

Internetne tehnologije

Zgodovina Interneta

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Introduction

ARPA: Advanced Research Projects Agency

DARPA: Defense Advanced Research Projects Agency

- DARPA (later ARPA) is the innovative R&D organization that funded the development of the ARPANET.
- In 1957, only twelve years after publication of Arthur C. Clarke's seminal paper describing the idea of satellites, the Soviet Union launched the first satellite, Sputnik I, beating the United States into space. This meant that the USSR could theoretically launch bombs into space and then drop them down anywhere on earth. The American military became highly alarmed.
- In 1958, President Dwight Eisenhower appointed MIT President James Killian as Presidential Assistant for Science and created the Advanced Research Projects Agency (ARPA) to jump-start U.S. technology and find safeguards against a space-based missile attack.

Cold war

- The US military was particularly concerned about the effects of a nuclear attack on their communications infrastructure, because if they couldn't communicate, they wouldn't be able to regroup or respond, thereby making the threat of a first strike by the Soviet Union more likely.
- To meet this need, ARPA established the IPTO in 1962 with a mandate to build a survivable computer network to interconnect the DoD's main computers at the Pentagon, Cheyenne Mountain, and SAC HQ.
- As described in the following pages, this initiative led to the development of the ARPANET seven years later, and then to the NSFNET and the Internet we know today.
- ARPA also funded some of the early networking research done by Lawrence Roberts, who later became the ARPANET Program Manager.

Organization

- ARPA had unique authorization and direction to make quantum jumps in technology using any means they believed appropriate.
- For example, they had the unusual mandate to use research before it had been peer-reviewed, since the peer-review process prevented mistakes but slowed down progress.
- It worked – within 18 months of its creation ARPA developed and deployed the first US satellite.

Connection with universities

- From its inception ARPA significantly funded many US university research labs, and as early as 1968 had a close relationship with Carnegie-Mellon University, Harvard University, MIT, Stanford University, UCB, UCLA, UCSB, University of Illinois, and the University of Utah, as well as leading industry labs including Bolt Beranek and Newman, Computer Corporation of America, Rand, SRI, and Systems Development Corporation.
- Most of aforementioned labs were connected to the ARPANET soon after it was developed in order to enable cross-fertilization of research activity.
- In the early 1970's the word "Defense" was prefixed to the name, and ARPA became known as DARPA.
- By the late 1990's, DARPA reported to the Director for Defense Research and Engineering and had about 250 staff and a budget of US\$ 2 billion.
- A typical project was funded with between ten and forty million dollars over a period of four years, and drew support from several consultants and one or two universities.

Mission

DARPA's mission has been to assure that the U.S. maintains a lead in applying state-of-the-art technology for military capabilities and to prevent technological surprise from her adversaries.

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- The DARPA organization was as unique as its role, reporting directly to the Secretary of Defense and operating in coordination with but completely independent of the military research and development (R&D) establishment.

management

Strong support from the senior DoD management has always been essential since DARPA was designed to be an anathema to the conventional military and R&D structure and, in fact, to be a deliberate counterpoint to traditional thinking and approaches.

- DARPA Over the Years, August 1997.

- DARPA program managers have always had complete control over program funding, unprecedented flexibility in management capabilities, and direct responsibility for making their program a success.
- The DARPA environment is one of the most demanding and electric in the government.
- It is where people who want to make a difference come to invest 4 years in public service as a program manager.

management (2)

- The ideal program manager is technically deep, with excellent but eclectic technology taste, usually seasoned by five or more years of accomplishment in industry, the military, or academia.
- An outstanding technical foundation is needed to triumph over unforeseen problems or to pounce on opportunities at the frontiers of knowledge.
- The program manager must be able to integrate, innovate, and readily accept new ideas proposed by others.

Managers

The program manager formulates a vision for the program, positions and advocates the program within the context of DARPA's overall mission, charts a course for the near- and long-term accomplishments necessary to reach the program objectives, and manages all technical, procurement, and financial aspects of the program.

The ideal program manager must complement technical excellence with management and leadership skills, including people skills, public speaking skills, project management experience, careful financial management skills, the ability to make timely decisions, and a sense of controlled urgency.

No one in government has more constructive power than a DARPA program manager. Spend four years at DARPA as part of your career. It will change the way you view the world. It will be a service to your technical community and to the Nation. You can move the world, if you stand in the right place.

- Working As A DARPA Manager, Original from August 1977.