

A cost or an investment? It all depends on how we want to define our future

Ten years ago, in his article in *Science Business* [1], author Kenward confirmed a reality that “Spending on research is rising almost everywhere” for numerous reasons: wages, R&D capital costs, costs of materials, to name just a few.

The rising costs of doing science have mainly been attributed to the so-called “increasing complexities of the R&D process.” As you can see, this sounds apparently vague! But it seems that so many people widely accept that *vagueness*. It is because, like it or not, there has always been a vague distinction between a cost and an investment when it comes to spending for science [2]. Or a failed investment will generally be regarded as a cost? [3]

The debate will be a never-ending one if we cannot rely on an important (and decisive) answer to the question: What do we want our future to be?

Time, especially a far distant future time, carries with it risks and uncertainties. Scientific progress, and the knowledge it will create, has an extremely important function of safeguarding against extreme risks. Therefore, the answer is critical to the delimitation. Without a crystal clear answer, we are like the frog in [2]:

There is a parable of a frog in the kettle of slowly heating water. Initially, the frog is comfortable, then things get progressively worse, and unless the frog jumps out, the frog is cooked.

Alwine et al. (2021) clearly advocate Kenward’s view that: “R&D is best regarded not just a cost to a business but as an investment.” And at first, it seems that their views look reasonably well-founded, except for the fact that they have come from adequately funded Western research institutions and enjoyed all the advantages their technologically and economically developed countries award them. The real-world situation is completely different if one looks at Tandon’s (2021) investigation. Reading Tandon’s teaches us that minimal conditions for those *ideals* never exist.

Now, even though best-funded researchers in the US and EU have not been able to avoid the realities that their science is not perfect. Recently, the rising number of retractions of published research has told us something [5]. And for the sake of good, we (authors, reviewers, editors, hosting institutions and funders) have more reasons to better exercise scientific humility [6] and to try

to learn as much as we can about our own weaknesses and problems, as one can see them clearly in [7].

So, back to the cost of science issue, the rising complexities have incurred new costs to the research process, for example:

Often, however, it seems that the bigger the question we strive to answer, the more people and resources we typically require to perform and interpret the experiments, and the more expensive the equipment and reagents we need to use. [8]

In conclusion, it is up to us to define our future and choose to view the spending for science as a cost or an investment. A short-term accounting view may see it as a cost and a long-term risk-hedging and development-driving one as an investment [9].

But, a cost or an investment, without sciences and scientific advancement, humankind has no future, or at least, no human future, while the animal future remains to be seen.

References

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