✦ IDEA · CHEAT CARD · PHYSICS

Fermi paradox

The conflict between the expectation that intelligent life should be common in our galaxy and our failure to find any sign of it.

How it works

1. Our galaxy has over a hundred billion stars and is billions of years old.
2. One civilization with slow starships could settle the galaxy in a few million years.
3. So if intelligent life were common, settlers should have reached Earth long ago.
4. Astronomers find no visitors and no clear signals, so one assumption must fail.

Example

Michael Hart's settlement estimate, 1975

- Ships at a tenth of light speed cross most of the galaxy in 650,000 years.
- Pauses between voyages double that time to about 1.3 million years.

→ The galaxy is about 10 billion years old, thousands of times longer.

→ Hart concluded that no other civilization exists in our galaxy.

Use it for

✓ Testing a business plan that predicts a big market nobody has entered

✓ Spotting forecasts that multiply uncertain guesses into one confident number

✓ Asking which dangers could end a technological civilization like ours

Watch out

✗ The Fermi paradox is no strict paradox, because common alien life is only a guess.

✗ Fermi never published on his paradox; Michael Hart argued in 1975 that aliens do not exist.

Remember When an estimate predicts something you do not see, find its weakest guess.