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The concept of knowledge economy, first illustrated by the Silicon Valley, has been adopted by many countries, and more recently by the European Union, with its Lisbon strategy. However much needs to be done to implement the concept effectively.

**Education** is the obvious base of any knowledge economy. But the performance of many countries in this area is still inadequate. Industrial countries are struggling to adjust their traditional system to mass education and increasingly diverse population, with high dropout or failure rates.

Emerging countries have very different performances, especially in Africa or Latin America.

Even the established education systems have difficulties to adjust from a “knowledge for the sake of knowledge” approach to an innovation culture.

In many countries, it is becoming increasingly difficult to attract young people to hard science, while many countries experience a brain drain leading the best to established and attractive centers of excellence.

Innovation and the ability to nurture innovation is first a cultural issue. Innovation means change, and many societies are reluctant to value change, and to reward initiative and success. France is an example, where many special programs have been created to develop innovation. They have met with mixed results, showing that it is difficult to create islands of innovation in a globally conservative society.

Another example is the insufficient development of new information technologies, not because they are not available, or because the skills to implement them are lacking, but because their implementation requires deep changes in the structures and the methods, often difficult because of resistance to change.

Successful innovation models also require collaborative work between the public and the private sector, as evidenced by the financing of American universities. This is not so developed in many countries, especially in continental Europe.

But there is a wonderful opportunity with the very ambitious objectives Europe has set for itself in the areas of energy and climate change. They will require a quantum jump in European innovation. And, unlike the Internet or information technology developments, heavy investment and long lead-time will be necessary to develop the technological breakthroughs which are needed. In an area where governments, not markets, define the targets, combining public and private efforts will be absolutely critical to success.

The dominance in the past few years of the **financial economy** has been a risk to the development of the knowledge economy. When in the 80's and the 90's the best returns could be achieved by start-up companies and venture capital, more recently financial reengineering of existing businesses through LBO's and private equity has become the thing to do. In the aftermath of the financial crisis there will be an opportunity to move back towards true innovation and entrepreneurship. But the expected increased regulations could also stifle innovation. Entrepreneurs will continue to need freedom and hefty rewards if innovation is to flourish.

Finally the development of a knowledge economy requires the emergence of excellence centers where knowledge can be shared and synergies can be exploited.

The US, thanks to its size and its traditions, has developed several of these centers around a few major universities, and a very large proportion of public or private funding is concentrated in less than 15 institutions.

Other countries, and especially Europe do not have such convergence centers, and need to rely on networks to achieve the critical size and the level of exchange needed for success.



Reinforcing and integrating the strong points – like the ParisTech initiative in France – and building efficient networks between them is a challenging task. The European Institute of Technology, initially conceived as a new European MIT, has evolved into such a network building exercise, and it will be interesting to follow whether it can avoid the usual problems of European syndicated initiatives.

Yes, to become a knowledge economy is worth the effort, but this brief review shows the magnitude of the difficulties to overcome. It cannot be successful unless it is at the center of a comprehensive and multi-faceted strategic public policy.