

Gabriela Dutrenit

Coordinator, Management and Innovation Policies, Metropolitan University, Mexico City,
Mexico

I would like to focus on one specific aspect that I consider is important to ensure the success in the dynamics of this transformation: the evolution of different subsystems of society that influence the decisions and actions that are taken. As the Minister described, this process presents the arenas of economy, technology and innovation. But, our countries are complex and are at the stage of development where the problem of social inclusion is a key issue in any strategy, as was mentioned by many colleagues before. Hence, other subsystems of society may be included into de considerations.

I would like to go back to Chris Freeman, who in 1995 told us that a set of subsystems of society are important in the process of change, namely science, technology, economy, politics, and general culture. Freeman provided a different lens on how to analyse the development process and which components should be included in a strategy. Some subsystems like science (which includes ideas, individuals, and institutions) could be more important than knowledge on engineering and math as Patrick Heller said. Technology includes artefacts and techniques, but also the activities of the individual, groups and institutions involved in the design, development, improvement and diffusion. The economic subsystem includes institution concerned with the production, distribution and consumption of goods and services, and those individuals and institution concerned with the organization of these activities. But other two subsystems mentioned by Freeman include politics and the general culture. Politics include ideas, non-values of individuals and institutions concerned with the government and the governance, and the legal and political regulation by the central, local, and international authorities of society, including military affairs. And also, Freeman mentioned the general culture. I mean ideas, values, artistic creations, traditions including tradition and knowledge that was mentioned before. This includes education, which is an

important aspiration of Kerala. Coming from developing countries, but also from what we are leaving today in the world, we have to add two-order subsystems. One is social aspect that is much a problem of the developing countries concerning the income distribution, inclusion, and the generation of social welfare, but we also have to add the environment, which Freeman didn't include at that time in 1995 but for us now is a must.

Each of these subsystems of society has some independent performance, but they interact and influence on the process of economic growth. Hence, it can emerge either a lack of synchronicity and harmony between the subsystems when you are analysing a process of change or in contrast, they can converge and generate a virtuous cycle effect on economic growth and development. Hence, which is key with the subsystems of society is not only that they evolve, which is important is that they interact and co-evolve. But the success of a process of economic growth and development is associated with the extent to which the changes in these different autonomous subsystems of society are congruent instead of counteracting each other.

What we have seen in our countries is the lack of congruence between the political institutions that come from the past and the advances in the economy related to Internet of Things or manufacturing 4.0, or the contradictions between high rate of growth and the persistence of high level of exclusions, hence the distribution of benefits of the economic growth is unequal. And now during the COVID-19, we have seen in several countries an interesting response from the business sector, particularly the small and medium enterprises and even the informal sectors, with the emergence of new practices, services and products, which denote greater entrepreneurship and innovation than before. In most of the countries, this behaviour has overcome the government measures and incentives showing a different evolution of the subsystems.

So as a final reflection, I would like to say that the transit of Kerala to knowledge economy might require elaborating strategies that consider the different subsystems of society. It is needed to better define which are the relevant subsystems in the case of Kerala, and analyse how the policy can contribute to the evolution of these autonomous subsystems. It is important to identify clearly which institutions are relevant, how institutions favour positive bidirectional links, where to make an investment to strengthen these links between different subsystems. It is relevant to reflect on how to analyse the relationship between subsystems, and also to identify the existence of thresholds in any of these subsystems that affect the

evolution of the country as a whole. Hence, we need to design policies that include instruments to promote a synchronous and harmonious development of all the subsystems.

We are excited to know and follow up on these interesting processes that happens in Kerala and can be an example for many other developing countries. Thanks for the opportunity to give an opinion about what is going on in Kerala.