INCEPTION PAPER

Abstract:

The objective of present proposition is to introduce the concept of ‘Photonics Project’ initiated by Government of Telengana, India which has the potentiality for a civilisational transformation.

The proposition implies nurturing of an ecosystem to evolve the discourse of Photonics as an alternative computing paradigm. Photon offers the plausibility of much efficient computing ability over the present day concept in terms of speed and power. The ecosystem can be the place where all processes/concepts of the alternative paradigm be institutionalised and materialised.

The Opportunity:

The existing regime of chip technology has been progressing as per Moore’s Law which prophesied that in every two years the computing power of a chip will double. This was deducted from the rationality that the number of computing elements like transistors will be miniaturised and added more in numbers. Of late it is realised that there are physical limitations to such a progression and parallel processing has become one of the alternatives. Parallel processing has its own limitations because of latency and power consumption.

The technology of Photonics offered a credible alternative. The replacement of electron which is the basis for the transmission of signal and the medium of copper wire by Photon and optic fibre respectively offered immense promise.

Present level of technology is progressing towards offering the similar analogy on the chip itself.

The Protagonist:

An American company has evolved technology on the above lines with the help of $150M funding from DARPA, NAVAIR and NSA. The company has been assisted in its research by Harvard, MIT, Caltech, Stanford and University of Columbia.

The Company has decided to establish an ecosystem in Hyderabad/Telangana in partnership with Government of Telangana. Such ecosystem is destined to be the rallying point for subsidiary and ancillary industries.

Program rationale:

The Company is planning to manufacture certain products for immediate application and ROI as it’s near term goal. The perspective plan includes applying the technology to solar energy, High performance Computing and the end goal of absolute Photonics Chip. Government of Telangana has decided to extend policy, promotional and administrative support apart from extending infrastructural
support in terms of land, water and power. The execution plan includes roping in policy benefits such as M-SIPS, Production subsidy, tax incentives and viability gap funding and projects such as a FAB, ‘National Supercomputing Mission’ and ‘Indian Processor’ from Government of India.

Conclusion:

The aim is to provide an opportunity for India to lead the Globe into next technological revolution.