Civilization

Module 4

Knowledge, Wealth, and Institutions

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Knowledge, Wealth, and Institutions

It is sometimes said that the distribution of wealth across the world's nations is explained by their natural geography and raw materials. For example, some people attribute the United States' enormous wealth to the fact that it contains so much farmable land and energy sources. But whether or not land is farmable depends on the knowledge that people have about transforming the earth around them into farms. And we take for granted that the United States' reserves of oil and uranium provide abundant energy, but they only do so *after* people have acquired the *knowledge* that such materials *can* be sources of energy and also the knowledge of *how* to extract useful energy from them cost effectively at scale. Before people acquired the theoretical and technological knowledge required to exploit uranium for nuclear energy (via enrichment), the element was primarily used for coloring glass and similar materials. *We* may look back at such a relatively mundane application with amusement or condescension, but that is only because we take for granted the oceans of knowledge people had to create to discover and then exploit uranium's far grander use case. With respect to uranium, we are wealthier than our ancestors in the most fundamental sense—we are capable of causing a greater set of transformations that involve uranium than they had ever imagined.

As it happens, Israel was thought to be resource-poor at the time of its founding in 1948, lacking the Nature-given raw materials like oil that had made (and continue to make) its neighbors wealthy, as well as farmable land and drinkable water. And yet Israel made enormous progress despite those initial conditions. In fact, it solved all three of the aforementioned disadvantages precisely by innovating. For example, Israel recycles most of its wastewater towards agricultural ends, and its homegrown drip irrigation system leverages artificial intelligence and sensors to deliver water and nutrients directly into roots. Its large-scale desalination system transformed the country's *scarce* natural freshwater supply to an *abundant* manmade supply. To those with less knowledge of how to transform the world around them, farming in the Negev Desert would sound laughably impossible. To Israel, it sounds as possible as converting its swampland into farmland—which it has also done.

What is true of Israel's swamplands is true of every corner of the universe—absent hard-won knowledge, the overwhelming majority of raw materials we come across are

either useless, obfuscatory, or outright hostile to us. But *with* such knowledge, may we transform life-threatening swamplands into life-sustaining farmlands, inert carbon into missile interceptors, and hostile deserts into hubs of civilization.

Although the laws of Nature do not *prohibit* us from creating an endless stream of knowledge that grants us the ability to transform the world in ever greater, more expansive, and more granular ways (that is, to grow our wealth), neither does it give us the ideal conditions under which we may do so. In other words, knowledge about how to grow knowledge and wealth is not Nature-given but itself has to be discovered and maintained by man. The West *has* discovered the crucial ingredients for sustained knowledge creation, and these ingredients now live in the form of its fundamental institutions—liberal democratic capitalism, private property, the scientific enterprise, the family, individualism, entrepreneurship, optimism, and other hallmarks that we briefly outlined in Module One.

What does it mean to say that these institutions consist of knowledge? Are the institutions of, say, the scientific enterprise not the very physical buildings found on a university campus? In fact, they are not. Those buildings in which scientists do their work could be changed in arbitrary ways without degrading the institutions that foster scientific progress: change the colors on the walls, the bricks with wood, the current floor plan with another floor plan, and scientists can continue their work. In the future, as the cost of transporting experimental equipment falls and the quality of virtual communication rises, those buildings could be redirected towards some other ends entirely, and our scientific institutions could remain unchanged, for the institutions live primarily in the minds of the scientists—shared norms, practices, background knowledge, social capital, educational resources, and research tools. So long as scientists and those who value science *want* Western science to survive, they will continue to harbor and spread this knowledge, regardless of where, how, and by what means science is practiced.

In general, dynamic institutions such as those that define the West are (abstract) *catalysts* that foster the growth of knowledge (and wealth).

But while Israel and the United States are dominated by *dynamic* institutions, other societies are dominated by *static* institutions that curb the growth of knowledge and wealth. For example, Iran's political institutions in particular are static, and, as discussed

in Module Two, are hostile to their dynamic counterparts in the West. Even if the Iranian *people* change their ideas for the better, the political apparatus may not adapt, since the people have no democratic means by which to peacefully replace their leaders. Contrast that with the West, who *can* and *have* elected new leadership in accordance with their evolving ideas.

Still, Iran is capable of growing its knowledge and wealth thanks to its dynamic institutions that live alongside its static ones. And there is no guarantee, despite being overall more static than the West, that Iran will not make some pivotal discovery that grants it power enough to either gain the upper hand against the West or else overtake it outright.

The battle of civilizations can be thought of as an arms race in the most general sense, where knowledge and wealth are the most potent weapons one may obtain.

Knowledge and wealth creation, then, are of paramount *geopolitical* importance, and we should judge our institutions, ideas, policies, choices, and subcultures accordingly. Does this policy proposal curb the growth of wealth? How might this action foster knowledge creation? Which American subcultures degrade the institutions that make knowledge and wealth creation possible in the first place? Despite the fact that these questions may often *appear* to involve only domestic matters, these questions necessarily have global significance, for they all bear on the tug-of-war between the West and its enemies.

And, because the growth of knowledge is unpredictable, we should not let slide apparently trivial examples of what we think are curbs to the growth of knowledge and wealth. For example, raising the minimum wage by one penny might seem too insignificant to protest, but it could, in principle, prevent the next startup entrepreneur from founding a new supermarket chain that would have lowered the food costs of millions of Americans. Such savings might be just a few dollars for each individual, but such a supermarket chain might have millions of customers. Those Americans may have, in turn, invested their newfound savings into the Silicon Valley startup ecosystem, which then might have produced several innovative weapons companies, which may have given the West an edge over Iran. In short, any self-imposed barrier to the growth of knowledge and wealth can have untold second-, third-, and infinite-order downstream deleterious effects on our ability to stay ahead of the enemies of civilization.

In the context of the battle of civilizations, *fundamental* knowledge should hold a premium over parochial knowledge, since only the former will help us to create solutions to the enemy's future assaults that no one had yet thought of. For example, it may well be that Israel's defense capabilities can only detect Iranian missiles operating below some speed and above some size. While new parochial knowledge might empower Israel to expand both of these detection bounds, they would still be playing tug-of-war with Iran, who might eventually acquire knowledge that empowers it to speed up and reduce the size of its missiles beyond Israel's latest limitations. Ultimately, Israel needs knowledge of how to build a *universal* detection apparatus, one that could detect an Iranian projectile with any arbitrary attributes, including ones that Iran has not yet even thought of changing. Such a system would not only require *engineering* knowledge, it would also demand a deep understanding of the laws of Nature: the technology might have to be able to measure and triangulate the smallest possible change in local gravitational and electromagnetic fields, for example.

Conclusion

The raw materials around us are either useless or worse until we create knowledge of how to put them to use. With increasing knowledge, our wealth—the number of different ways we are able to transform the world, or our mastery over the universe—increases. Knowledge does not come about automatically but must be created, and the West's defining institutions serve as abstract catalysts that foster the growth of knowledge (and wealth)—they consist of 'knowledge about how to grow knowledge'. We are effectively in an arms race with the enemies of civilization, who similarly try to grow their knowledge and wealth in order to defeat the West. We can stay ahead of them by advocating for ideas, policies, actions, and institutions that do not slow down our knowledge and wealth creation but rather accelerate it. Fundamental knowledge should be valued at a premium, since it grants us greater mastery over Nature than parochial knowledge ever could, and it can help us to prepare for threats that the enemy has not yet thought of.

We now turn to the hallmarks of civilization, which we shall analyze in terms of how they foster the growth of knowledge and wealth.

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