

Section 1: Context

Understanding the Problem

The digital landscape is evolving rapidly, reshaping how we consume, connect, and choose. While online engagement increases, so does a desire for a slower, more intentional way of living (Williams, 2024). This paradox highlights the complexities of modern consumer behaviour and the role communication plays in shaping it. As movements advocating for sustainability and ethical consumption gain momentum, so does mass production and increasingly ephemeral trends. In a sea of information online, it is hard for consumers to navigate today's culture while making low-impact choices.

Ethical shopping allows consumers to align their purchases with social and environmental values. However, misinformation can distort perceptions and make identifying brands that uphold ethical standards harder. Younger generations prefer ethical products but often prioritize convenience and affordability (Bemporad, 2023). Social media plays a significant role in shaping these choices. TikTok alone has nearly a billion monthly users, 25% under 20 years old (Duarte, 2024). Research shows that one in five TikToks contains misinformation (Shearer et al., 2024), often distorting young consumers' perceptions of the brands they buy from.

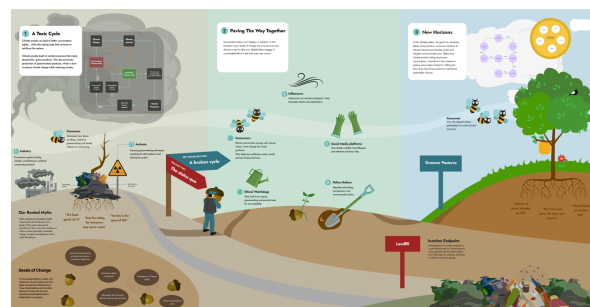
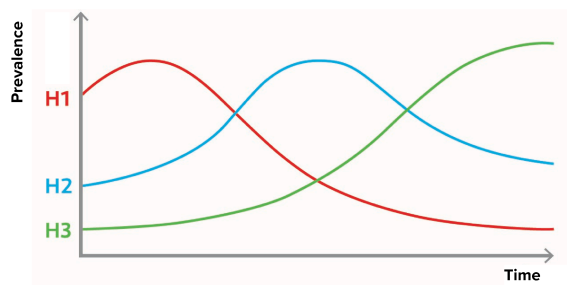
This issue extends beyond individual choices to broader socio-economic and environmental consequences. Sustainable businesses must navigate a digital landscape where trust is fragile and algorithms prioritize big corporations. Environmental activists must find ways to counter misinformation online that threatens progress. Influencers shape consumer attitudes and have a responsibility to promote accurate narratives. Meanwhile, digital policymakers face increasing pressure to regulate misleading content.

While there is a vocalized desire for sustainable options, the market shows a different pattern. What are the socio-economic and environmental implications of online-driven consumer behaviour?

How to Read the Map and Broader Visual Motif

The Three Horizons framework, widely used in strategic foresight, allows us to map out change by examining three critical dimensions: our current reality, our envisioned future, and the transition required to bridge the gap (Sharpe et al., 2016). Our visualization represents these horizons as the landscape our protagonist must navigate. Horizon 1 reflects the present state—where entrenched behaviours, systems, and mindsets dominate. Horizon 3 represents the desired future—a greener, more sustainable world. Horizon 2, the critical transition zone, is where key actors, interventions, and calls to action emerge to challenge the inertia of the present and pave the way for transformation.

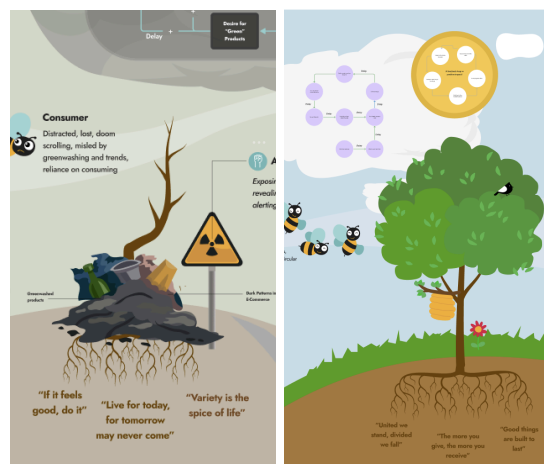
Another essential element to transpose from the Three Horizons to our protagonist story is the seeds of change. The Three Horizons tool explores what signals we see in the current state (Horizon 1) that we can bring into the future. They encompass signs of potential for change that exist within us now. Those seeds can help us grow in the transition from our current state to our desired future.



We integrated the Causal Layered Analysis (CLA) tool to deepen this analysis, which examines the underlying narratives and structures shaping human behaviour (Inayatullah, 1998). The CLA framework identifies four layers. For simplification for lay audiences, we used the focal 2:

- The Litany (surface-level problems) – the visible symptoms of crisis or stagnation.
- Myths & Metaphors (deep cultural narratives) – the subconscious stories that shape collective behaviour.

In our map, the CLA is symbolized by trees rooted in Horizon 1 and Horizon 3. These roots represent the foundational myths and belief systems that either reinforce the status quo or support transformation. Behavioural shifts alone are insufficient since people resist change unless they can envision and internalize a new paradigm. Instead, meaningful progress requires planting new roots—healthier narratives and worldviews—that can grow into visible, lasting change. By combining the Three Horizons framework with CLA, we illustrate the necessity of action and the more profound psychological and cultural shifts needed to sustain a better future.

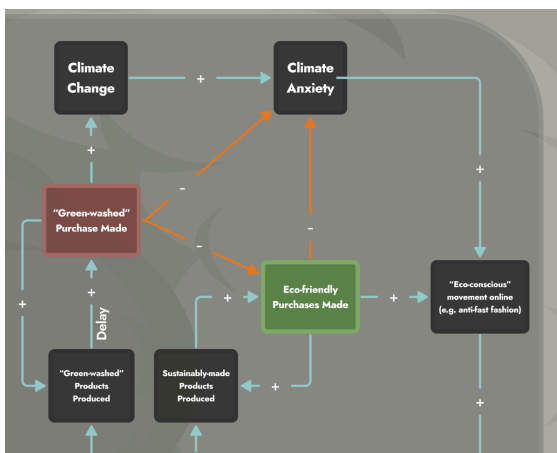
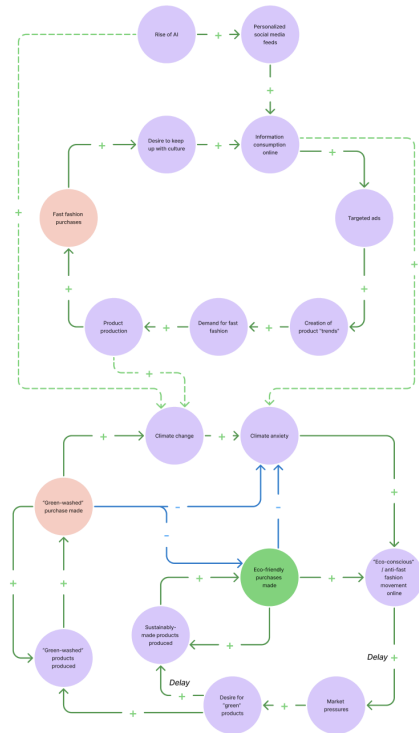


The Litany component of the CLA is represented through the branches of the tree, where we have nested our causal loops. This visual motif asserts that the feedback loops of

unhealthy behaviour are the outputs of our myth. So, as a result, we can see how the cycle is perpetuated by myth, but also go into more focused detail on how those loops look. These loops help showcase a more concrete systemic familiarity and patterns that viewers can understand.

The current state causal loop

The system reveals a complex relationship between climate anxiety, consumer habits, and AI-driven trends, where efforts to promote sustainability are often undermined by reinforcing loops. Climate anxiety can drive positive change by increasing the demand for eco-friendly products (Deloitte, 2023), leading to market pressures that push for more sustainable production (Engao, 2024). However, this same demand also incentivizes greenwashing, where companies falsely market products as sustainable to appeal to conscious consumers (Wodak & Dutta-Powell, 2022). Greenwashing purchases provide a temporary relief, reducing anxiety without addressing the root causes of climate change.. This ultimately allows the cycle to continue, as climate change worsens while consumers feel they are making responsible choices.



At the same time, a second, adjacent loop reinforces fast fashion consumption. AI-powered personalized feeds amplify targeted advertising, accelerating the creation of trends that fuel a constant

desire for new products (Gossein, 2024). Increased demand then leads to greater fast-fashion production, which contributes to environmental harm and worsens climate change (King, 2024). In turn, the escalating climate crisis fuels more climate anxiety, further pushing consumers toward either sustainable choices or misleading greenwashed alternatives. AI's ability to shape social media consumption patterns intensifies these behaviours, making fast fashion more appealing and promoting eco-conscious movements online.

Stakeholder influences

The system's flow of influence operates across structural and cultural domains. Structurally, the system is maintained by actors like industry leaders, AI algorithms, social media platforms and policymakers. These stakeholders shape consumption architecture, design algorithms that dictate visibility, develop platforms that monetize engagement, and create regulatory conditions that either reinforce or challenge the dominant commercial incentives. Their decisions determine which narratives gain traction and which values are commodified.

On the other hand, culturally, the system is maintained by activists, consumers and influencers. Influencers can aestheticize ethics, transforming trends into lifestyle performance. Consumers, especially Gen Z, oscillate between aspiration and anxiety, navigating their ethical desires within a system optimized for speed, novelty and validation. Furthermore, activists and ethical watchdogs work to disrupt dominant narratives, challenge greenwashing and advocate for ethical consumption.

Cultural Stakeholders

Influencers 	The watering can represents targeted nourishment; it directs attention, emotion, and validation to specific ideas, products, or behaviour. influencers “water” trends and values, making them grow in the public imagination.
Consumer 	The bee represents a seemingly small but collectively powerful force, constantly in motion, drawn to signals, just as consumers are drawn to trends, aesthetics, and emotional resonance. Bees pollinate; consumers spread ideas, validate choices, and reinforce systemic patterns through engagement and purchasing.
Activists 	The warning sign symbolizes critical awareness and disruption. They signal danger, highlight contradictions, and push for structural change. Often ignored or dismissed until it is too late, their symbolic role is a call for attention and redirection.

Structural Stakeholders	
Social Media Platforms 	Gardening gloves are the interface between the gardener and the soil. Social media platforms similarly mediate all consumer, influencer, and product interactions. They shape the system with coded boundaries and hidden friction, allowing some things to flourish while burying others.
Policy Makers 	The shovel is a tool of structural intervention. It breaks ground, uproots systems, and enables planting of something new. Policy makers have the authority to reshape the soil itself, dig deep into the system's roots and restructure incentives, guardrails, and flows.

	Used well, it can prepare the system for regeneration.
Industry 	[Including: fast fashion, large retail corporations, manufacturers and advertising] The factory symbolizes the engine of production, relentless, mechanized, and optimized for output. Industry drives the material flow of goods, setting the pace and logic of consumption. It values scale, speed, and efficiency, often at the cost of environmental and social considerations.

Description of complexity of situation

The interplay of algorithmic infrastructures, cultural narratives and commercial interests shapes the system. At its core lies a persistent tension between consumer intention (Gen Z), who aspire to consume ethically, and actual behaviour continuously shaped and redirected by algorithms, influencers, and greenwashed branding. The system is sustained by powerful feedback loops, such as AI algorithms learning from what users engage with, boosting visually compelling content, which in turn incentivizes influencers to perform similar content, which reinforces consumption as identity. The underlying myth of “one can do good while continuing to buy” is propagated across industry, platforms and messages, portraying an image of progress but remaining extractive. Meanwhile, the structural workings of this system hide unethical practices, from labour exploitation to environmental degradation (The Sustainable Fashion Forum, 2024). Accountability and transparency are fragmented; no single actor owns the system’s outcomes, and blame is perpetually passed between platforms, corporations and consumers.

A big challenge is that the system doesn't just resist change; it uses critique in a deceptive way. When pointed out what's wrong (such as environmental harm or fast fashion exploitation), the system incorporates these critiques into its own logic. For example, what happens when sustainability becomes a trend? Instead of getting a big ethical shift, sustainability is rebranded as an aesthetically sellable product. Greenwashing techniques are layered onto the same extractive products, which are now marketed as more "sustainable" choices. However, deeper issues such as overproduction, labour justice, and resource extraction remain intact, but now they're masked by performative improvements.

Furthermore, structural infrastructures, such as algorithms, are not publicly available or transparent. These are hidden behind proprietary barriers, making them legally protected and guarded (The Sustainable Fashion Forum, 2024). This lack of transparency creates a black box where outsiders can see the outcomes, but they can't see how or why these decisions were made. This limits the influence of changemakers, as these mechanisms are nearly impossible to audit, challenge, or redesign the foundational structures that drive behaviour. This forces changemakers to operate at the surface level without getting the chance to reshape the deeper architecture of influence.

The pace of cultural change also undermines intervention; while policymakers and activists labour slowly, trend cycles and content cycles move at greater speed.

Section 2: Proposed Solution

What is Canada doing now?

The Canadian government, through Environment and Climate Change Canada (ECCC), has invested in climate education initiatives such as the Climate Action Fund and various public

awareness campaigns to inform citizens about climate policies (Environment and Climate Change Canada, 2022). These efforts aim to build early knowledge, making it easier to teach younger generations about climate change. However, these programs largely rely on traditional education methods that fail to engage audiences in meaningful ways. The rise of misinformation and distrust in institutions has led many, especially young people, to seek information on social media rather than in classrooms (Environment and Climate Change Canada, 2024). Yet, ECCC's approach lacks direct engagement with influencers or online communities, missing a crucial opportunity to reach its intended audience. Furthermore, while the programs provide foundational knowledge, they do not effectively translate awareness into action, as they fail to create new behaviours rooted in a shared vision for change. To be truly impactful, climate education must evolve beyond conventional structures and integrate modern communication strategies that empower individuals to take independent action in addressing environmental challenges.

The formal education route led by the government, such as ECCC's Climate Action Fund and public awareness campaigns, is ineffective in driving consumer action and behavioural change due to several systemic influences:

Disrupted Consumer Sovereignty. Social media algorithms and hyper-personalization fragment public awareness, making it harder for traditional education efforts to reach and unify consumers (Chirat, 2023). Instead of learning in classrooms, people rely on influencers and viral trends, which often prioritize engagement over accuracy.

Climate Anxiety's Market Trap. While fear of climate change increases demand for sustainable products, it also fuels greenwashing. Consumers buy 'eco-friendly' alternatives without changing core consumption habits, allowing businesses to maintain unsustainable practices while appearing green (Wodak & Dutta-Powell, 2022).

Trend-Driven Consumption. Rapid content cycles reinforce impulsive buying habits (Diantari,

2021), making informed, ethical shopping choices secondary to convenience. Government-led education efforts fail to counteract these powerful, short-term influences.

Misaligned Business Incentives. Companies respond to market demand, but if genuine sustainability takes too long or costs too much, they opt for surface-level solutions (e.g., greenwashing). Without stronger policy and consumer pressure, businesses remain profit-driven rather than sustainability-focused.

Lack of Direct Consumer Influence. Government education informs but does not empower action. Consumers need real-time, accessible information integrated into their digital habits, not just formal reports and classroom lessons.

Together, these factors make traditional government education outdated and ineffective in shifting actual purchasing behaviours or business practices. Instead, influencing digital spaces and aligning incentives with real sustainability is necessary for meaningful change.

What Do We Propose?

Through our systems analysis, we found that a complex network of reinforcing loops traps consumers between climate anxiety and impulse buying, while supporting greenwashing practices and accelerating trend cycles that encourage overconsumption. Traditional methods of promoting ethical consumption have proven ineffective against systemic challenges as more young people use social media, which supports misinformation and algorithmic suggestions that encourage unsustainable habits.

To transform this system, we propose a comprehensive intervention framework centred on strategic delays at key points in the consumer journey. By interrupting the harmful reinforcing cycles of today's system, these delays create opportunities to promote mindful consumption and

authentic sustainability. We understand that lasting systemic change depends on confronting observable behaviours, as well as underlying myths and stories, through our CLA framework.

Diagnosis of Current Circumstances

Rapid digital consumption patterns have led to a gap between consumers' expressed ethical beliefs and their actual purchasing behaviour. Through our system mapping analysis, we have identified three key points of dysfunction.

The greenwashing incentive loop: Companies choose greenwashing over real sustainability because economic demands and accountability gaps make real change financially unfeasible in response to consumers buying 'sustainable' goods to alleviate climate anxiety.

The algorithmic cycle of trend acceleration: AI algorithms combined with social platforms optimize engagement and novelty, resulting in accelerated trend cycles leading to impulsive buying and disposable consumption patterns.

The transparency gap: Companies benefit from the lack of disclosure of environmental impacts, while consumers purchase products without reliable information.

Traditional educational methods are ineffective in addressing these systemic issues. As our analysis of Canada's current climate initiatives shows that traditional awareness campaigns cannot compete with the algorithm-driven information flows that are influencing consumer decisions among younger demographics.

Our Intervention Approach

After mapping the complex interactions between climate anxiety, consumer behaviour and the digital environment, we've identified three critical intervention points where strategic action can transform the system: The intervention plan includes stopping greenwashing practices and algorithmic trend cycles while increasing transparency and educating consumers.

Disrupting Greenwashing Momentum

The production costs of sustainable products exceed those of greenwashed products, which drives companies to make false environmental claims rather than make substantive changes (Wark, 2024). To break this cycle, we propose:

- Increasing the cost of greenwashing by imposing higher ad fees on misleading sustainability claims, reducing their profitability.
- Lowering genuinely sustainable production costs through AI-optimized supply chains and government subsidies.
- Adjusting platform algorithms to boost the visibility of truly sustainable products while reducing exposure to misleading "eco-friendly" branding.

By creating a deliberate pause between consumer demand for green products and market supply, these interventions allow for proper verification of sustainability claims rather than quick greenwashing tactics. The key players driving these changes are regulators and policymakers, together with e-commerce and social media platform leaders, supported by investigative journalists testing their effectiveness.

Confronting Algorithmic Trend Cycles

Platforms profit from rapid trend turnover, and consumers are conditioned to chase novelty, reinforcing fast fashion cycles (Zeba & Ganguli, 2019). To confront this cycle, we propose:

- Reducing algorithms' weighting for short-lived viral content, and promoting "long-term stable fashion" that makes clothes from five years ago still appear trendy.
- Implementing "content cooling periods" to slow fast-fashion-driven impulse purchases.
- Developing digital fashion alternatives, like NFT-based wearables, to satisfy trend demand without increasing physical waste.

Digital policy regulators, social media platforms, and AI & algorithm engineers are the most influential stakeholders for these interventions, with ethical AI advocates providing accountability and advocacy support. These changes create a delay between trend exposure and purchasing action, allowing more thoughtful consumption patterns to emerge.

Transparency & Consumer Education

Transparency is unprofitable for brands, and consumers lack patience for detailed sustainability information (Andrade, 2024). To transform this dynamic, we propose:

- Embed sustainability data at checkout to make it unavoidable.
- Gamifying transparency by turning eco-consciousness into a social currency.
- Leveraging influencers to make sustainability aspirational.
- Delivering AI-personalized sustainability insights in digestible formats.
- Penalizing corporate opacity to ensure compliance is cheaper than deception.

Influencers, ethical business watchdogs, and investigative journalists are the most influential stakeholders in driving this transformation, with eco-friendly brands demonstrating that transparency can be both profitable and impactful.

Why We Believe This Approach Will Be Effective

Our intervention strategy directly targets the root causes identified in our causal loop analysis. By introducing strategic delays at key decision points, we interrupt the reinforcing cycles that currently trap consumers in unsustainable patterns.

Our Three Horizons analysis demonstrates that the seeds for these changes already exist in the current system—from growing consumer awareness to emerging technologies that can support more sustainable decision-making. Our approach nurtures these seeds while addressing the underlying myths that currently sustain unsustainable practices.

The power of our approach lies in its systems perspective, addressing both structural elements (algorithms, policies, economic incentives) and cultural elements (influencer narratives, consumer values, social norms) simultaneously. By engaging all key stakeholders across these domains, we create a comprehensive framework for change that can withstand resistance from any single actor.

Multiple Avenues for Engagement

Our proposed interventions offer multiple entry points for different stakeholders:

For policymakers, we provide a framework for regulatory action that addresses digital misinformation without stifling innovation, focusing on transparency standards and accountability mechanisms.

For tech platforms and algorithm developers, we outline ways to modify recommendation systems to encourage more thoughtful consumption while maintaining user engagement.

For influencers and content creators, we demonstrate how sustainability can become aspirational content that resonates with audiences while driving positive change.

For consumers, particularly Gen Z, we create more accessible pathways to align purchasing behaviours with stated values, transforming anxiety into purposeful action.

For ethical businesses, we establish a more level playing field where genuine sustainability is rewarded rather than undercut by greenwashing.

Critical Success Factors

For these interventions to succeed, several key conditions must be in place:

1. **Cross-sector collaboration:** Policy makers, tech platforms, and brands must align incentives toward the common goal of sustainable consumption.
2. **Standardized metrics:** Universal sustainability measurements must be established to prevent confusion and facilitate comparisons.
3. **Consumer demand:** A critical mass of consumers must value and demand transparency and ethical production.
4. **Economic viability:** Sustainable business models must be economically viable to prevent backlash and ensure long-term adoption.

5. **Youth engagement:** Young consumers, particularly on platforms like TikTok, must be centered in these interventions given their influence on future consumption patterns.

Supporting Stakeholders and Implementation

We envision a phased implementation approach that acknowledges the interconnected nature of these interventions:

Phase 1: Foundation Building

- Policy makers establish standards for sustainability claims
- Tech platforms develop transparency frameworks
- Influencers begin shifting narratives around consumption

Phase 2: System Transformation

- Implementation of algorithmic modifications
- Roll out of sustainability data at checkout
- Introduction of financial incentives for genuine sustainability

Phase 3: Culture Shift

- Gamification of sustainable choices
- Normalization of digital alternatives to physical consumption
- Establishment of new cultural narratives around consumption

Throughout this process, investigative journalists, ethical AI advocates, and eco-friendly brands play crucial supporting roles in maintaining accountability, driving innovation, and demonstrating the viability of more sustainable business models.

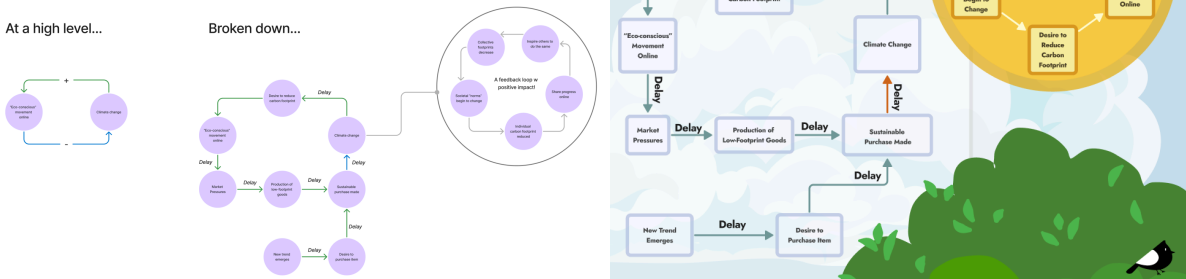
By transforming the problematic reinforcing loops identified in our current state analysis into balancing loops, our approach shifts the system from one driven by impulsive consumption and greenwashing to one characterized by informed decision-making and authentic sustainability. This addresses both surface behaviours and the deeper narratives that drive our consumption patterns, creating lasting change in how we relate to products and their environmental impact.

Desired state causal loop

In this refined system, the goal is to introduce delays at key points in consumer behaviour to disrupt impulsive purchasing cycles and mitigate environmental harm. Rather than climate anxiety fueling reactionary consumption, it transforms into a desire to reduce one's carbon footprint, shifting the focus from fear-driven actions to intentional, sustainable choices.

The "eco-conscious" movement online plays a key role in influencing consumer sentiment, but instead of amplifying urgency or guilt, it encourages patience and mindfulness. This delay allows market pressures to build gradually, leading to the slow, steady production of genuinely low-footprint goods rather than reactive greenwashing efforts. Similarly, the emergence of new trends does not immediately translate to purchases. Instead, a delay between the desire to buy and the actual purchase encourages thoughtful decision-making, reducing overconsumption.

This system creates a balancing loop, where online discourse about sustainability supports a slower, more mindful consumption pattern. Instead of exacerbating climate change, the loop reinforces actions that lead to reduced environmental impact. Over time, these delays collectively slow the system, ensuring that sustainability efforts are meaningful rather than reactive, and that consumer behavior aligns with long-term environmental benefits rather than short-term emotional responses.



Section 3: Emergent Properties & Future Risks

While our proposed interventions aim to transform consumption patterns toward sustainability, complex systems inevitably produce unintended consequences. Five significant emergent properties demand consideration as we implement strategic delays and transparency mechanisms.

Economic Destabilization Risk. Introducing delays in consumption cycles could significantly impact industries built on rapid turnover. Fast fashion retailers, trend-driven manufacturers, and their supply chains employ millions globally. Slowing consumption without transitional planning could trigger job losses, reduced tax revenues, and economic contraction in manufacturing-dependent regions. This poses a particularly acute risk for developing economies where garment production constitutes a major employment sector.

Accessibility Barriers. As genuine sustainability becomes more valued, we risk creating a two-tiered marketplace where truly eco-friendly products become luxury items accessible only to

privileged consumers. Current production economics make sustainable manufacturing more expensive, potentially pricing out middle and lower-income consumers. This could inadvertently reinforce social stratification, with environmental consciousness becoming a status marker rather than a universal practice.

Performative Environmentalism. Our focus of selecting influencers as sustainability ambassadors risks creating a new type of deceptive communication. Influencers flaunt environmental aesthetics without any real commitment to sustainability principles and create "green performance" content that misleads audiences with its seeming authenticity but fails to deliver any real environmental benefits. The nature of this advanced virtue signaling is subtle, making it more difficult to detect than corporate greenwashing because it exploits parasocial bonds and creates an impression of authenticity.

Corporate Resistance and Adaptation. Businesses facing revenue threats will likely develop countermeasures to preserve their market position. This resistance could manifest through lobbying against regulatory changes, technological workarounds to algorithmic modifications, or legal challenges to transparency requirements. Additionally, some companies may fragment their operations to obscure supply chain realities while technically complying with disclosure requirements.

Advanced Greenwashing Evolution. As consumers become more sophisticated in identifying basic greenwashing, companies will likely develop more nuanced tactics. These might include selective transparency (highlighting specific sustainable practices while obscuring others), impact offsetting that creates moral licensing without changing core operations, or co-opting emerging certifications through definitional manipulation.

Considerations

To mitigate these emergent properties, our implementation strategy must include:

1. **Economic transition planning:** Developing retraining programs and alternative employment pathways for workers in affected industries
2. **Progressive pricing models:** Creating tiered accessibility to ensure sustainable options across income levels
3. **Authenticity metrics:** Establishing clear standards to distinguish substantive environmental action from performance
4. **Multi-stakeholder governance:** Including diverse perspectives in regulatory development to anticipate corporate workarounds
5. **Continuous monitoring and adaptation:** Building feedback mechanisms to identify and respond to emerging system behaviors

Understanding these emergent properties enables us to design interventions that address potential negative consequences in advance, while reinforcing beneficial system transformations. We aim for adaptive implementation strategies that respond to unexpected developments, rather than perfect prediction of system behaviour.

Embedded Foresight Research

As digital landscapes continue to evolve, different paths emerge for consumer behavior and societal structures by 2045. While some communities may retreat from digital dependency, others will embrace hyper-connectivity, deepening the divide between those who reject technological integration and those who rely on it completely.

Exclusive offline communities could rise as sanctuaries for those seeking an escape from AI-driven economies and corporate-controlled cities. These groups could offer a high-class, luxury alternative to digital saturation. Meanwhile, mainstream urban centers could become hyper-commercialized, with AI-driven fashion districts and 24/7 fulfillment centers reinforcing an endless consumption cycle. Digital billboards capable of scanning emotions in real time would personalize advertisements, and vast “fashion wastelands” of discarded clothing pollute the environment. Governments may actively encourage consumerism to drive economic stability, further intertwining financial success with purchasing power.

In contrast, some groups may choose to disconnect from digital consumerism entirely, forming self-sufficient communities that rely on minimal technology. These groups would reject AI automation, social media algorithms, and digital currencies, opting for a lifestyle built on resourcefulness rather than mass production. Their approach to sustainability would focus on the ‘collective versus the individual, prioritizing members with craftsmanship and ability to provide usefulness to the community.

Another evolution in consumption could be the complete digitization of self-expression, making physical clothing obsolete. Originally designed as a sustainable alternative to traditional fashion, AI-generated digital wardrobes could transform into an ever-changing, algorithm-driven industry. Clothing ownership would disappear, replaced by streamed outfits that update in real time based on trends, brands, and personal preferences. While this shift might eliminate textile waste, it could also reinforce an endless cycle of digital consumption dictated by AI-driven market forces.

These scenarios highlight the diverse ways individuals and societies might respond to an increasingly digital and consumption-driven world. Whether through withdrawal, adaptation, or deeper integration, the future of ethical consumption will be shaped by how businesses, policymakers, and consumers navigate these evolving landscapes.

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