On the Innovations Too Powerful to Share

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With some reflection and logical reasoning, it becomes evident that societal progress (whether technological or cultural) is unlikely to continue indefinitely. At some point, its pace is bound to slow, stagnate, or even regress. While this may seem pessimistic, the causes of such a plateau are not necessarily mysterious. In this paper, I propose that the primary limiting factor of a society is individual selfish behaviour: specifically, the unwillingness of individuals to share transformative discoveries or technologies with the wider population. Importantly, I argue that this pattern is not only observable in real history but also logically deducible through basic thought experiments. I further suggest that although selfishness is deeply rooted, this barrier can be consciously recognized and corrected. While some of the arguments made herein rely on conceptual or hypothetical scenarios, I will mark all foundational assumptions with an asterisk (*) for transparency and scrutiny.

To begin, consider the following motivating question:

If you invented a time machine, would you make it publicly accessible or share the technology with others?

This question is more than rhetorical. It probes the psychology of control and trust. For many, the immediate and instinctive answer would be a firm "no", or at best a cautious and conditional **"maybe, depending on who and how."* Indeed, most would hesitate or outright refuse to share such a device, even if doing so might promise immense societal benefit.

Why is this? The reasoning is often implicit, but it can be unpacked into several components:

1. *Power imbalance and fear of misuse:* A time machine represents near-absolute power over reality. Sharing it means placing that power in the hands of others who may not act responsibly. Most people would worry, rationally or not, that others might use the technology for personal gain, to alter history destructively, or even to erase their own existence.
2. *Loss of advantage:* The inventor of such a machine would likely see it as a ticket to wealth, security, or influence. Sharing it nullifies that advantage. In a competitive, resource-scarce world, it is not irrational to protect one's leverage, especially when the payoff is immense.
3. *Lack of institutional trust:* Even if one wishes to share the device responsibly, say, with a government or scientific body, there is no guarantee it will be used ethically or transparently. Institutions can be corrupt, biased, or simply shortsighted.
4. *Existential risk:* The stakes are existential. The mere existence of a time machine could introduce threats to causality or irreversible harm. Thus, individuals may see non-disclosure as the safest possible path.

For these reasons, it is not difficult to see that a commercial, publicly available time machine is almost certainly impossible, even if the technology were physically feasible.* The

natural conclusion is that the mere inventability of an idea does not guarantee its dissemination, especially if its very power invites hoarding rather than sharing.

This leads us to the core insight of the paper.

We define a category of innovations, *Class T breakthroughs*, that share a common property with the time machine: namely, that most individuals, if they independently developed such a breakthrough, would choose not to share it with the world.* This category may include hypothetical or real technologies that confer overwhelming individual advantage or are difficult to regulate ethically. The reluctance to share them stems not from malice, but from a rational form of self-preservation.

To generalize this principle, we must note that the time machine is merely an extreme case of a broader pattern. Other examples might include:

- A pill that grants immortality or drastically extended youth*
- An algorithm that can predict future events with high accuracy*
- A device that can manipulate thoughts or emotions in others*
- A secret method of creating unlimited clean energy, but only usable by a single operator*

In each of these cases, the likely behaviour of the inventor mirrors that seen in the time machine scenario: secrecy or monopolization, driven by personal incentives and fears about misuse. These, too, are *Class T breakthroughs*.

It is necessary to clarify that not all inventions fall into this category. Many breakthroughs, such as vaccines or software protocols, have historically been shared widely, even if they were initially patented or monetized. The distinguishing feature of a *Class T breakthrough* is not its potential for good, but the individual cost-benefit calculation that deters disclosure, even to trustworthy entities.

Understanding *Class T breakthroughs* helps explain a sobering truth: there may be many technologies or ideas that have already been discovered in some form, but which remain hidden due to the psychology of ownership. This presents a major bottleneck in human progress. Not one of intellect or engineering, but of ethics and incentive structures.

In the remainder of this paper, I will explore the implications of this theory: the conditions under which *Class T breakthroughs* arise, how they influence the arc of progress, and what can be done to reduce their hoarding. Ultimately, I will argue that recognizing the psychological barriers to sharing is the first step toward designing institutions that allow society to unlock and benefit from its own potential.

To better understand the concept of *Class T breakthroughs*, it is useful to contrast them with the opposite category: innovations that have not been withheld from the public. That is, technologies, ideas, or discoveries which were ultimately shared, either freely or commercially, with the broader population. These innovations are not *Class T breakthroughs* because the individual or group responsible for their creation performed a cost-benefit analysis and, finally,

concluded that the benefits of dissemination, whether moral, financial, reputational, or collaborative, outweighed the perceived costs of exclusivity.*

In other words, these are examples where invention did not result in gatekeeping, even if some temporary barriers (e.g., patents or monetization models) were involved. The defining feature is that access eventually became possible for the general public, or at least large portions of it.

Some prominent historical examples include:

- *The printing press (15th century)*: Invented by Johannes Gutenberg, the printing press revolutionized the distribution of knowledge. While Gutenberg had commercial interests and kept certain techniques secret for a time, the core innovation spread rapidly across Europe, leading to democratization of information and the scientific revolution. The technology was replicable and eventually impossible to monopolize, prompting open dissemination.
- *Vaccines (18th century onwards)*: From Edward Jenner's smallpox vaccine to the mass-produced COVID-19 vaccines of the 21st century, immunization technologies have typically been shared widely, often with the support of public institutions and international cooperation. Though intellectual property rights may exist, the nature of public health crises has led to large-scale adoption and distribution, sometimes even at the cost of profit.
- *Electricity and alternating current (19th century)*: Nikola Tesla, among others, helped develop and promote the alternating current (AC) electrical system. Tesla, notably, was known for releasing patents or choosing not to enforce them in certain cases, prioritizing societal access over individual wealth. Despite fierce rivalries (e.g., with Thomas Edison), the underlying technology was made available on a large scale and remains foundational to modern civilization.
- *The Internet (20th century)*: While initially developed for military and academic use, the protocols and infrastructure that underpin the internet (e.g., TCP/IP) were eventually standardized and made open. Governments and researchers opted for a model of global interoperability rather than exclusive control, resulting in one of the most transformative tools ever shared with the public.

It's important to note that *every* innovation known to the public does not fit into *Class T*. These and similar cases reflect a broader pattern: when inventors perceive that sharing their work leads to greater long-term benefits, whether through fame, fortune, legacy, collaboration, or moral fulfillment, they are more inclined to release it. Non-*Class T breakthroughs* typically emerge in environments where:

- The innovation is difficult to monopolize or hide indefinitely (e.g., due to simplicity, reproducibility, or competing parallel efforts);
- There are strong institutional incentives to share, such as academic prestige, government funding, or public pressure;
- The invention's usefulness is increased by network effects or mass adoption, making exclusivity counterproductive;
- The inventor's personal value system includes ideals such as open knowledge, humanitarian benefit, or scientific collaboration.

It is important to note that the act of sharing does not always imply altruism. Many non-*Class T breakthroughs* were disseminated for reasons that aligned personal gain with societal good. Nonetheless, the key distinction lies in the decision-making process: non-*Class T breakthrough* inventors saw more to gain (or less to lose) by making their discovery available to others.

It is also worth recognizing that *Class T* status is not necessarily permanent. An innovation may enter or exit the *Class T* category over time, depending on how its perceived value or risk evolves. A useful illustrative case is the hypothetical discovery of a planet composed entirely of gold. Initially, the discoverer would have every incentive to keep this knowledge secret, as the rarity of gold sustains its immense value. In this early phase, the innovation (the ability to access and mine that planet) would almost certainly be considered a *Class T breakthrough*. Hoarding would be rational, perhaps even inevitable.*

However, if and when the secret is eventually revealed or replicated, the dynamics change. If gold supply increases, scarcity diminishes and, with it, the profit motive. At some tipping point, the innovation may fall out of the *Class T* category because there is no longer a compelling reason to keep it hidden. In fact, sharing it might become preferable, whether for reputational gain, historical legacy, or simply because it no longer offers significant leverage.

This fluidity demonstrates that *Class T* status is a function of context: what matters is not just the objective power of an innovation, but the incentive structure surrounding its disclosure. Crucially, though, some innovations, such as a time machine, may be permanently classified as *Class T*.* The power conferred by such technologies is so extreme and enduring that it is difficult to imagine a future where their strategic value disappears. As long as control over time remains consequential, the incentive to withhold it persists. These "hard *Class T*" breakthroughs pose the greatest long-term challenge, as they are unlikely to ever transition into the public domain, regardless of shifting economic or social conditions.

By clearly distinguishing these two classes of innovation, we can begin to map the contours of where and why progress continues, and where it silently stalls. The existence of non-*Class T breakthroughs* shows that widespread dissemination is possible and has occurred repeatedly throughout history. However, it also underscores the worrying implication: if just one individual's decision to not share can (virtually) permanently delay access to a transformative technology, then the future of societal advancement is vulnerable to personal judgment and trust.

To deepen our understanding of *Class T breakthroughs* and their societal implications, we must also examine the nature of possibility itself. On the surface, "possibility" appears to be an objective concept: something is either possible or it is not, as determined by the laws of physics, mathematics, or logic. However, in practical human terms, possibility is fundamentally subjective, varying dramatically based on one's access to information, tools, and technology.*

To illustrate, consider an individual who has access to a *Class T breakthrough*: an unshared discovery that alters basic constraints of human life. For instance, suppose a high-profile inventor or technologist had secretly developed a substance or device that eliminates the biological need for sleep. From the outside, such a scenario might appear outlandish or conspiratorial. But if such a breakthrough existed and remained undisclosed, it would effectively redefine what is "possible" for that individual, while the rest of society continues to operate under a completely different set of assumptions and biological limitations.

In this way, *Class T breakthroughs* create a bifurcation of reality. A world in which different individuals inhabit vastly different possibility spaces, not because of divergent imaginations, but because of unequal access to unshared knowledge. This undermines the shared epistemic framework that is vital to collective progress. When what is possible for one person is fundamentally different from what is possible for the rest, societal coordination begins to erode.

Moreover, the hoarding of *Class T breakthroughs* introduces a profound developmental bottleneck. Progress thrives in environments of open inquiry and collaborative iteration. In open-source software communities, for example, public visibility of code allows for rapid bug detection, peer review, and cooperative feature development. With enough contributors, improvements happen exponentially faster. Knowledge, when openly available, scales.

By contrast, a *Class T breakthrough*, by definition, is hidden. It cannot be subject to public scrutiny, nor can it benefit from collective intelligence. Its refinement and application are constrained to the private efforts of a single inventor or a small, trusted group. As a result, development is significantly slower, more error-prone, and inherently limited in scope. The global engine of human innovation is, in effect, handicapped, not by technical limitations, but by informational silos.

This phenomenon compounds over time. As the frontier of human knowledge advances, the remaining unknowns grow more complex and more difficult to address. In such an environment, open collaboration becomes even more essential, not less. Yet if future breakthroughs increasingly fall into the *Class T* category, because of the power they confer or the risks they pose, then society becomes trapped in a paradox: the innovations we most need are also the ones least likely to be shared. Each gatekept discovery removes another opportunity for global collaboration.

Eventually and naturally, this leads to a structural plateau in societal progress. Once the majority of achievable breakthroughs fall into the *Class T* category, public knowledge effectively stalls, even as private knowledge continues to grow. Individuals or isolated groups may make discoveries, but these do not translate into societal growth because they are not transmitted. In

such a scenario, society exists in a perpetual state of historical lag; the general public continues to believe that certain problems remain unsolved, even when private actors have already solved them.*

This disconnect results in a world where individuals are forced to operate under false constraints. They attempt to solve problems that may, in fact, no longer exist. But without access to prior solutions, they must do so from scratch. This increases redundancy, wastes intellectual energy, and reinforces a kind of epistemic isolation. The more breakthroughs that are kept secret, the less society can help its members grow, and the more each person must become a self-reliant problem-solver, isolated in their efforts.

Such a system breeds hyper-individualism out of necessity, not ideology. In the absence of shared progress, people cease to meaningfully contribute to or benefit from the social fabric. A *Class T*-dominated world is one where community ceases to be a multiplier of intelligence, and becomes instead a collection of disconnected silos, each operating on incomplete information, mistrustful of others, and unaware of the full range of human potential already realized.

Class T breakthroughs do not merely represent an ethical or philosophical dilemma. They introduce an informational fracture in the structure of human knowledge, redefining what is possible for some and not for others, while impairing the very mechanisms through which society has historically advanced. If left unaddressed, this fracture leads inevitably to stagnation, not due to a lack of curiosity or imagination, but due to an invisible wall of secrecy built at the edges of innovation.

It should now be evident that the problem of societal stagnation, as driven by the hoarding of *Class T breakthroughs*, is not technological in nature but fundamentally human. At its core lies a pervasive ethos of secrecy and self-interest, traits that are often rewarded under current societal structures but ultimately detrimental to collective advancement. As demonstrated throughout this paper, even the most transformative breakthroughs are rendered inert at scale when kept hidden. If the only remaining innovations are *Class T* in nature, then society inevitably grinds to a halt, trapped in a reality where vast potential exists but is artificially suppressed by the very people who possess it.

Thus, any real solution must begin not with science or engineering, but with a conscious transformation of cultural values. Until we as a species confront and recalibrate the incentives that glorify personal gain over public good, the hoarding of progress will continue. Openness must become a norm, not an exception. The ethos behind open-source software (transparency and collective ownership) must be extended to transformative innovation. Mechanisms for secure but mandatory disclosure and social structures that reward contribution over control are both steps toward a solution.

Ultimately, until the underlying psychology of secrecy is addressed, the proliferation of *Class T breakthroughs* will remain stunted, and society will continue to plateau, limited not by the boundaries of physics, but by the boundaries of human nature itself.