

## Warning against AI and job loss: What can be done about that?

“Scientists warn AI means job losses in every profession” is the headline for an article in the Financial Times dated Feb. 15, 2016. This page 1 article is authored by Clive Cookson. Following are a few quotes from this article:

*Intelligent machines would soon replace people in all sectors of the economy, computer scientists told a meeting of the American Association for Advancement of Science in Washington at the week end.*

*“We are approaching the time when machines will be able to outperform humans at almost any task”, according to the computer science professor Moshe Vardi from Rice University, Texas. “Society needs to confront this question before it is upon us .....”*

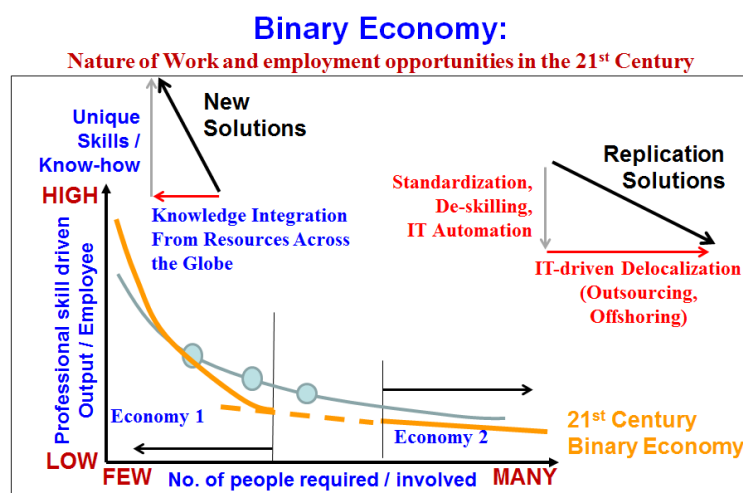
*Professor Selman from Cornell University has helped to draft an open letter last year from the Future of Life Institute, Cambridge, MA. to policy makers urging them to explore the risks associated with increasingly intelligent machines.*

While the above caution and appeal for better public policies are valid and timely, it is perplexing to see that such caution is raised only against a future possibility imposed on us by self-driving cars, robotics and Artificial Intelligence.

We have systematically documented that evolution in Digital Technology in the past three plus decades that has resulted in a Binary Economy across the globe.

<http://stimsinstitute.com/2013/07/17/learn-to-swim-against-the-tide-of-binary-economy/>

DT permits to standardize and de-skill any task such that it can be carried out by humans with the least skill levels or in the end only by machines. Since, even the most complex job can be divided into a collection of tasks, automation of any complex activity is only a matter of time. Self-driving vehicles is only an advanced version of Automated Guided Vehicles (AGV) now routinely used in manufacturing floor and ware houses. We call this as the “Replication Solution” or Economy 2 in our Binary Economy model.



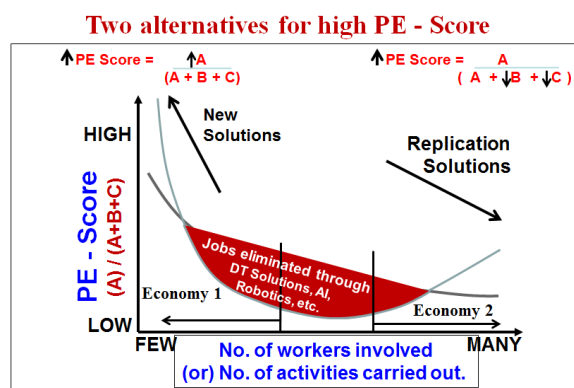
The alternative is to integrate knowledge pertaining to any task or activity known to day from sources available from across the globe. Such knowledge integration leads to “New Solution” of

much higher added value and impact. The family of products from Apple, the IT solutions from Facebook, Google, etc. are all examples of this Economy 1 – an economy creating and implementing a relentless stream of New Solutions.

Details on this Binary Economy and its impact and consequences can be seen in our book published in the year 2013! We have also documented that such evolution in Binary Economy is one of the reasons for the stagnant wages, despite a measurable increase in labor productivity. Please see <http://stimsinstitute.com/2014/02/16/can-the-economy-continue-to-grow-while-creating-fewer-well-paying-jobs-the-answer-is-yes/> for more details.

Looking in a broad context any human being is useful or participates in the economy through only three kinds of activities: Discover, develop and implement a stream of solutions using his/her Knowledge as the core capability. We call this as the “System Thinking and Transformational Skill”. These are also called as “Professional Skills”. In addition the human beings process information (Information work) and carryout physical activities (Physical work or labor). The sum total of these three outputs (Solution Work – A, Information work – B and Physical labor – C) is the source of income for most people anywhere in the world. While the proportion may vary, all human being engage in economic activities through these three sets of activities and in some combination. Hence we can suggest an efficiency factor, called PE Score as  $= A/(A+B+C)$ . <http://stimsinstitute.com/2013/12/03/what-is-your-professional-effectiveness-pe-score/>

Across the globe the role of human beings in B – activity (Information work) is being systematically reduced for the past decades, through computers, networks and systems. Use of IT to reduce human centered physical labor is what is generally known as automation and robotics. To the extent that “knowledge” can be standardized and reduced into information tasks, then such knowledge and its processing can be automated. This is exactly what is called as Machine Learning, Artificial Intelligence, Machine Vision, etc. at the heart of the automated driverless cars from Google.



To suggest that “AI means job losses in every profession” implies that the problem is for the future. Instead it must be understood by one and all that the problem has been permeating for the past four decades and will continue to do so. As long as the problem was associated with low skilled labor (C) and their replacement, it was merely addressed as the inevitable exodus of

manufacturing jobs to low cost countries. As long as the information work was being replaced from White Collar workers to BPOs, Call Centers and Data Base driven systems and ERP solutions they were simply characterized as IT revolution and Digital work place re-engineering. While being the cause, these developments have been mistakenly identified as the outcome or result of “Globalization”. The stagnant wages and growing disparity between the rich and poor is a tangible evidence of high wage job losses through continued evolution in DT, without concomitant economic, national and social policies. Merely offering free higher education or a promise to “make America great again” are not policies rooted in reasoning to address this fundamental issue (i.e.) When DT enabled solutions constantly reduce the need for human beings and contribution through human work redundant to the economy, what are human beings supposed to do?

The referenced article suggests that *“Society needs to confront this question before it is upon us. If machines are capable of doing almost any work humans can do, what will the humans do? A typical answer is that we will be free to pursue leisure activities. I do not find the prospect of leisure only life appealing. I believe work is essential to human well – being”*.

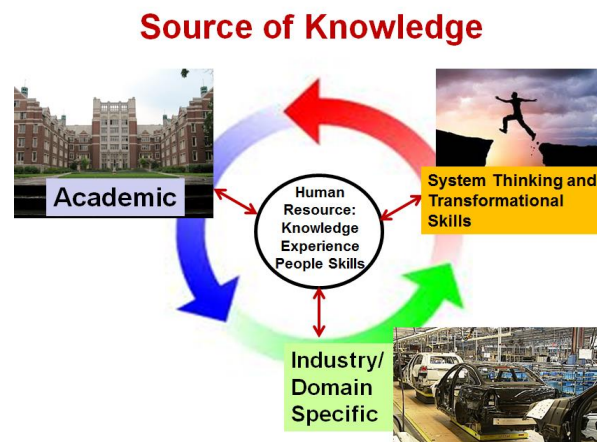
As we have described above the work-less society is not a matter for the future, but it is upon us now and it is here to stay. Despite the low unemployment in the US today, the growth in work is largely through low wage jobs (C – Category), while better wage paying jobs through information work (B – category) are being constantly eliminated, while very few jobs in the A – Category are being created. <http://stimsinstitute.com/2014/04/18/it-may-be-a-mistake-to-get-a-degree-in-chemistry-unless-you-have-also-figured-out-how-to-use-your-knowledge/> Not addressing this current problem may be the single most failure of the Obama administration. This follows on the failures of Regan and Clinton Administrations for their failure to recognize the evolving role of DT in eliminating human centered jobs and their economic impact on the middle class (wage earning workers). Not addressing this as a crisis with meaningful policies may be the single most failure in our current political debate. This problem is not limited to US alone. Instead it is a global problem. The mistake of not recognizing it as such and not to address this in a meaningful fashion may be the biggest failure of the intellectuals and economic policy thought leaders. It rivals the failure to predict and address the recent global financial crisis.

If the job losses in every profession through DT related developments have been evolving for the past four decades and are here to stay, then why this fear of job losses through AI alone is seen only as the threat for the future? The answer may lie in our implicit faith in “Technology” and the good it does for the betterment of the larger population in the long run. It may also be based on our incorrect understanding of innovation and entrepreneurship. In any consumer centered economy, consumers are created through people working and earning wages. DT is not intended to create better products and services for the better living of human kind. DT or computer science which drives it, cannot create a cleaner plant, more food and shelter, more drinking water, abundant energy, cure for cancer, exploring deep waters and outer space, etc. – all that will make a better life for everyone. Instead, DT can aid and enable all of these developments, with fewer and fewer people required. AI and Robotics are such DT enabled

platforms for better solutions. But, DT is not in its entirety to be construed as “Technology” or the sole innovation engine, the common mistake in our language and perception today.

If my neighbor loses a job it is statistics. But, when I lose my job it is a family crisis. To some extent the same can be said of the impact of DT. As long as the DT enabled outcomes decreased human work and eliminated jobs in B and C categories (described above), it has been described as part of the progress towards higher labor productivity. But when robotics and AI and other new uses of DT begins to impact even the “A” category – professional work – we are finally beginning to see warning signs about a problem that we had documented as early as year 2000, in our book titled, “The System Approach – A strategy to survive and succeed in the global economy”.

We believe that individuals and enterprises cannot sit and wait till some policies are debated and implemented to address the unabated role of DT (and its formulations such as AI and Robotics and driver-less cars, etc.) in eliminating human centered work. Individuals need to gain academic knowledge in combination with their applications know-how (called sector or domain specific knowledge), together with a set of skills for “System Thinking and Transformational Skills”.



We call this collective know-how and its application as the **Knowledge Integration**. Such KI capability is the essential education at all levels. The practice of KI will be the competitive weapon for workers and their employers for the foreseeable future.

For education on System Thinking and Transformational skills and for projects to implement them for competitiveness in the global economy <http://stimsinstitute.com/contact-us/>