A Political Theory of BigFastForever Systems and How They Usurp Politics

The proposed dissertation project has two complementary parts: 1) further developing a theory of "BigFastForever systems"—engineered systems and supply chains that are global, change rapidly, and have long-term effects, such as the supply chain convened by "the Internet"; and 2) building prototype maps (i.e., doing a political ontology) of a few of these BigFastForever systems—which in turn will require building corresponding datasets and data tools.

The dissertation would seek to test the hypothesis that there is an injustice—the usurpation of the political capability—inherent to the modern political *cum* technological project of achieving a just society via the control afforded by BigFastForever engineered systems.[1] It would seek to provide a theory of technology that is actionable, that provides a relatively clear way forward (see Impact Statement). At least that's the big vision for this project, a vision coextensive with the Core Questions listed below; whether or not it will make sense for a dissertation to aim to achieve this ambitious vision, I will need to figure out with advisors.

Important details of the proposed work are below. First I present an up-to-date sketch of the political theory of BigFastForever systems developed in my M.S. thesis, then I sketch the mapping project.[2] The final sections provide an impact statement, the core questions of the project, and a select bibliography.

I. A Sketch of BigFastForever Theory: The Need to Map Supply Chains that Usurp Politics

Many contemporary supply chains can be described as *big* systems, that *change rapidly*, and *have long-term effects*. In my terminology, these supply chains are "BigFastForever systems" (BFFs) *relative to the size, speed, and duration of a healthy politics.* Politics— taken in the Arendtian sense as the actions by which we shape our lives in community together and attain mutual recognition and public happiness—occurs, seemingly immutably and necessarily, in relatively *small*, *slow*, and *"now"* (SSN) spatial and temporal boundaries. Thus there is a mismatch between the BFFs that increasingly constitute our world, and the SSN constraints of the kind of political knowledge and action needed for healthy communities and polities.

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[1] I follow Markell (2008) in using "usurp" to describe the particular unfreedom produced by inhibiting political involvement.

[2] My M.S. thesis is available at https://digitalcommons.dartmouth.edu/masters_theses/84/.

For example, the iPhone supply/waste chain—encompassing material sourcing, manufacture, shipping, advertising, use, end-of-life, etc—forms a web that encompasses the globe many times over. Additionally, it changes rapidly: new suppliers are added, dropped, or modified, and suppliers' processes change, on a weekly basis. Lastly, the iPhone supply/waste chain impacts people, cultures and ecosystems far into the future—e.g., through CO_2 emissions, micro-plastics, teen anxiety/depression, and rapidly altering the economy and culture of particular places. In contrast to the iPhone supply chain, political knowledge and action are restricted to a relatively local scale: a neighborly range (tens of miles? then attenuated into larger political communities, institutions), the speed of deliberative bodies (ready for one big new thing once a month, at most?), and the duration of a human generation (doesn't reach beyond 30 years?).

But is it true that politics is restricted to a relatively local scale? And why should we care about a mismatch between the temporal and spatial scales of politics and engineered systems? Answering these questions requires an ontology of politics, an understanding of what politics is, how it can and should exist, and what its role might be in a just society.

In conversation with Danielle Allen, Hannah Arendt, Bonnie Honig, Ivan Illich, Patchen Markell, Michael Sandel, Dana Villa, James Lindley Wilson, and a handful of others (noted in the Select Bibliography below) I argue that politics—concerted action to shape communal life—is an essential element of the good life. Humans are "a political animal" in a descriptive sense, but also in the normative sense that it is impossible to live a flourishing life without the capability to engage in politics: we *should be* political animals, and it is through politics that we can achieve the treasure of "public happiness" (Arendt 1954, 5). Some recent and powerful articulations of the intrinsic value of politics include Allen's assertion that "in [the] activity of cocreation people flourish" and Honig's statement that "when we gather on behalf of a cause, contesting the powers that be, we experience a thrilling energy of mattering together, a feeling that is different from anything we feel alone" (Allen 2023, 28; Honig 2023, xx).

Though there are many thinkers who appear to agree with the claim that politics is essential to the good life, the inherent value of politics only animates a very few works, including those written by the aforementioned thinkers who have a "political metaphysics." As Arendt and Honig most directly articulate, much political theory has been bent on escaping politics, and "most political theorists are hostile to the disruptions of politics" (Honig 2023, 2). For example, in much of the Science and Technology Studies and democratic theory literature on which I rely, democratic politics is understood as instrumentally, rather than intrinsically, valuable: democracy is valuable 1) for its ability to represent otherwise marginalized interests—to decrease "the distance between the governors and the governed" as Jasanoff (2005, 6) puts it—and/or 2) because it improves decision-making (this is the more controversial and niche justification for democracy advocated by epistemic democratic theorists, such as Landemore). Such accounts understand democratic politics in mainly administrative, rather than agonistic, terms.

In contrast with this administrative understanding of politics that emphasizes the instrumental value of democracy, I, along with Arendt, Illich, et. al., understand politics as the convivial, embodied activities of world-forming—from farming to spiritual practice to bicycle maintenance—and value it as a capability essential to living the good life. This difference may appear subtle or secondary in the abstract, but it is one of the key differences that causes my normative prescription, my understanding of justice, and my methods to diverge from related theory.

That shaping communal life is a necessary element of the good life—that politics is inherently important, independent of its instrumental importance—is perhaps most clearly illustrated in Dostoevsky's *Notes from the Underground* which imagines a world in which politics has been eliminated under the best circumstances.[3] Dostoevsky envisions a "Crystal Palace" that is a perfectly engineered world such that every need (physical, social, psychological) is met *except* the need to shape communal life because, after all, the world is already perfect, so changing it would mar it. Yet this perfectly engineered world is deeply unsatisfying to the Underground Man, who wants to act out in the face of such perfection and "scatter rationalism to the winds, simply to send these logarithms to the devil, and to enable us to live once more at our own sweet foolish will!" (Dostoevsky 1996, ch. 7). I believe that, like the Underground Man, most people could not flourish in a "perfect" and perfectly apolitical world. That is, independent of any particular outcome of political action, such as a new government or an improved local road, political action —forming the new government, deliberating about how to repair and repairing the local road—is valuable in and of itself. The political capability is therefore something that must be protected and nourished for each individual in a just society.

I argue that the inherent value of politics places a normative restriction on its scale: since exercising the political capability is an essential element of the good life, the artificial systems that constitute our lives *should* be restricted to a scale such that everyone can exercise the political capability and is empowered to shape their communal life.

That politics is inherently valuable is a controversial claim, one with which many people might disagree, at least at first. Many people have told me that they really would prefer to live in a sublimely engineered "Crystal Palace" where all their needs (except one!) are satisfied by an ingenious apparatus. Most people seem happy to give up their ability to influence the world in order to be safe, well-fed, free from disease and death, entertained, etc. Contemporary digital technology has allowed us to see this preference extremely clearly: by our collective action to live increasingly online, we trade empowerment for the simulacrum of empowerment, politics for virtual politics (Barba-Kay 69, 251-256). However I believe this is a case of what Martha

[3] In accord with Honig's assertion of "the value of approaching rational argumentation from an experiential or phenomenological perspective," I believe it is important to understand the phenomenology of living under the regime of BFFs, and I have found the relevant experiences addressed in canonical writers such as Dostoevsky and Kafka but also in more recent writers such as Murakami and Kingsolver (Honig 2023, xvi).

Nussbaum calls “adaptive preferences” in which people have adapted to a state of affairs (perhaps a struggle for subsistence, an apolitical culture, or virtual agency) that conditions them to prefer a particular reality that is, ultimately, not conducive to their flourishing. If indeed we live in an apolitical, disempowering reality—as David Graeber, Ivan Illich, Anne Case and Angus Deaton, and Antón Barba-Kay argue—then, according to the logic of adaptive preferences, it would be no surprise if many people say they prefer not to engage in the difficult but fulfilling work of shaping one’s communal life.

While the inherent value of politics is controversial, it is less controversial that politics is instrumentally valuable. It is generally held that intentional shaping of communities is necessary in order to improve them (with respect to justice). Haphazard shaping, or stasis, is generally not considered a good way to work towards justice. In fact some of the most powerful proponents of BFFs, technocrats, share this assumption. I use this widely held assumption and interrogate what “intentional” shaping could possibly mean, building on Hayek’s theory of the local nature of knowledge. I conclude that politics, insofar as it is intentional, must be relatively small scale—limited to a particular community, a particular time and place—in order for it to be *intentional* shaping of the world.

Putting it all together, I make two main claims:

- Fast supply chains usurp politics because the understanding and deliberation required to regulate and participate in supply chains requires time to build. *If supply chains are always new because they are always changing, then 1) corporations engage, intentionally or not, in “regulatory evasion by speed” and 2) humans are cut out of meaningful opportunities to participate in shaping their world.* There is very little research or theory on the political problem of fast systems. William Scheuerman’s *Liberal Democracy and the Social Acceleration of Time* (2004) provides one attempt to understand the political problem of speed; however, as discussed in my M.S. thesis, Scheuerman does not focus on the speed of material realities, but instead focuses on “social acceleration”—probably because the data and metrics to measure the speed of world-change are lacking.
- Big and long-duration supply chains usurp politics because they extend to places and times far beyond the capabilities and desires of political actors. *If, relative to human communities, supply chains are big and long-enduring, then 1) corporations will, intentionally or not, discount unknown or uncertain effects on important phenomena, resulting in “regulatory evasion by over-confidence” and 2) humans are cut out of meaningful opportunities to participate in shaping their world.* There is much more literature on this political problem of big and long systems; notably, collective harms literature in philosophy journals, Judith Lichtenberg’s *Distant Strangers* (2014), Thomas Hale’s *Long Problems* (2024), and Ivan Illich’s *Tools for Conviviality* (1973).

In other words, BFFs are intrinsically antagonistic to politics. It's BFFs vs. politics. And since politics is a necessary ingredient of justice, of flourishing lives for all, BFFs are unjust.

To be clear, this argument against BFFs posits that they are inherently unjust, not just circumstantially or occasionally unjust. Most arguments against BFFs are focused on the circumstantial injustices of negative externalities—CO_2 emissions, toxic emissions, destruction of beauty, labor exploitation, alienation and anomie—and imply that if these negative externalities can be controlled through regulation and market design then BFFs are unproblematic. Indeed, this assumption that negative externalities are the only problem with BFFs seems to be the assumption that underlies the dominant political and policy approaches. BFF theory questions this assumption that perfect control can achieve a just society, and therefore questions the justice of the most dominant (if implicit) decision-making framework/ theory of justice (which, in my undergraduate thesis, I termed "wilderness subjugation").

In a world where many supply chains are BigFastForever systems—from the internet and smart phones to groceries and road systems; and we face the prospect of a world that doubles down on even bigger, faster, and longer-enduring supply chains as "solutions" to the negative externalities of other BFFs; it is extremely important to work on recognizing and mitigating BFFs while transitioning to more local engineered systems and economies.

II. Mapping BigFastForever Systems for Moderns

For two reasons our capability to recognize BFFs for what they are is severely underdeveloped. First, and tractably, there has been no theory of BFFs to guide such epistemic projects. The theories that inform journalism and supply chain mapping in industry are pre-BFF (or simply *modern*, in Latour's sense) in that they assume: 1) politically constitutive things occur in a particular time and place, and they occur at speeds amenable to the usual journalistic and analytic tools; 2) uncertain relationships do not need to be explored with the same attention as certain relationships; 3) and, a host of technological assumptions that STS scholars will happily resist, such as the neutrality of engineered systems (technologies are "just neutral tools to be wielded for good or ill"). The overarching, problematic assumption is that "the way we have understood in the past is adequate for understanding the world now."

The second reason our capability to see BFFs for what they are is severely underdeveloped is, arguably, because it is impossible. Human beings are creatures of particular times and places, and our understanding of the world can only update so quickly. The worlds we can comprehend are relatively small, slow, and now (SSN) because these are the sorts of world in which our biotics and politics evolved. Simply, I do not believe we can escape this evolutionary reality. (I also think that is a good thing; but that is another question.) The best we can do, as SSNs up against BFFs, is to develop just barely enough knowledge to take political action. Further, we now tend to construe the world *in terms of BFFs: we have naturalized them, and they are therefore invisible.* As Barba-Kay writes, “there is a mutually reinforcing relationship between our sense of what’s objective and what’s in fact most transforming us” (Barba-Kay 65).

How much knowledge is just barely enough to take political action? It will vary from community to community, but we should consider the majority of contemporary communities—or perhaps just the one extremely dominant “community” (or perhaps amalgamation) of *modern people—people who live among super highways and strip malls and do not or cannot question BFFs.* (This usage of “modern” is informed by Bruno Latour’s *We Have Never Been Modern*, 1991.)

For modern people, a large amount of knowledge, a relatively clear vision, will be necessary to inform political action. That is, a vision of BFFs amenable to this dominant amalgamation will have to compete with other visions—of sustainable development, of “the economy,” of climate change, of titillating screen distractions, of a BFF-enabled high-tech utopia; and although all of the latter are intimately involved with and produced by BFFs, they are seen by moderns as preBFF “things”that are comfortingly durable and located in particular times and places. For example, a politically adequate representation of BFFs will need to contend with the vision of a Martian civilization (of humans, or arguably former humans) that I believe to be, based on immersive experience in engineering school, extremely politically powerful among many engineers. It will need to contend with the vision of climate action presented in a recent *Economist* article arguing for a ruthless growth logic that continues to “loot the planet in order to save it,” a vision that is likely extremely powerful for the modern milieu.

In other words, from the perspective of a local economy advocate—Wendell Berry, say—recognizing BigFastForever systems for what they are is not so hard and the choice to eliminate them easy. Wendell Berry needs only the roughest of sketches, and he can get this through traveling on his neighborhood super highway. But for those who do not bring a localist approach to a valuation of “business as usual,” for those of us who are thoroughly schooled in the techniques and coping mechanisms needed to achieve functional denial about the bewilderment and disempowerment that accompany us in a world of BFFs, recognizing BigFastForever systems for what they are will be extremely difficult and requires much help—a very good “map.”

I propose to build an *ontological map of BFFs for moderns:* a multimedia representation of particular BigFastForever systems that trace their causal chains and provide tools for understanding how BFFs might usurp politics. I am currently thinking that this map would take three forms: a museum-like exhibit; a digital website with a fancy UI; and a book/dissertation. While the map will be designed for the public—with the intention of providing the experience and knowledge needed to develop a political judgment of BigFastForever systems—it will also serve as the empirical research project most necessary to test and revise the BFF theory.

Building this map, I believe, will take multiple years of research, data collection, data synthesis and interpretation, physical prototyping, coding, writing and editing. Here I will elaborate on the sort of data that is needed to build this map, because the collecting then synthesizing of this data will be the essential element, the foundation, of the map. I see this map as an instantiation of the sort of "material history of infrastructure" called for by Hansen and Schulze (2021), perhaps unusual in it's contemporary focus and the fact that its construction and purpose will be defined and constrained by the normative theory of BFFs presented above.

The map will be built using two sorts of data: relationship duration data and probabilistic deeptier data.

Relationship duration data would identify the speed of supply chains. It would do so by tracking how supply chains change in time and (therefore) the duration of supply chain relationships. Essentially, a time dimension would be introduced to traditional supply chain data (such as that collected by Open Supply Hub) such that it would be possible to track how long a supply chain has existed in its current state.

Probabilistic deep-tier data would identify the size and duration of systems. It would do so by attempting to build comprehensive cause-effect data on supply chains, all the way from the deepest-tier suppliers to the most causally-distant effects in the waste chain. This means it would need to go deep into what supply chain analysts call "tiers": with respect to a focal organization, tier-1 suppliers directly supply the focal organization, tier-2 suppliers directly supply tier-1 suppliers, tier-3 supplies tier-2… *ad nauseam.* Such a "deep-tier" approach would require expanding the system boundaries of supply chains quantitatively and qualitatively, effectively stretching the conventional definition of a supply relationships to include so-called externalities. The result would be to see "supply chains" for what they are—cause-effect chains, often with links far away and far in the future, which deeply shape our lives and politics.

Building deep-tier data requires a probabilistic approach since direct measurement to the desired resolution will become either prohibitively expensive (it's too expensive to be certain of every supply relationship at all times; this is epistemic uncertainty) or inherently uncertain (as with future supply relationships; this is aleatory uncertainty). Supply chain data organizations, such as OS Hub, do not currently have a probabilistic approach to their data (at least what's freely accessible), which makes sense as long as the data does not go very deep. However, when the data does try to capture deep-tier relationships, uncertainty increases, and it will become necessary to represent each relationship as a probability distribution.

Relationship duration and probabilistic deep-tier data would inform two important metrics: a "speeding metric" and an "alienation metric."

The speeding metric would be calculated from relationship duration data and would quantify whether a supply chain is changing faster than the political speed limit. That is, in order for this data to be useful, it would be necessary for political actors to define a speed limit. (Part of the remaining theoretical work to be done is to provide data and arguments that might help communities to set this limit.) Just like radar on the highway, relationship duration data and interpretation tools could allow for the policing of supply chain speed, whether by sociallyoriented businesses themselves, or by the civil society organizations (CSOs) and governmental regulators inevitably needed to enforce speed limits. It could answer the question: with respect to the speed of politics, is this supply chain speeding? Or is it at/under the speed limit? For example, does Walmart evade effective regulation by changing suppliers of palm-oil or plastics faster than people can develop an understanding of the new supply chains, including the labor conditions at the new palm oil plantations, or endocrine effects of the new plastics?

The alienation metric would be calculated from probabilistic deep-tier data and would quantify whether a supply chain is too big and/or too long with respect to political size and duration. Just like with duration data, in order for probabilistic deep-tier data to be useful, it would be necessary for political actors to define the spatial and temporal bounds of their political community. (Again, part of the remaining theoretical work to be done is to provide data and arguments that might help communities to set this limit.) An alienation metric would allow stakeholders to answer the question: with respect to the spatial and temporal limits of (our) political community, does this supply chain have effects that are too far away or too far in the future? For example, is Exxon's supply chain unacceptably long because of how it might "supply" groundwater with fracking fluid or "supply" the atmosphere with CO_2? Is it unacceptably big because of its multi-global size? Relationship duration data could also be the basis of a more technocratic *risk metric*, which would require weighting the cost/benefit of each supply relationship, then multiplying by its uncertainty (uncertainty x impact = risk). However, the BFF theory obviates the need to weight each supply relationship: regardless of whether a big/forever relationship is deemed "benign" or not by a technocrat, it still usurps politics. Size and duration synthesized in an *alienation metric* are the relevant political data.

With these two types of data and metrics on select BFF supply chains, it will be possible to produce the desired ontological map: a museum exhibit, a book/dissertation, and a digital complement. The digital complement would allow for scaling and will provide an accessible option for those who will not or cannot learn from reading or museum exhibits—a group that I assume is a large portion of the modern population. The physical exhibit will allow for exploration of difficult-to-represent realities such as multi-global distance, thousand-year durations, and weekly speed (weekly changes in the world are incredibly fast with respect to political existence). The *hiç et nunc* of a physical exhibit would drive home the point, often lost in a world of techno-optimism and earth-alienation, that we are indeed here and now, with some —but extremely limited—ability to extend our spatial and temporal horizons. Inspiration for the exhibit comes from [Kate Crawford and Vladan Joler's Anatomy of an AI System]. Finally, the book/dissertation would provide the necessary depth, scholarly context, and meditative medium.

I believe that building an ontological map of BFFs for moderns would require a team, perhaps similar to existing academic labs, with the following roles:

- political theorist(s)
- Life Cycle Assessment engineer
- supply chain analyst
- full-stack software engineer
- artist/exhibit designer
- research assistant(s)

To build out prototype maps—physical and digital—for three BigFastForever supply chains, to the high degree of detail, appeal, and intellectual integrity necessary to make them useful, will take 2-5 years.

If I cannot accomplish the full project in a PhD, I hope my PhD will lay the groundwork for leading a lab that could accomplish the project in full.

III. Impact Statement

This research project is focused on a set of questions that query the essence of modern technology and what should be done about it. It presumes that our understanding of engineered systems has so far been inadequate and aims to make methodological and substantive contributions to our understanding that suggest a relatively well-defined set of actions.

The substantive contribution will emerge from interrogating the claim that there is an essential, inherent problem with the BigFastForever supply chains (that are the cause and effect of the more recognizable engineered "things" with which we interface): these supply chains overwhelm the political capability with size, speed, and duration. This inherent injustice is *necessarily* produced by BigFastForever systems, unlike the circumstantial injustices produced by negative externalities.

The methodological contribution aims to complement a theoretical critique with data and data visualization tools that will test the theory and make it more accessible. This ontological map of BFFs for moderns aims to bridge theory and practice in an unusual and much-needed (though admittedly difficult and fraught) way, drawing on my own interdisciplinary background and thinking.

Finally, BFF theory seems to be more actionable than many other theories of technology (which does not diminish their importance; many of these theories are critical sources and context for my thinking). Here I'll focus on a recent theory, Antón Barba-Kay's theory of digital technology as presented in *Web of Our Own Making*; I think there are similar arguments to be made about other theories of technology.

Barba-Kay's theory of digital technology argues we must practice a refusal to digital technology, acting out a "no" to the digital web with which we've ensnared ourselves. While the "no" is relatively clear, there is not a clear "yes" that complements the "no" and lays out a path for how to go about opting out from the bad and opting in to the good.

BFF theory provides the concomitant "yes" to Barba-Kay's "no"—a "yes" to relatively small, slow, and now (SSN) engineered systems as a prerequisite of justice. (This is of course the complement of a specific "no" to BFF engineered systems). Of course the clarity of the "yes" provided by BFF theory is not perfect; but I believe it is sufficient to guide action, a transition away from BFF systems (which preclude politics) toward local economies (which allow politics).

While the actionability of BFF theory partly stems from its idiosyncratic content, it seems also to come from three features of the approach itself: 1) a focus on infrastructure/systems, 2) a more explicit theory of justice and, perhaps, 3) a political (rather than philosophical) approach.

First, BFF theory adheres to Barba-Kay's imperative: "Do not fight [digital technology] directly (since that too is its power to shape you), but work to change the subject altogether" (Barba-Kay 246). BFF theory takes an "infrastructural" or "systems" approach that productively changes the subject from the sensational phenomenology of the fleeting moment to the mundane and persistent (and therefore graspable) features of the infrastructure that allows for sensational digital phenomena. Of course Barba-Kay intentionally uses the broad category of "digital technology" to address the infrastructural, persistent logic and forces underlying more sensational, fleeting digital subjects such as "TikTok" or "Google" or "AI." But "digital technology" may itself be too sensational a subject if the goal of critiquing the subject is to provide an actionable "no." BFF theory chooses a subject of critique that allows for a clear "yes" to complement the "no," a subject that can be seen and shaped from relatively firmer ground. Specifically, BFF theory goes beyond the screen to focus on the engineered systems that are required by the screen.

As discussed above, this allows for a focus on the root or internal problem rather than the sensational external problems (externalities) of many BFF systems. While this radical focus make the theory seem less relevant to the sensational problems produced by modern technology, it also makes it more actionable—it is addressing root causes, not just symptoms.

Second, BFF theory provides a more explicit theory of justice (briefly and reductively, a fusion of Nussbaum's capabilities approach and Arendt's understanding of public happiness). Such a clear articulation of the ends of human lives allows for clarity about the tradeoffs involved in choosing to eliminate BFFs. While it's possible that this shuts down conversation (because of preexisting bias against the capabilities approach), my hope is that it sparks better conversation by preventing the sort of misunderstanding that underlies the tech-exec's email that forms Barba-Kay's final chapter. Presenting an explicit theory of justice is, perhaps of course, to risk going too big and losing it all as a result; I believe the rewards justify the risk.

Third, I tentatively submit that BFF theory is rooted in and emerges from a more common-sense and accessible language of understanding the world—it emerges from a medium (or discipline) that is more grounded and worldly. Specifically, it emerges from conversations more situated in the modern academic discipline of "political theory" than "philosophy." What is the pertinent difference in these conversations? Is it normative: that what I am calling political theory is generally more comfortable holding normative assumptions close, of not presuming the fact/value or logic/feeling duality? Is it simply one of the medium of inquiry, that philosophy is more literate and caught up in the written word? And therefore less accessible to the less-literate and more-oral majority? In any case, BFF theory intends to "speak to us" and convoke action in a way that other theories may not.

IV. Core Questions

Below are the core questions that will inform this project.

Overarching Questions:

- What is politics and why is it important? (What is the relationship between politics and justice?)
- Can control achieve justice?
- What conditions preclude the possibility of flourishing lives for all, or justice?
- What engineered systems are conducive to the just society?
- What are the political consequences of an artificially magic world? (see Barba-Kay 62)

Descriptive Questions:

- What are the spatial and temporal boundaries of the engineered systems that are most constitutive of our lives today?
- What are the spatial and temporal boundaries of politics?
- How do BFF systems affect politics?
- Why and how did BFFs come to be?

- What is the difference between a complex system and a BFF system?

Normative Questions:
- What should we do about BFFs? (Now that we have built a world of BFFs, how should we cope with them?)
- How should we design engineered systems?
- How should we weight the political capability with respect to other capabilities? (see Nussbaum 2011)

Methodological Questions:
- What is the best language/medium/discipline in which to think about the world (such that the thought informs right action)?
- How can political theory help us to understand the problems produced by engineered systems? (Are engineered systems institutions?)
- How can we collect deep-tier probabilistic data and relationship duration data on select BFF systems?
- How might we best represent the causal chains of engineered systems for moderns? (How might we build an ontological map of BFFs for moderns)?

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