Marx and Engels foresaw

"The bourgeoisie cannot exist without constantly revolutionising the instruments of production, and thereby the relations of production, and with them the whole relations of society," wrote Marx and Engels in 1848 in *Manifesto*. According to Marx, capital as "self-expanding value" (V = c+v+s, where V = Value, c = constant capital, v = variable capital and s = surplus value) constantly coerces its personified functionaries, the capitalists, to look for maximum profit by raising the rate of surplus value (exploitation) i.e., by raising 's/v' that pushes up the organic composition of capital or 'c/v', which reciprocally (tendentiously though) reduces the rate profit 's/(c+v)'.

The very process that gave rise to value and exchange value asserts itself via alienation and competition. The law of competition for accumulation leads to a progressively higher organic composition of capital, i.e. 'c/v', or a constant increase in its constant constituent 'c' at the expense of the variable one 'v', or reversely, a constant relative decrease in its variable *vis-à-vis* constant, or to put it in a different way, a progressively higher technical composition of capital, i.e. 'c/(c + v)', or a constant increase in its constant constituent 'c' at the expense of the total social capital '(c + v)', constantly raising the social productivity of labour.

"The immediate result of this is that the rate of surplus value 's/v', at the same, or even a rising, degree of labour exploitation, is represented by a constantly falling general rate of profit 's/(c + v)'." (Marx, *Capital*, Vol. III, Moscow 1974, pp. 212-13). This again leads the capitalists to go in for countervailing measures to reverse the tendency by unceasing technological advancement.

True, Marx and Engels didn't live to see the precise future course of scientific and technological developments and their specific forms of manifestations which would emerge from the hectic pursuit of profit. They were dealing mainly with capital's fledging period. So in capital's ascending phase when the productive forces were developing within the womb of expanding and protruding capitalist relations of production, they could only observe the forthcoming historical trends. Marx's materialist conception of history had imbued him with penetrating insight and profound predictive power whereby he brilliantly foresaw the impending state of affairs with far-reaching consequences to occur. As Marx observed in 1857: "Invention then becomes a business, and the application of science to direct production itself becomes a prospect which determines and solicits it. But this is not the road along which machinery, by and large, arose, and even less the road on

which it progresses in detail. This road is, rather, dissection [Analyse] – through the division of labour, which gradually transforms the workers' operations into more and more mechanical ones, so that at a certain point a mechanism can step into their places. ... Thus, the specific mode of working here appears directly as becoming transferred from the worker to capital in the form of machine, and its own labour capacity devalued thereby. Hence the workers' struggle against machinery. What was the living worker's activity becomes the activity of the machine. ... the progress of technology, or the application of this science to production. ... Labour no longer appears so much to be included within the production process; rather, the human being comes to relate more as watchman and regulator to the production process itself. (What holds for machinery holds likewise for the combination of human activities and the development of human intercourse.) No longer does the worker insert a modified natural thing [*Naturgegenstand*] as the middle link between the object [*Objekt*] and himself; rather, he inserts the process of nature, transformed into an industrial process, as a means between himself and inorganic nature, mastering it. He steps to the side of production process instead of being its chief actor. ... his degradation therefore to mere worker, subsumption under labour. The most developed machinery thus forces the worker to work longer than the savage does, or than he himself did with the simplest, crudest tools. ... As the basis on which large industry rests, the appropriation of alien labour time, ceases, with its development, to make up or to create wealth, so does direct labour as such cease to be the basis of production, since, in one respect, it is transformed into a supervisory and regulatory activity; but then also because the product ceases to be the product of isolated direct labour, and the combination of social activity appears, rather, as the producer. ... just as the conquest of the forces of nature by social intellect is the precondition of the productive power of the means of labour as developed into the automatic process, on one side, so, on the other, is the labour of the individual in its direct presence posited as suspended individual, i.e. as social, labour. Thus the other basis of this mode of production falls away." (Marx, *Grundrisse*, Penguin Books in association with New Left Review, 1981, pp. 704-709)