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Collective Interest Matrix: Can design be sustainable within capitalism?

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Abstract

In the second edition of *Design for the Real World*, Papanek describes the design establishment's hostile reception of his book, whereby concepts like energy efficiency, and alternative, renewable energy sources were labeled "idiosyncratic pipedreams" and "an attack on Detroit mixed with utopian concern for minorities." While Papanek may have the satisfaction of being on the right side of history, he conceded that "we learn best from disasters." (1985, xv-xvi) In *Objects of Desire*, Forty (1986) explains design's pivotal role in reducing British consumer resistance to "progress," while reinforcing social class, gender roles, and most importantly, the capitalist economy. Recent focus on "design for good" has tried to answer Papanek's call to benevolent design intervention, beyond design's mass-consumer business-as-usual. However, design for the disenfranchised rarely gets the talent, time, attention, and funding it deserves precisely because of its low priority, influence or appeal in a corporate capitalist economy (Noble 1979). Unbridled capitalism — and the designers that lubricate its gears — hastens the depletion of our resources, environment, or social cohesion. If designers avoid questioning capitalism's limits, our role within the system, or rethinking desirable futures (Alexander 2020, Latour 2017 & 2019), "design for emergency" will face the same hurdles that "design for good" currently faces. When designing for adaptation, are we blind to the economic interests of our interventions? How do we reconcile conflicts between the human and environmental impact of design interventions? Should discussions of collective versus individual interests be positioned against public and private profits, against beneficial and adverse human and environmental impacts? How do we resolve conflicts and identify our assumptions, bias, and blind spots that may limit the full exploration of possibilities? Should these discussions become the norm in design education, and if so, what methods should we employ? This paper proposes a Collective Interest Matrix for positioning design interventions.

Author keywords

Capitalism; Sustainable Design; Green Design; Ecological Design; Collective Interest Matrix; Stakeholder Impact Matrix; Design for Good; Design for Emergency.

Introduction

“...The economic advancement of the past two centuries is clearly remarkable, yet it is difficult to sustain, because by definition it requires constant innovation. The enduring bedrock principle of modern capitalism is this ingenuity. It produces new things, which, if successful, become durable, stable, and permanent features in the lives of modern people. Often, when such things are first experienced, they feel like “the shock of the new,” but what at first is astonishing eventually becomes routine.” (Murphy, 2015)

Capitalism presents some unresolvable contradictions. Capitalism has growth imperatives for stability but cannot grow indefinitely for ecological reasons. Providing unprecedented wealth and productivity for the past 200 years to advanced economies along with extremely high standards of living, capitalism has raised many developing nations out of absolute poverty but without the ecological possibility for the global south to consume resources like the global north. (Alexander, 2020. Hickel, 2020.)

While we hold on to technological hopes of “green growth” that would allow for economic expansion decoupled from resource use and green-house-gas emissions, researchers are quickly proving that there is an absolute limit to this optimistic scenario. (Hickel, 2018; Hickel & Kalis, 2019; Hickel, 2020a; Nardi, 2019.) In short, green growth has not been able to decouple progress and resource consumption anywhere near the levels required, because technology feeds the problem it is supposed to resolve through its incompressible, boundless resource and energy requirements.

This in turn has prompted a number of researchers to propose post-capitalist solutions to encourage frugal, sustainable, regenerative design. (McDonough, 2003. Manzini, 2003, 2015. Mang & Als, 2012, 2015. Klein, 2015. Alexander, 2020. Hickel, 2020b. Fry, 2020. Monnin & Als, 2020, 2021. Design Council, 2020, 2021.) Lifecycle management, bio-design, degrowth by design — refocusing our ambitions and processes towards more frugal, eco-responsible, collaborative practices and solutions — have yet to become corporate norms due to the efforts that would be required to adhere to consumer demands for our currently-affordable privileges, conveniences and desires — like low-cost intercontinental tourism, video-on-demand, exotic and out-of-season foods, fast fashion, ML-enhanced home automation, etc. Willfully forgoing these modern marvels of international logistics is difficult indeed.

“... degrowth captures an essential insight: it directly evokes, more clearly than any other term, the need for planned contraction of the energy and resource demands of overgrown or ‘developed’ economies. That is an agenda that mainstream environmental and social discourse refuses to acknowledge, because significant contraction of energy and resource demands is incompatible with ongoing growth in GDP.” (Alexander, 2020)

Some companies are moving away from consumption driven by individual ownership and programmed obsolescence to a subscription-based service model that incentivizes reduced consumption, repair and shared ownership, like the Porsche Drive program¹. Software companies like Adobe are also moving into this arena, reducing their need to release software updates to maintain recurring revenues from their existing user-base. Now clients pay to access its cloud-based services, yielding record profits for Adobe in the first quarter of 2022. This extractive financial model allows market leaders to maintain their positions with less

1 <https://www.porsche.com/usa/accessoriesandservices/porschedrive/subscription/> (retrieved 12/06/2022)

investments or requirement to innovate their products, and while convenience and security are enhanced with cloud-based computing compared to using a traditional hard drive, the global network of data centers needed to power these applications requires about a million times more energy than using a local hard drive. (Adamson, 2017) Short of a cataclysm, capitalism will try to fill any vacuum of unmet need with most profitable cost margins, ignoring ecological imperatives when convenient.

Design for « Good »

Designers working in industry are service providers. In the best case scenario, they help define strategies and corporate visions. In worst case scenarios, they are mere executors of others specifications. Papanek and others (Garland & Al, 1964.) put forth perceived need versus frivolous, marketing-related design as a litmus test between good and bad design practices. However, context often blurs these distinctions, especially when dealing with inclusive design that may appear like trivial conveniences to some but are performance-enhancing options to others. A smart speaker to control home lighting is a convenience for the able-bodied but a game-changing tool to anyone with mobility-impairment. Two hundred years ago, there were a half-dozen formulas for soap that cleaned everything in the house, people included. (Forty, 1986). Now it seems normal to have a different soap for hands, faces, hair, and intimate body parts, for different laundry, and all the different surfaces and rooms in the house. How much of this evolution is dictated by marketing versus improved performance? Would eczema-prone, acne-suffering individuals consider soap-free cleansers frivolous? We will not pretend to make these distinctions. We simply point out that utility value judgements in complex socio-technical systems are nuanced, with valid arguments on opposite sides of the debate. (Norman & Al., 2015)

In this ethically-charged, possibly guilt-inducing discourse, design students have a hard time identifying their ethical stances because like all nuanced discussions, hard and fast boundaries are not easy to identify or defend. To help students clarify their design's positioning within this complex system, we propose two successive intermediate design methods and artefacts — the Stakeholder Impact Matrix (SIM) — which is a reworking of the methods proposed by Olander (2007) — and the Collective Interest Matrix (CIM) which we developed and explain in in this paper. These methods help identify assumptions, bias, and blind spots that may otherwise limit the full exploration of possibilities and to discuss potential conflicts between: collective versus individual interests; public and private profits; and beneficial and adverse human and environmental impacts.

Stakeholder Impact Matrix

Freeman (1984) defines stakeholders as “*any group or individual who can affect, or is affected by, the achievement of a corporation's purpose.*” By limiting stakeholders to humans — an issue we will address later — we can build upon Olander's stakeholder impact analysis tools derived from the science of construction management and economics on the decision-making power and ability to impact project outcomes. These methods and their structural underpinnings can be used to explore stakeholder networks and impacts in socio-technical systems. We build upon his approach, simplifying and reversing the order of some steps, but ultimately, we also question some underlying ground-truths.

Mitchell et al. (1997) defines seven different stakeholder classes:

1. **Dormant** stakeholders possess power to impose their will, but do not have any legitimate relationship or urgent claim. Their power remains unused.

2. **Discretionary** stakeholders possess the attribute of legitimacy, but they have no power or urgent claim. There is no absolute pressure for managers to engage in an active relationship, although they may choose to do so.
3. **Demanding** stakeholders possess an urgent claim, but have no power or legitimate relationship. This is bothersome, but does not warrant more than passing management attention.
4. **Dominant** stakeholders are both powerful and legitimate. It seems clear that the expectations of any stakeholders perceived by managers to have power and legitimacy will matter.
5. **Dangerous** stakeholders lack legitimacy, but possess power and urgency. They will be coercive and possibly violent, making the stakeholder 'dangerous'.
6. **Dependent** stakeholders have urgent and legitimate claims, but possess no power. These stakeholders depend upon others for the power necessary to carry out their will.
7. **Definitive** stakeholders are those that possess both power and legitimacy. They will already be members of an organization's dominant coalition. When such a stakeholder's claim is urgent, managers have a clear and immediate mandate to attend to and give priority to that claim. (Olander, 2007, 279.)

Once the full stakeholder network has been identified (including those in the realm of production, mediation, distribution, reception, oversight, funding), Bourne and Walker (2005) propose the vested interest-impact index ($V_{iI} = \sqrt{(v \cdot i / 25)}$), where the vested interest levels (v – probability of impact) and the influence impact levels (i – level of impact) are qualitatively defined on the following scale: 5 very high, 4 high, 3 neutral, 2 low and 1 very low. (Olander, 2007.). These vested interest-impact values can be used to plot the various stakeholder within the stakeholder impact/probability matrix (Fig. 1.)

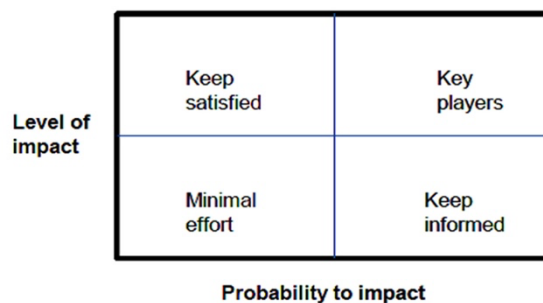


Figure 1. The stakeholder impact/probability-matrix (Olander, 2007; Johnson & Als., 1999).

These stakeholder mapping tools help identify obstacles to development, taking for granted that development *is* the end-goal. This basic assumption is unsatisfactory and ecologically inadequate regarding the production of reliable, comprehensive information to help environmentally conscious policy makers, producers, and consumers in selecting sustainable products and production processes.

While human-centered stakeholder networks may be mapped and evaluated with the SIM, we argue that a more expansive vision of stakeholder — beyond people — is necessary to evaluate impacts to organic ecosystems, as well as artificial, intangible ones like a community's reputation, attractiveness, diversity, credit rating, etc. Lifecycle assessments and carbon footprint

measurements have developed in this void, but this terrain is still fraught with shortcomings and requires our ongoing attention. (Roy & Al., 2008)

Collective Interest Matrix (CIM)

To identify a design proposition’s economic positioning, we would like to propose a second intermediate design tool, the Collective Interest Matrix (CIM), that inserts itself into the ideation phase. CIM looks at two axes: sources of capital and value creation. The first axis looks at a project’s funding sources and identifies who assumes the risk during the project’s development phase. The second looks at the value creation: who benefits most from this project and who owns the intellectual property (IP). Note that there may be multiple financing sources as well as multiple recipients of value creation and IP ownership in a single project. Below is a blank CIM template (Fig. 2). The CIM template tries to identify if there may be conflicts of interest between a project’s capital providers and its end-goals.

Collective Interest Matrix

Where is the financing (risk) coming from?	Capital	Public Funds			
		Seed, Grant & Donations			
		Private Equity			
			Corporate	Government /Associations	Commons
		Value			
		Who derives the benefits and owns the intellectual property?			

Figure 2. Blank template to be filled out in the design ideation stage.

CIM’s Capital axis is split between three types of financing sources:

1. **Private** financing, which includes private equity investments, as well as inhouse corporate financing and business loans.

2. **Public** financing derived from taxes, bonds, investments, etc. which are controlled and distributed through public agencies.
3. **Seed Money, Donations or Grants (SDG)** - funding from drawing upon personal savings, grants, and donations of time or money.

On the Value axis, we also identified three categories of value recipients, those who derive the positive impact from the project. These value recipients may be independent and different from those that own the intellectual property.

1. **Corporate** – When the end-goal is corporate profits, possibly branding-related. IP ownership and value creation are often directly related.
2. **Government/Associations** – The government and association realm organizes itself to serve specific needs or goals in the community that may be necessary but not be financially lucrative enough for corporate interests.
3. **The Commons** – Work towards the common good, by adding to the cultural and natural resources accessible to all members of a society. Work by international non-government organizations (NGO) and work produced under Creative Commons licensing typically falls under this category.

Together, these two axes create a 3 by 3 matrix whose intersections could help identify some new, creative financing options or highlight potential conflicts of interest between the project's end goals and its financial backers. CIM is an internal, intermediate object in that it is meant to be used to structure one's reflection rather than as a tool to communicate with external stakeholders. Like a comprehensive SWOT analysis, some unflattering analysis could be integrated into this matrix and should be considered an internal working document.

In figure 3, we have identified the types of organizations and projects that may be located at the different matrix entries. Starting from the upper left, let us look at the dynamics between capital and value at each junction. Each entry will be listed as **Capital / Value** : example of a project or funding organization.

1. **Public / Corporate** : public financing to boost corporate innovation through research and development funding, managed through public agencies like national research organizations. The belief is that investment in corporate innovation leads to job creation and an increased tax base.
2. **Public / Government-Associations** : projects for and funded by public agencies. This can include government investment banks, the military, utility providers, etc. Public funding of NGOs may make them less politically independent.
3. **Public / Commons** : projects sustaining cultural production, transformation and protection of natural resources, investments in public infrastructure, enacted through public policy and investments. United Nations sustainable development goals (UNSDGs) push for sustainability but with economic development in SDG8 that is not sustainable. (Hickel, 2019a)
4. **Seed, Grant, Donations / Corporate** : tax-refund-financed corporate research and development, Kickstarter and go-fund-me projects, self-financed start-ups, etc.
5. **SGD / Government-Associations** : Associative projects for community development, funded by grants and donations; however, special interest groups and political action committees also fall in this sector. Projects initiated by universities and students, like the Linux kernel, and other GNU general public license software development (self-funded and open source).
6. **SGD / Commons** : NGO projects for ecosystem protection and cultural preservation, funded by grants and donations.

7. **Private / Corporate** : Traditional corporate and capitalist activities that focus on growth, maximizing return on investment (ROI), and protection and expansion of IP assets. Private funding and IP ownership brings risks for conflicts of interest when developing social and environmentally responsible projects. This capital/value conflict is most often the source greenwashing and ethics-washing charges against corporations.
8. **Private / Government-Associations** : Consortium-based organizations like the W3C that works towards shared IP and cooperation for international standards, and the open-source projects that may arise from their common goals. International tensions may arise from over-represented national in certain consortiums.
9. **Private / Commons** : Open-source corporate-driven projects like Apple's Swift programming languages, Google Chromium and TensorFlow, Pytorch, publication of corporate machine learning algorithms, etc. Harnessing improvement to source code by releasing it to the community in exchange for relinquishing corporate IP rights. This does produce some tension within the open source community.

Collective Interest Matrix

Where is the financing (risk) coming from?	Capital	Public Funds	Public Innovation Financing (e.g. ANRT & CIFRE, RFI-OIC)	Government institutions	Public Policy & Infrastructure (Nature reserves, United Nations Sustainable Development Goals)
		Seed, Grant & Donations	R&D financing (tax refunds) Start-ups	associations focusing on community action (may be political)	NGOs focusing on ecosystems (Greenpeace)
		Private Equity	All corporate IP (Green & ethics washing risk)	Consortium based organization (W3C, Mozilla, etc.)	Open-source Corporate-driven Projects (e.g. Swift)
		Corporate	Government /Associations	Commons	
		Value			
		Who derives the benefits and owns the intellectual property?			

Figure 3. Collective Interest Matrix with various types of projects, design interventions, funding partners and/or recipients found in each respective entry.

Conclusion

In this paper, we propose addressing the difficult tensions between capitalism and eco-responsible, sustainable design by building upon on two intermediate design tools: the Stakeholder Impact Matrix (SIM) which is derived from Olander (2007) and Collective Interest Matrix (CIM), which we developed.

First with the SIM, we identify the seven categories of stakeholders: Dormant, Discretionary, Demanding, Dominant, Dangerous, Dependent, and Definitive. Once the stakeholder network has been identified, values can be assigned using the vested interest–impact index ($V_{iI} = (v \cdot i / 25)$) and plotted on the stakeholder impact/probability matrix (Fig. 1.) Moving beyond its inherent development-driven ground-truth, non-human stakeholders who will be impacted by a design proposal should be identified to evaluate impacts to organic and socio-technical ecosystems. Refining this process will be the next step in our research.

Once the stakeholders have been identified, the Collective Interest Matrix (Fig. 2) can be plotted to identify possible sources of capital, identify who will assume the risks, who derives the benefits from the project, and who owns the intellectual property. When aiming for a socially and environmentally responsible design project, the CIM can identify potential conflicts of interest while still in the ideation stage, open up ideas towards other funding possibilities, and help guide the development towards mutually-beneficial socially and ecologically responsible cooperation between the sources of capital, design’s beneficiaries, and the IP owners. However, it remains the designer’s responsibility to assess and ultimately determine the social, economic and environmental end-goals, impact, and trade-offs of their propositions.

We humbly propose these intermediate methods and tools to the design community to extend ways of looking at design’s impacts, and look forward to getting feedback on possible refinements and improvements.

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