World Wide Web: Sharing Knowledge on the Internet
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1849 The Gold Rush
Miners vs. Merchants
"How Global Trade Made Men Wealthy during the California Gold Rush"

1890-1974 Invention of the transistor 1947
As Director of the Office of Scientific Research and Development, Dr. Vannevar Bush urges that men of science should turn to the massive task of making more accessible our bewildering store of knowledge.

For years inventors have extended man’s physical powers rather than the powers of his mind. The instruments that multiply the fist, sharpen the eye, and augur of destruction and detection are new results, but not the end results, of modern science.

Now, says Dr. Bush, instruments are at hand which, if properly developed, will give man access to and command over the inherited knowledge of the ages.

The perfection of these pacific instruments should be the first objective of our scientists as they emerge from their war work.

Like Emerson’s famous address of 1837 on “The American Scholar,” this paper by Dr. Bush calls for a new relationship between thinking man and the uses of our knowledge.

1945 Vannevar Bush: “As we may think”
1951 Frederick Terman: engineer, educator, administrator  1900-1982
- Hewlett-Packard founded 1939
- Doctoral Advisor: Vannevar Bush
- Doctoral Students: Bill Hewlett & David Packard, Russell & Sigurd Varian
- Founder: Stanford Research Institute 1946, Stanford Research Park 1951

1968 Doug Engelbart: « The Mother of all Demos »  1925-2013
- San Francisco 5 December 1968
- Augmentation Research Center  130 scientists
- PARC: Augmentation Research Center
- NLS: oN-Line System
- Personal Computer
- Structured Documents
- Text, Graphics & HyperText

1989 Arno Penzias: « Ideas and Information »  1933
- Nobel Prize in Physics 1978
- Radio Astronomy
- VP Research Bell Labs
- Emphasized the capabilities of signal processing, operations research, knowledge management, ...
- Reflects on the cooperation between humans and machines
- « If you don’t want to be replaced by a machine, don’t act like one »
- Emphasized the need for networking
- But could not see then that efficient answers will be available within a few years
- As users formulate requirements,
- Information systems can be designed for the benefit of society

- In the October 2019 survey, we received responses from
- 1,300,884,420 sites across 241,553,033 unique domain names.
- This reflects a gain of 9.71 million sites, 421,000 domains from last month.

1994

- Decentralisation
  - No permission is needed from a central authority to post anything on the web, there is no central controlling node, and so no single point of failure

- Net Neutrality
  - If I pay to connect to the internet with a certain quality of service, and you pay to connect with that or a greater quality of service, then we can both communicate at the same level

- Bottom-up design
  - Instead of code being written and controlled by a small group of experts, it was developed in full view of everyone, encouraging maximum participation and experimentation

- Universality
  - For anyone to be able to publish anything on the web, all the computers involved have to speak the same languages to each other, no matter what different software people are using, named domain, or what cultural and political beliefs they have

- Consensus
  - Tim and others achieved this consensus by giving everyone a say in creating the standards, through a transparent, participatory process at W3C.

https://webfoundation.org/about/vision/history

1998 Sergey Brin & Larry Page: Discovery

2001 « The ultimate crowdsourced Knowledge tool »

In 2018:
- 40 millions articles
- 299 languages

2020 Elizabeth Blackburn: « new ways in science »