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Yochai Benkler writes about cooperation in human societies.

1 In 1976, evolutionary biologist Richard Dawkins wrote, "If you wish to build a society in which individuals cooperate generously towards a common good, you can expect little help from biological nature." By 2006, the tide had started to turn. Harvard University mathematical biologist Martin Nowak declared in an overview of the evolution of cooperation, "Perhaps the most ironic aspect of evolution is its ability to generate cooperation in a competitive world."

2 Until the late 1980s, our understanding of what made people tick was marked by the rise of a precisely defined model of self-interested rationality—the rational actor theory—which provided the basis for thinking about human behaviour, institutions, and organisations. Assuming that we are uniformly rational and concerned only with advancing our material interests provided good enough predictions about our behaviour—or so we thought. We became convinced that we are best off designing systems as though we are solely guided by self-interest. Moreover, people who do not cooperate can ruin things for everyone, so to save ourselves from freeloaders we built systems by assuming the worst of everyone.

3 The widespread conviction about the power of self-interest is based on two long-standing and opposing assumptions about getting people to cooperate. One of them inspired the philosopher Thomas Hobbes' *Leviathan* in 1651: Humans are fundamentally and universally egoists in relentless pursuit of their own goals, and governments must control them so that they do not destroy one another in the short-sighted pursuit of self-interest. The second is Adam Smith's alternative solution: the invisible hand. Smith's 1776 book, *The Wealth of Nations,* argued that because humans are self-interested and their decision-making is driven by the rational weighing of costs and benefits, their actions in a free market tend to serve the common good. Though their prescriptions are very different, both the Leviathan and the invisible hand have the same starting point: a belief in humankind's self-seeking nature.

4 Models of self-interested rationality came to be seen as universally correct and applicable across an ever-expanding range of human practices but economics became the primary medium of expression. For example, Nobel laureate Gary Becker argued in 1968 that the calculus of criminals is best understood as a set of rational trade-offs between the benefits of crime and the costs of punishment, discounted by the probability of detection. Imposing harsher punishments and increasing police enforcement, people concluded, are the obvious ways to tackle crime.

5 The same year, the American ecologist, Garett Hardin, described the tragedy of the commons—the parable about farmers who shared a piece of land with no restrictions on the number of cattle each could graze on it. Because of the fear of losing out to the other farmers, they kept letting more cattle graze on the commons until the grass was gone, leaving nothing for anyone. The conclusion was that as self-interested actors, human beings will inevitably destroy shared resources unless the latter are subject either to regulation or to property rights. However, the changes in the discipline of economics over the years challenge this conclusion. In 2009, Elinor Ostrom was awarded the Nobel Prize in economics for showing how commons can—and do—sustain themselves for centuries as well-functioning systems. The most striking example is in Spain, where thousands of farmers have been managing their access to water through self-regulated irrigation districts for more than five centuries.

6 Furthermore, the rise of open source software which can be freely used, modified and shared by anyone is another example of the same dynamic. For more than fifteen years, companies have used open source Apache software for important web applications, with Microsoft's server software trailing a distant second. Companies such as Google, Facebook, and Wikipedia have also found ways to become profitable by engaging people. Our old models of human behaviour did not—could not—predict that.

7 The way these systems work flies in the face of the assumption we have made about human beings. For decades, economists, politicians, legislators, executives, and engineers have built systems and organisations around incentives, rewards, and punishments to get people to achieve public, corporate, and community goals. If you want employees to work harder, incorporate pay for performance and monitor their results more closely. If you want executives to do what is right for shareholders, pay them in stock. If you want doctors to look after patients better, threaten them with malpractice suits. Yet, all around us, people are cooperating and working in collaboration, doing the right thing, behaving fairly, acting generously, caring about their group or team, and trying to behave like decent people who reciprocate kindness with kindness.

8 What might account for human cooperation? Evolutionary biologists and psychologists have found neural and possibly genetic evidence of a human predisposition to cooperate. The first generation of explanations in evolutionary biology began with the theory of kin selection, which predicts that human beings will incur costs only to save others who carry their genes, such as siblings and cousins. From there, it was a small hop to accepting reciprocity between individuals not genetically related as an important source of cooperation: "I'll scratch your back if you immediately scratch mine."

9 Neuroscience also shows that a reward circuit is triggered in our brains when we cooperate with one another, and that provides a scientific basis for saying that at least some people want to cooperate, given a choice, because it feels good. Dozens of field studies have also identified cooperative systems, many of which are more stable and effective than incentive-based ones. After years of arguments to the contrary, there is growing evidence that evolution may favour people who cooperate and societies that include such individuals.

10 Given that humans are more capable of cooperation than previously believed, using controls or carrots and sticks to motivate people is not effective. Most organisations would be better off with systems that rely on engagement, communication, and a sense of common purpose and identity. These systems engage and embrace our collaborative, generous sentiments rather than assuming the opposite. In fact, systems based on self-interested rationality, such as material rewards and punishment, often lead to less productivity than an approach oriented towards our social motivations.

11 The challenge we face today is to design better systems based on fresh assumptions about human behaviour. The image of humanity that this shift requires will allow us to hold a more benevolent model of who we are as human beings. No, we are not all Mother Teresa; if we were, we would not have heard of her. However, a majority of human beings are more willing to be cooperative, trustworthy, and generous than the dominant model has permitted us to assume. If we recognise that, we can build efficient systems by relying on our better selves rather than optimising for our worst. We can do better.