms in customer penetration competing vigorously against incumbents (The Economist, 2021[2]). And in the global South, still-low social media penetration rates offer governments and development organisations opportunities to shape how these markets evolve.

Business models unleash social media's unintended consequences

In recent years, investigative journalism, technology pundits and popular culture such as the Netflix docudrama *The Social Dilemma* introduced mainstream audiences to the concept of persuasive tech (Naughton, 2020[3]). This field emerged at the turn of the millennium (Fogg, Danielson and Cuellar, 2007[4]) and encompasses persuasive product and technology design. Persuasive technology includes digital tools that allow content to be tailored to individual users to influence attitudes and drive behavioural change. While persuasive design and algorithmic content suggestion are important for understanding both the harmful and useful potential of digital technology, the underlying business models of platforms play important roles and must be discussed alongside persuasive design.

Most of today's tech monopolies started without a clear business model. Persuasive technologies found success in the late 1990s with the Tamagotchi and Pocket Pikachu digital pets that users had to "feed", "bathe" and otherwise care for. Initially, their priority was to grow the user base and later figure out how to monetise the offer. The social responses to digital products charted the way for testing and applying an ever increasing variety of persuasion techniques, including normative influence, commitment and consistency, recognition, social comparison (Fogg, 2002[5]) and scarcity (Inman, Peter and Raghubir, 1997[6]; Cialdini, 2001[7]).

Google pioneered today's dominant business model, using user data to sell targeted advertisement placement. The commodification of user data for profit and influence is at the heart of this model. Bulk data sold to third parties can be used to determine religious beliefs, sexual orientation, political leanings and ethnicity, among other attributes. Facebook, for example, collects a gigantic amount of user data and generates recommendations by analysing these data through artificial intelligence, creating micro-targetable profiling of individuals (Amnesty International, 2019[8]). Facebook monetises the data by selling users' attention to advertisers both inside and outside Facebook – leading in part to the company's long history of privacy scandals (Dance, LaForgia and Confessore, 2018[9]).

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Time on site is a key success indicator for social media platforms with advertisement-based business models. The business model of major social media sites today relies on maximising scroll time by leveraging individual users' data to push highly personalised content. Facebook, for instance, uses algorithms to keep users on the app for as long as possible, showing them content induced from their alleged preferences. Algorithms are gatekeepers of the content users see, and about three-quarters of Facebook users are unaware that the site estimates their interests (Hitlin and Rainie, 2019[10]). YouTube's recommendation

algorithm 'autoplays' or generates choices of additional videos to keep viewers on the site by suggesting more incendiary versions of whatever they just watched. Tufekci (2018[11]) argues that this tends to drive viewers towards extremist content. At least one former YouTube engineer who says he worked on the recommendation algorithm concurs (Chaslot, 2019[12]).

In their recent review of literature on the role of social media in political polarisation, Kubin and von Sikorski (2021[13]) conclude that engagement on social media platforms exacerbates polarisation. However, the authors also note that most findings stem from analyses of Twitter and American samples, and that research exploring ways social media can contribute to depolarisation is lacking. Studies also find that organising social media platforms around influencers further drives polarisation. Centola (2020[14]) writes that in centralised networks, "biased influencers have a disproportionate impact on their community – enabling small rumours and suppositions to become amplified into widespread misconceptions and false beliefs". The social implications of these platforms' practices play out globally, making them relevant to organisations that advocate for open societies, human rights, social cohesion and inclusive economies. And yet, most research on the social effects of platform design is conducted by companies and not public.

The negative effects of major social media platforms are increasingly acknowledged and discussed. Legislative hearings on their ill effects on teenagers' mental health, the spread of misinformation, societal polarisation, human trafficking and election meddling led to efforts in North America, the European Union and other regions to mitigate such social media by-products through regulation. Little evidence is available about the effects of social media usage in low- and middle-income countries on individual and social development dynamics. Yet these effects could be significant given that, on average, digital skills are lower among populations in these countries, suggesting that persuasive tactics potentially have even greater impacts on attitudes and behaviour as social media use increases.

Furthermore, the negative effects of digital platforms on individuals and societies are not limited to persuasive technologies and advertisement-based business models. The spread of misinformation, disinformation and radicalisation also happens on smaller, non-profit platforms that do not feature algorithmic interference. Many of the world's deadliest mass shootings of recent years were carried out by men whose far-right views "were apparently incubated on small forums" such as 8chan (the Christchurch, New Zealand mosque shooting); 4chan and Gab (shootings at an Oregon community college and Pittsburgh synagogue, respectively, in the United States); and white supremacist sites including Stormfront, a 23-year-old hate site blamed for inspiring dozens of murders, including the 2011 mass shooting at a Norwegian political party gathering (Robertson, 2020[15]).

Collective intelligence systems can work to counter the negative effects of persuasive technology

But there is also immense potential to harness digital technologies, including persuasive technologies, for social good, and the field of digital collective intelligence can provide inspiration and models. To date, however, no single government has leveraged the opportunities of digital technologies to foster collective problem-solving and strengthen social cohesion. The global North and South face similar challenges in this regard. There is an evidence gap regarding adequate policy choices to foster innovation ecosystems and advance digital technologies for social good. Innovation ecosystems are complex, consisting of government policies, regulatory frameworks and infrastructure, human capital, social networks, and funding

and finance. These are further influenced by local and global markets.

Development providers can make an important contribution by promoting collaborative approaches to addressing these challenges. A vision of international co-operation on the issue of shaping markets for alternative digital platforms, for instance, could transform development activity from resource transfer models to genuine global co-operation based on mutual learning and partnerships, with funders playing context-appropriate roles, including as facilitators of learning mechanisms.

The field of digital collective intelligence offers examples of good practice, as some applications have persuasive design features to advance social good. The concept of collective intelligence describes the learning, decision-making, sense-making and problem-solving capabilities of social groups and societies in general. Collective intelligence emerges when contributions from individuals combine to become more than the sum of their parts. Such processes have been a hallmark of societies for centuries, with knowledge shared to improve farming practices, manage diseases and much more (Peach et al., 2021[16]). With the advent of digital technologies, social media platforms became a field of collective intelligence. For example, PetaBencana, Indonesia's alert system for flooding and other hazards allows the country's 17.55 million Twitter users[1] to contribute to the platform to share updates on emerging disasters such as earthquakes, forest fires, smog, strong winds and volcanic activity. Authorities now use PetaBencana to identify where emergency support is needed in real time (Timmerman, 2021[17]).

Digital technologies enable organisations and societies to think and act together at scale, and facilitate more inclusive and participatory decision-making processes. As noted by Saunders and Mulgan (2017[18]), collective intelligence helps governments to:

- better understand facts and experiences, mainly through analysis of crowdsourced data generated and shared proactively, which can range from road traffic conditions to incidents of sexual harassment
- develop better and more inclusive ideas and actions, ranging from consulting residents on urban planning to engaging specific expertise such as the creative potential of local coders
- provide better oversight by using open data and digital tools to increase accountability and transparency, with activities that can range from monitoring corruption to scrutinising budgets.

However, regulatory frameworks need to reflect the evolving landscape of persuasive technologies and collective intelligence. Social media platforms and digital tools increase the potential for holding government accountable – one of the key functions of collective intelligence systems. The experience of Nigeria illustrates that regulating them can be challenging: In response to criticism from the public, the state attempted to regulate digital platforms, notably social media, through legislation such as the 2019 Protection from Internet Falsehood and Manipulation Bill and the National Communication for the Prohibition of Hate Speech Bill, which limits what regular citizens can do with their private social media accounts (Olaniyan and Akpojivi, 2020[19]). This in turn sparked criticism from many civil society groups about censorship.

The most successful models combine public engagement in the offline world with digital technologies whose design can inform future persuasive technologies, even potentially commercial technologies, with fewer negative impacts. An example is vTaiwan,[2] which emerged from a movement of civic hackers, and helps citizens vote on questions posed by the government and influence what questions are put to the public in the first place. Initially, vTaiwan was used to facilitate discussions about technology regulation – such as whether Uber and other car-sharing services should be allowed to operate in Taiwan – and whether online alcohol purchases should be legalised. Designed as

a neutral platform to produce outputs that help the government design new policies (Nesta, 2021[20]), the system includes a digital component in the form of an app that re-engineered persuasive features prominent on major social media platforms. To address the problem of echo chambers, the designers developed an attitudes map that shows users the relationship of their opinions to the opinions of others. Thus, rather than highlighting the most polarising and divisive statements, vTaiwan provides visibility to the most consensual ones. The country's Digital Minister praised the system, noting that while social media "mostly divides people… the same technology can also be designed in a way that allows people to converge and form a polity" (Miller, 2019[21]).

Persuasive technologies also play positive roles in helping children, adolescents and adults learn (IJsselsteijn et al., 2006[1]). For example, the computer-based adaptive learning platform Mindspark[3] shows positive results for secondary school students in urban India. A randomised control trial of the programme that aimed to measure the impact of customised learning technology found that it increased test scores across all students and was cost-effective compared to traditional schooling models (Muralidharan, Singh and Ganimian, 2019[22]).

A for-profit example of technology design that has potential for social good is Clubhouse, which suggests opportunities for political expression and genuine discussion on controversial topics such as gender, human rights and political reform.[4] The Indian state of Kerala used Clubhouse during COVID-19 lockdowns for community connection on everyday topics and public meetings involving local politicians (Praveen, 2021[23]). Its live, audio-based nature makes hate speech and trolling more difficult because vocal embodiment (and the lack of tools for text-based attacks) incentivises pluralistic discussion. Users must provide their real name and phone numbers, making anonymous participation more difficult (although this may make crackdowns more likely). Further, hosting of audio discussions in many languages suggests that Clubhouse may allow for more locally oriented and moderated discussions, as opposed to Twitter or Facebook where content moderation and hate speech prevention tools are English-language-oriented (Singh and Campbell, 2020[24]).

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(Miller, 2019[21]).

Such examples, which advance collective intelligence and public discourse while discouraging us-versus-them interactions can inform the design of future social media platforms and persuasive technologies.

An opportunity to reshape market dynamics

From a regulatory, market-shaping or technology-shaping perspective, governments and public interest organisations face a quandary: The impacts of a technology cannot be predicted until the technology is developed and widely used. At the same time, control or change is difficult once the technology is entrenched in a society or economic system. This pacing

problem is known as the Collingridge dilemma (Collingridge, 1982[25]).

Media platforms designed primarily for social interaction such as Facebook, Twitter, Instagram, Snapchat and Tiktok dominate the global platform market. As of 2020, the world's 4.5 billion Internet users spend an average of almost 2.5 hours every day using social media, accounting for more than one-third of total Internet time. However, the rate of active social media use varies widely between regions: 67% in northern Europe compared to 27% in southern Asia, 22% in central Asia, 13% in western Africa, in central Asia, 8% in eastern Africa and 6% in middle Africa. Social media use is growing in northern Europe by 3.3% annually, slower than in the other regions where annual growth is 9-38% annually.

So, while most dominant social media technology companies seem entrenched, this growth in social media use in areas that are still relatively untouched presents an opportunity for development organisations and governments in low- and middle-income countries. Investment in mutual learning and co-operation could focus on two distinct aspects of digital development: (1) regulating emerging digital technologies, especially persuasive technologies, without stifling innovation and (2) supporting local entrepreneurs to design, test and scale social media platforms and underlying business models that deliberately mitigate the negative effects of persuasive technology platforms and serve local needs and interests.

There are examples of lessons being shared between countries. In 2013, Facebook launched Internet.org, a non-profit providing Internet to people who cannot access or afford it (Goel, 2013[26]). Two years later, it was rebranded as Free Basics (Hempel, 2015[27]) and offered free-of-charge data usage – but with a twist: Facebook chooses the sites a user can access and sometimes also gives local carriers a say in the selection. Technologists, civil society activists and other groups in India campaigned to counter Facebook's marketing, arguing that Free Basics violates net neutrality and is nothing more than a customer acquisition initiative. Internet.org was banned in India when regulators determined that Free Basics would create a two-tier system, giving start-ups buying into Facebook's restricted Internet privileged access to users and disadvantaging others (Bhatia, 2016[28]). Indian regulators shared their experiences with other government agencies from the global South, inspiring pushback against Free Basics in several countries (Singh, 2018[29]; Hatmaker, 2018[30]).

Exchanges across countries about regulation and stimulating tech entrepreneurship help policy makers unlock the potential of technology while safeguarding public interest. Networks to facilitate exchanges already exist: the OECD Regulatory Policy Committee and the Network of Economic Regulators have a joint programme of work to address challenges related to emerging technologies, including persuasive technologies. But low- and middle-income countries are not systematically included in these networks even though negative impacts of persuasive technologies on individuals and societies are likely to be higher in contexts with lower digital skills. A study of first-time smartphone users in Kenya by the Mozilla Foundation's Digital Skills Observatory found that "without a mental framework of the open nature of the Internet, people are more vulnerable to fraud, scams, or unfavourable situations when exposed to information on the web or apps in the Play Store" (Mozilla Foundation, 2016[31]).

Given their focus on the most vulnerable populations, development organisations must help partners from low- and middle-income countries find a seat at the table. Development organisations can play a greater role in investing in dedicated state capacities. Importantly, they can also connect partners from the global South to relevant networks and exchanges about innovation to test and scale platforms and business

models, regulation of persuasive and other technologies, and strengthening digital skills among citizens.

The future remains unwritten

Governments regulate what is and shape what can be, and thus have a critical role in advancing digital technologies and leveraging the potential of persuasive technologies for well-being and social good. Today, a small number of homegrown corporations control relevant parts of the digital infrastructure in Africa, Latin America and Europe. The large majority of operating systems working at scale, as well as search engines and social networking platforms have not been developed regionally. To change this situation, investments in local innovation ecosystems, entrepreneurs, and research and development are necessary. The underlying business models are important for market shaping and tech support, particularly for social networking platforms.

However, there is no best practice in this field. New business models are emerging but lack evidence on their dynamic relationship with persuasive design and impact on individuals and societies. It is therefore not clear which pathways governments should support. The current focus on advertisement-based business models, particularly on the part of United States companies, is being challenged across Asia, where people started using the Internet through mobile devices, not desktops. This mobile Internet foundation enabled digital payment services to flourish and be integrated from the start. Consequently, Asian platforms rely on diversified business models with revenue from advertisements, gaming, financial services, membership and/or subscription fees, and in-app purchases (Humenansky, 2019[32]). Tencent, one of China's market leaders, derives less than 20% of its revenues from advertising; by comparison, advertising accounts for 99% of Facebook's revenues (Chan, 2019[33]). Alternative and emergent business models, such as subscription-based models, so-called 'freemium', virtual goods, contributions for content and token economics can, in theory, incentivise content producers.

These models too have the potential to produce negative unintended consequences for individuals and societies. When seeking to shape markets and help select winners, providers of public funding and other support must consider the potential for harm from a particular business model. Both private and public sector initiatives are working to help technologists and governments better understand possible future effects. The Omidyar Network, a Silicon Valley impact investment firm, and the Institute for the Future have launched an Ethical Operating System[6] to help tech entrepreneurs and others "get out in front of problems before they happen", or as its slogan says, "How not to regret the things you build" (The Omidyar Network; Institute for the Future (IFTF), 2020[34]). On the government side, Sweden's Committee for Technological Innovation and Ethics helps the government identify policy challenges, reduce uncertainty surrounding existing regulations, and accelerate policy development linked to emerging technologies and their impact on society.[7]

Options for development co-operation

Technologists, regulators and government officials across countries face similar challenges regarding how to contend with the influence of persuasive technologies and social media platforms. The challenges are daunting for any single government. Development co-operation providers can play a role to facilitate collective approaches:

- **Focus on technology capabilities overall**. Development providers can play a greater role in investing in dedicated state capacities. Players from low- and middle-income countries face multiple disadvantages in building digital tools that benefit people and societies. Regulatory capacities are low, funding is scarce, and populations require support to acquire digital skills. Development

co-operation actors should continue to work with partner governments on issues related to digital infrastructure, digital skills and regulation.

- **Insist that developing countries have input**. All too often, knowledge exchange on tech regulation and on shaping digital markets happens across high- and middle-income countries, with insufficient inclusion of partners from the global South. Efforts to regulate technology must reflect the emergent landscape of persuasive technologies and collective intelligence systems, as well as global South perspectives. Development organisations can enhance the scope of what is done today by enabling collaboration and mutual learning between partners, notably governments, technologists and academia from low-, middle- and high-income countries alike.
- **Gather intelligence on the impacts of persuasive tech**. More research, evidence, insights and learning are needed about the positive and negative potential of persuasive technology in different country contexts. It is also needed across development fields such as education, health, climate change, gender equality and others. Development actors can promote learning by investing in global South research institutions, cross-country research, and the design of programmes that generate evidence to understand the impact of dominant and emerging tech platform business models.
- **Transform learning into action**. Development actors can shape markets by using evidence and lessons about the actual or potential impacts of persuasive technology. They can orient technology to the service of local needs and interests by investing in incubators and accelerators that help local entrepreneurs design, test and scale social media platforms and business models that deliberately mitigate the negative effects of persuasive technology platforms.
- **Invest in systems that serve the public interest**. Development organisations can invest in efforts to advance the use of collective intelligence systems in low- and middle-income countries to facilitate more inclusive and participatory decision-making processes and to solve challenges identified by local communities.

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NOTES

1. Country-by-country data on the number of Twitter users as of October 2021 are available at: https://www.statista.com/statistics/242606/number-of-active-twitter-users-in-selected-countries/.
2. For more information, see: https://vtaiwan.tw/.
3. For more information, see: https://mindspark.in/.
4. For a hopeful but ultimately critical view of a Middle East human rights agenda based on the success of the Clubhouse app, see: https://dawnmena.org/is-clubhouse-really-a-harbinger-of-free-speech-in-the-middle-east/.
5. These data are available at: https://wearesocial.com/uk/blog/2020/01/digital-2020-3-8-billion-people-use-social-media/.
6. For more information, see: https://ethicalos.org/.
7. For more information, see: https://www.kometinfo.se/in-english/about-us.