

“Mission Accomplished”

- Directed
- Abundant

Actors

Financiers / Funders
Cottage Industry
Government
Researchers
Logistics and Material providers
Standards bodies
 Emerge as industry matures
Institutions & research facilities
Library

Funding Methods

- Government (grant)
- Venture capital
 - return on investment imperative
 - Weak
 - Strong
 - Need for KPI

Examples

EOSC
ESS
Disease

- AIDS
- TB
- Malaria

Lunar exploration
Mapping the human genome

Societal / political / cultural systems

Task vs relationship
Individual vs collective
Hierarchy (power / distance)

Does it capture the imagination of the populous?

- consensus directed

Structure

- IP
 - Open
 - Institutional

- Public
- Private
- Shared
- Traditional academic
- Focused research org
- Regulated vs unregulated

Story Outline

- Clean energy
- Apple/Google established huge research capability
- Captures the imagination of the populous
- India and China respond by establishing similar state driven approaches
- Researchers are drawn into research centers;
- AppleGoogle directly fund academic programs to fill the demand
- Cottage industry develops based on published outputs to support new emerging new industries
- Learning programs are concentrated on specific skill sets from non-traditional providers

Mission Accomplished

The year is 2030. The citizens of Earth realize we are running out of energy. Traditional avenues (fossil fuel, solar) fall short of ever increasing demands. AppleGoogle (AG), the new mega multi-trillion dollar corporation has decided to solve the world's energy problem by directly investing in fusion research to power the planet for the next millennium.

The news captures the imagination of the world population. To bypass the bureaucracy and delays, AppleGoogle establishes massive research centers around the world, directly recruiting research talents in multiple disciplines to work on projects. Researchers respond to the call to action, with large-scale defections from traditional higher learning institutions to work in these research centers.

Further, AppleGoogle establishes learning institutes starting at K-12 range to in order to develop the next generation of digitally-skilled talents. After a couple of years a key breakthrough is made which requires massive investment from several startups and a large cottage industry. At the same time AG receive indications that the US govt is considering eminent domain to ensure that critical IP does not fall into enemy govt hands. A small group inside the AG executive team take quick action and publish the core findings on multiple public repositories and places the IP in a Swiss trust with a non-compete, non-litigation clause and the stipulation that derivative work from the IP must be shared with AG. This action makes the research immediately public.

Very quickly India, China and the EU spin up research and development projects to take the fundamental research to products. This causes a massive increase in public funding directed back at the traditional academic institutions and a series of VC investment efforts to create products.

AppleGoogle valuation soars on the news, generating even more revenue to fund further research.

Basic research in traditional institutions shifts completely to these new research centers, depleting traditional academic research organisations. After the IP holder foundation is created a second wave of applied research creates a renewed interest in publicly funded academic research at traditional institutions. However theoretical physics which created the initial breakthrough is decimated (they are all AppleGoogle executives living in Hawaii) and doesn't recover for several generations. Applied physics sees a major increase in interest and captures the imagination of the generation.

Publicly funded research survives but they have to deal with a new reality of obtaining license agreements with key IP holders in the future. Researchers are supported by AI and deep learning engines to continue research breakthroughs. This replaces the current conflict with journal publishers who no longer hold a key role in research. As a result libraries and open access publishing finally wins.

Research infrastructure is caught by surprise by the initial development phase at AG but quickly adapts to providing services during the applied phase. They are, however, all tied into the IP scheme established by AG and after the initial phase of work are pressured (gently at first) to buy the majority of their technology from AG that increasingly is referred to as "The Company" by the public.

Learning fundamentally shifts as well. Online/e-learning technology is now mature. With teachers (researchers) now concentrated in specialized research centers, students learn not from completing coursework from a single institution, but through a collection of purpose-specific, likely international online learning centers.