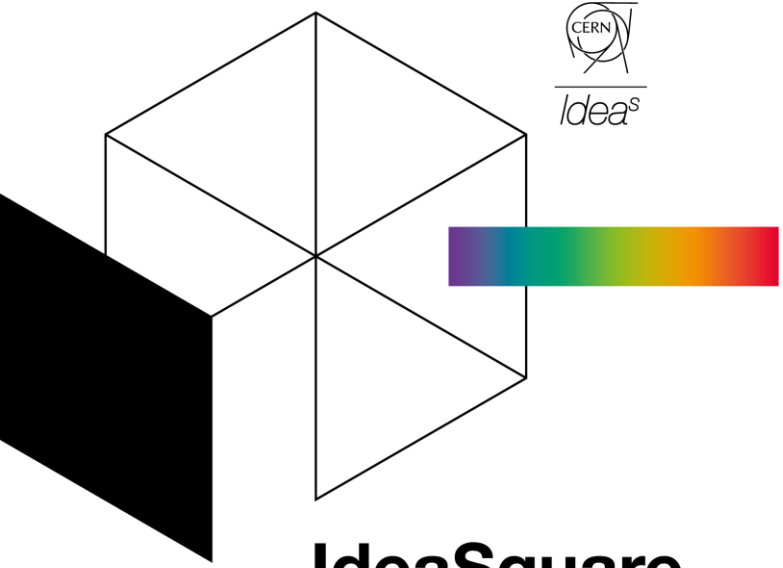

IdeaSquare
The innovation space at CERN

Humongous Problems

Using numbers to make decisions
CBI.ATTRACT 13.03.2024
Ole Werner

Humongous problems - Rules of the Game

1) No Hairy Potter Magic: Laws of Physics must be upheld.
2) Provide Numbers (estimations, calculations)
    1) Don’t need to be exact (orders of magnitude)
    2) Numbers need to be realistic; calculations need to be correct
        1) Not the other way around, basic math is sufficient

Task

Each team will receive a “Humongous Problem”.

Similarly to the SDGs, these problems do not have one single solution. In fact, an intervention might help in one area of the problem, while worsening another area of the problem.

For example, the “Great sparrow campaign” starting 1958 in China, resulting in the death of 15-70 Million people. Farming was collectivized, and to protect the farms, the order to kill all sparrows was given. No more grains were eaten by sparrows, but neither were the insects, resulting in massive increase of Locusts, and an immense famine.

That is why you will have **to provide both, a short-term and a long-term solution, comparing them by their Cost, Efficiency, and Energy need.**

Working time (90 min)

Provide both, a short-term and a long-term solution, comparing the two by their Cost, Efficiency, and Energy need.

Please also provide the assumptions and the calculations that you made.

Ex.

1 machine can process X amount of soil/water/air, using X amount of energy while taking up X space.

This means that on a site with the size of 100 m2, X machines can be expected to process X amount of *substance*/ day/week…

Using the entire space of X m2, X number of machines can treat X volume/time, using X energy

Thank you!

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