Technology as configuration that work

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Abstract

To be able to analyze technology, first we should know what "Technology" means. But it is not a simple task; because there are many definitions available (varying from artifacts to the social appeared force). A comprehensive definition which is a productive complexity reducer is stated as "technology is a configuration that works". This was a little bit ambiguous to clarify this definition. First the exact meaning of "configuration" and "work" are needed to be defined: "Configuration" deals with how the technology is made up of different elements and how they are interconnected to each other, and "to work" means to function as desired.

Although, the elements of a given technology are subject to change, some technological elements are open to change so some elements can be substituted, e.g. Vacuum tubes substituted by Transistors without any change in radio functionality. This substitution can occur between physical elements as well as stake holders, e.g. substitution of people by machines. In another words we can change the configuration and still expect the system to work with the same output.

The make-up of "configurations that work" is the next step to analyze.
In this step we consider how those elements and stakeholders (which create the Mega-machine) are "aligned" respectively.
Technological hierarchy is the best tool to study this make-up.
It has four layers, starts with hardware controlled with software, improved and functionalized by org-ware(means re-arrangement of organization), and finally accepted (or NOT) as a socio-ware to work sustainably, e.g. drivers have to get a license, streets have been re-configured, etc. In addition, when socio-ware is the last step always there are some interactions in this conjunction (Technology & Society) which is two-way interaction. In many cases (like genetical manipulation) society decides to oppose the progress or to accelerate it, and also technology pushes the society to behave dissimilar to past (e.g. everyone should have a cell phone to be accessible). In Brief, technologies do not function in a vacuum, they arrive in a world which is full of technology already, and also they must be synchronized with current values of society.

On the other perspective there are four levels of hierarchy defined by V.Poel:
Components, Devices, Stand-alone artifacts, and Systems.
It is important to mention that human and social components will not disappear; there will still be needed for inspection, maintenance, repair or replacement.

The last entrance point to understand the make-up is "User-interface". Means how users interact with a new make-up. For example, how they interact when safety-bicycles introduced, how they affect on this technology and vice versa. e.g. feedbacks from users helped Microsoft to improve MSWord. Usage of an artifact can be creative and lead to new functionalities, for example the high cost of regular mobile phoning led to an interest in cheap SMS (afterwards the length limitation somehow made a new language).