

Globalization and the Co-evolution of States

By Paulo Vicente dos Santos Alves

HISTORIANS ARGUE WHETHER globalization began 500 or 5,000 years ago. Whichever is the answer you prefer, it's much older than the usual views that it started with the collapse of the soviet system, or after World War II.

States began independently and grew in relative isolation until technology allowed for more intensive interaction. One may argue that it was already in place in the ancient world, but since the discovery of ocean navigation the relatively isolated areas of the world found it easier to trade and wage war with each other. In that sense we can model the world as being transformed from seven "islands" into an "archipelago". Those "islands" were the Far East, Indian subcontinent, Middle East, Western Europe, North America, South America and sub-Saharan Africa.

According to administrative theory organizations, just like organisms, evolve together, or more precisely co-evolve, and that also applies to nation states. Before globalization, they were isolated and the evolutive pressure was small. In many of those "islands" one single nation state was capable of dominating the region and creating a "nation-state monopoly." That was repeated in the case of China, India and the Middle East. Monopolies have very little incentive to innovate and advance. In the case of nation-states they became decadent and eventually fall after some time.

After the oceans became navigable the nation-states increased their interaction and the evolutive pressure grew. Some nations, like China and Japan, tried to isolate themselves but the situation was irreversible. Evolutive pressure forced Nation-States to evolve or die. Many Nation-States died while others appeared and prospered. Two cases in points are the Austro-Hungarian Empire, which disappeared, and the United States of America which grew to become a Superpower.

Game theory explains the process in a version of the prisoner's dilemma called the Innovation Game.

Let's imagine two nation-states using the resources of a region in which there are six units of taxation. Normally they share these taxation units so each gets three units. They have the possibility of an innovation, in the broad sense of it, but this innovation costs the equivalent of two taxation units. So if only one of the nations does the innovation it will gather six units, but since it spent two it will end up with four units. However, if both nations innovate they still share the same six resources, but since each spent two to innovate they will end up with one unit each.

The figure shows the payoff matrix for the choices. The numbers in each quadrant represent the gain in taxation units of nation 1 and nation 2 respectively separated by a ",".

Game theory shows us that independent of what the other nation does, your nation will have a better payoff if it innovates, that is, four units is better than three if the other don't innovate, and one is better than none if it innovates. We call this a dominant strategy, or a strategy that is always better to pursue than the other strategy.

The problem is that since the game is symmetrical both will pursue an innovation strategy, and they will end up winning one unit each when they could have not innovated and came up with three each. If both didn't innovate it would be better for both, but they have a prize in innovation so both end up innovating.

Back to the real world. Our example is evidenced in reality by what has happened in a fragmented Europe from 1500 to present day. The nations competed for resources, whether in Europe, the Americas, Africa or trading with the Far East. They had a prize in innovation. If

they didn't innovate, the neighboring nation would.

That is co-evolution. Nations were forced to evolve by co-existing. Competition among the countries led to a form of cooperation, i.e. co-evolution since other nations around the world, namely China, India and Japan were not evolving as fast. That can explain how Western Europe and its colonies in the Americas advanced faster than the Far East, eventually forcing by arms, the opening of trade in China and Japan.

This game of innovation has not ended in the 21st century. In fact it is speeding up as technology advances the speed of interaction on terms of trade and war. In the past, this has forced city states to join forces and become the nation states, now this same evolution pressure is making nation states form networks in order to compete and survive.

Evolution is about innovation in the broadest sense. It allows states to gain advantages over other nation states within their network or against opposite networks. Innovation theory reminds us that there are five broad types of innovation: new product, new form of organization, new form of production, new raw material and new market. All of these types are possible in terms of public administration, in fact public administration can be argued to be the very central function that enables innovation to occur, and leverages it in a nation state.

The USA and other nations have adopted innovation through research and development (R&D) using their defense departments to pursue "dual" technologies for decades. These technologies are termed "dual" because they have military use but also can become applicable to civilian use creating

new markets with new products. Mass production was a new form of production derived from the needs of world wars.

We are now facing a new set of innovations in the coming decades and the public administration community faces the challenge of enabling these changes, and leveraging growth based on them. These technological innovations could be simplified into three major sets: genetics, green tech and robotics.

Genetic technology will open new possibilities but also new discussions on ethics and on sustainability. Advanced medicine will be capable of extending life expectations, and while a marvel for our human life span will stretch pension funds and medical care systems worldwide. Advanced biotechnology will allow for more food production but also will create new dilemmas and criticisms.

Green technology will affect energy generation and distribution, manufacturing, waste management and recycling. A new energy matrix will emerge changing the geopolitical landscape while creating new challenges and possibilities.

Robotics will reduce the need for manpower while increasing productivity and that may bring manufacturing back to the developed world, changing the current economic balance. At the same time, more people will need to be employed in tertiary and quaternary sectors, changing the power of unions. A post-scarcity world will force rent to be dissociated from work. Advanced artificial intelligence may claim civil rights and fight for them.

As one can perceive, these changes have a lot to do with public administration in terms of policy, laws, regulation and R&D incentives. Not to innovate is not an option for nation states. The question is how to deal with these innovations and maximize the society gains while balancing the administrative dilemmas that will evolve.

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THE INNOVATION GAME (a version of the prisoner's dilemma)

		NATION 2	
		Don't Innovate	Innovate
NATION 1	Don't Innovate	3:3	0:4
	Innovate	4:0	1:1