

The Software Crisis

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Basic Software Engineering Seminar
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The Chaos Report

- A series of reports issued by The Standish Group, an industry analysis firm
- Classifies software projects into 3 classes:
 - Successful: all features within time and budget constraints
 - Challenged: late, over budget, and/or with reduced functionality
 - Canceled before completion or never used

The Chaos Report

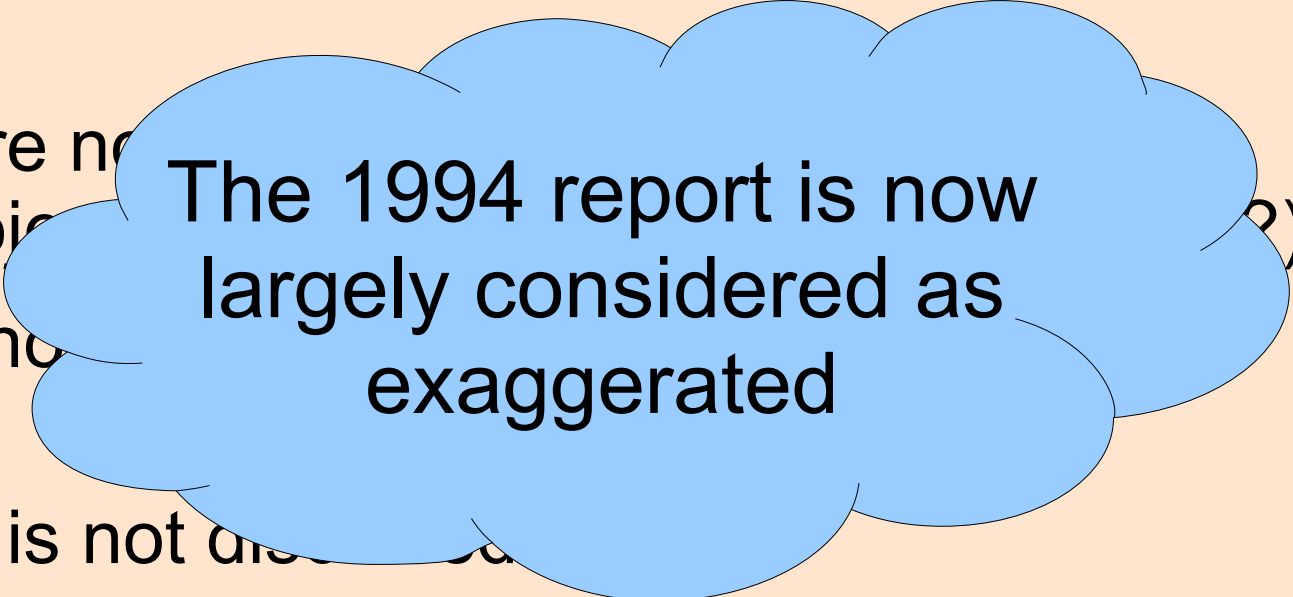
- First report in 1994:
 - 16% of projects successful
 - 53% of projects challenged
 - 31% of projects canceled
- Several reports since then with fluctuating numbers, but general improvement
- 2009 update (worse than 2006):
 - 32% of projects successful
 - 44% of projects challenged
 - 24% of projects canceled

Anti Chaos

- There is quite a bit of objection to the Chaos reports
 - Categories are not really well defined (is a fully functional project that is 10% late really challenged?)
 - Sources are not disclosed (which projects were surveyed?)
 - Methodology is not disclosed
 - Reporting is sloppy (not clear if “189% cost overruns” means 89% over original estimate or 189% over original estimate)
 - Answers are not given (“buy our services”)
 - “This is not science but a business”

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The 1994 report is now largely considered as exaggerated

Other Studies

- Capers Jones, 1998
 - Cancellation/abandonment rates of 14% to >24% for different project types
- El Emam and Koru, IEEE Software 2008
 - About 20% of delivered projects were unsuccessful, and about 30% were challenged

State of the Industry

- SoftwareMag.com software 500 survey data for 2007 (500 largest software companies)
 - Total revenue of \$ 451.8 billion
 - Increase of 14.6% from year before
 - 100 new companies in the list
(this also means that 100 companies dropped off the list)

Software Usage

- Communication:
 - 100,000,000,000 emails a day (94% spam)
 - ICQ, skype, facebook, youtube, ...
- Commerce:
 - Bank transfers and accounts; ATMs
 - Amazon, eBay, ...
 - \$100,000,000,000 in online sales in 2006

Software Usage

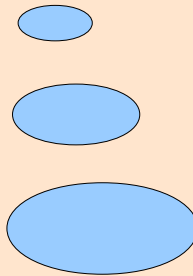
- Control:
 - Modern cars may have 50 microprocessors (controlling engine, brakes, etc.)
 - Control over unstable fighter planes, autopilots for jet airliners; in 10-20 years cars may not have drivers!
 - Power plants, industrial robots, ...
 - Washing machines, home appliances...

Software Usage

- Entertainment:
 - Computer games; second life
 - Movie animation
 - File sharing, media players
- Office productivity and work
 - Slide presentations, text processing
 - Image enhancement
 - Information access (google, wikipedia, ...)

Software Usage

- Computation:
 - Weather forecasting
 - Auto crash simulation, ...
 - Scientific discovery



All of these things
Actually work...