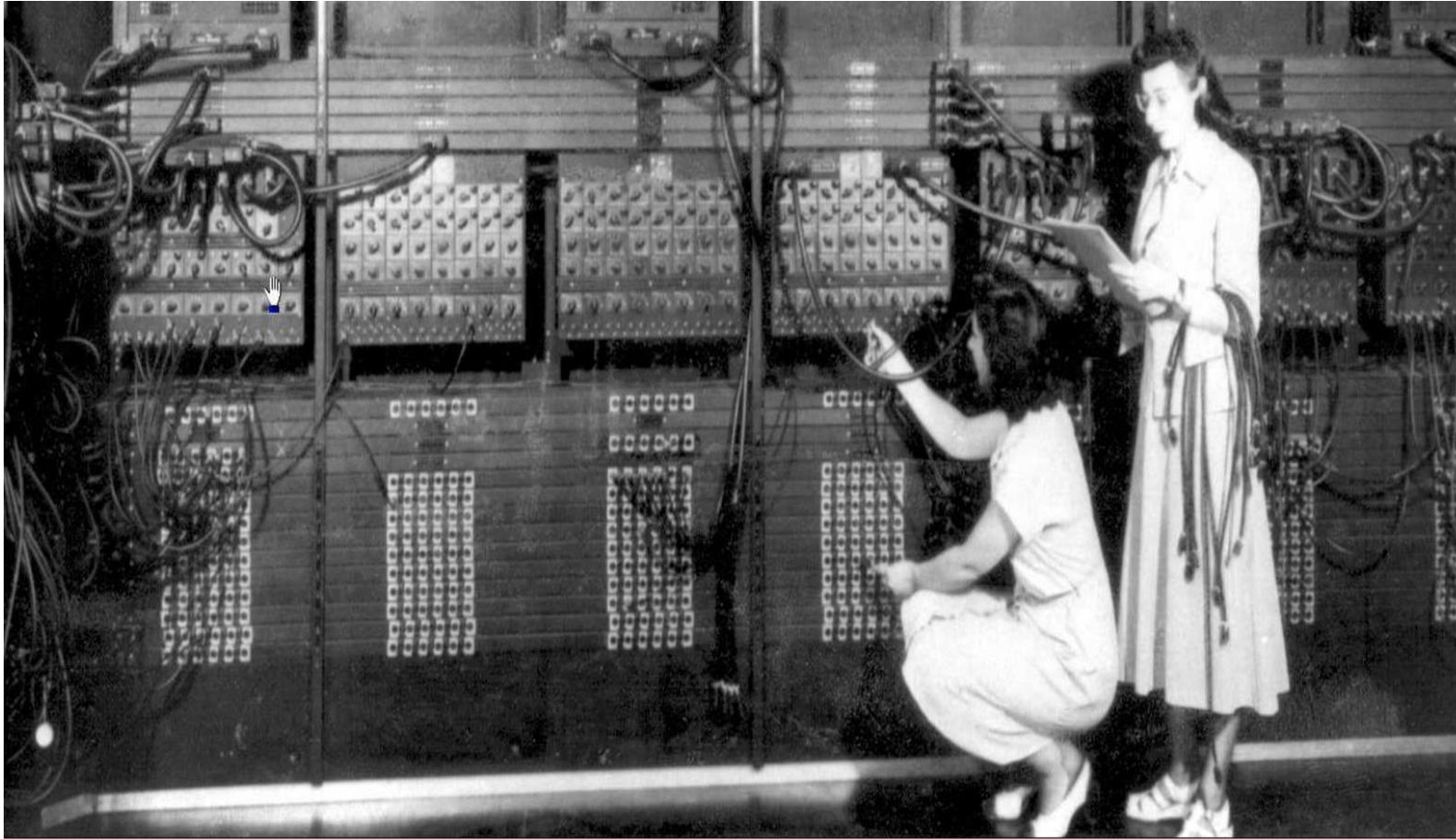


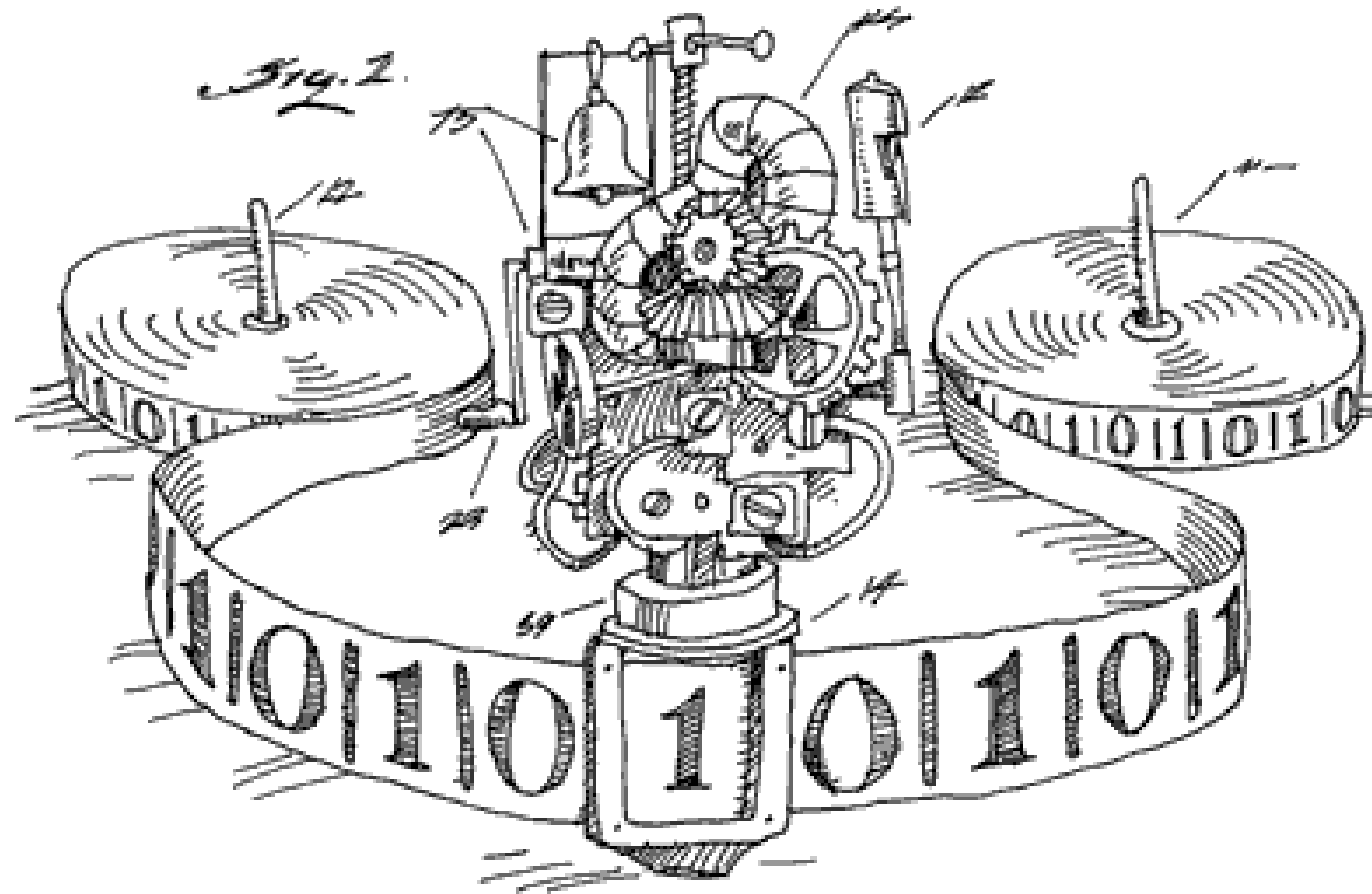
Software Engineering

An Overview

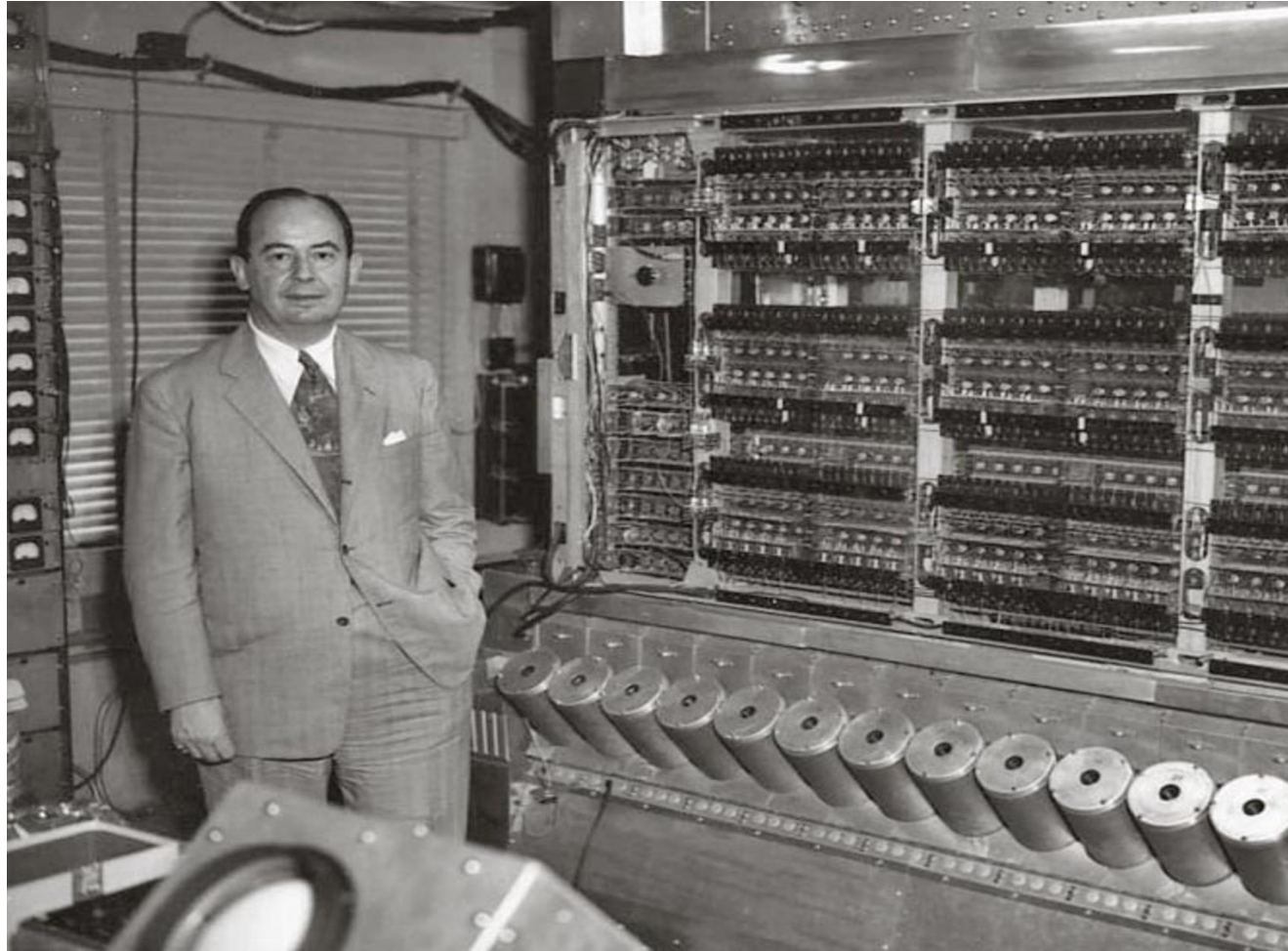
“Programming” the ENIAC



Universal Turing Machine



Von Neumann Architecture



Programming Languages



The Software Crisis



A Case against the GO TO Statement.

by Edsger W. Dijkstra
Technological University
Eindhoven, The Netherlands

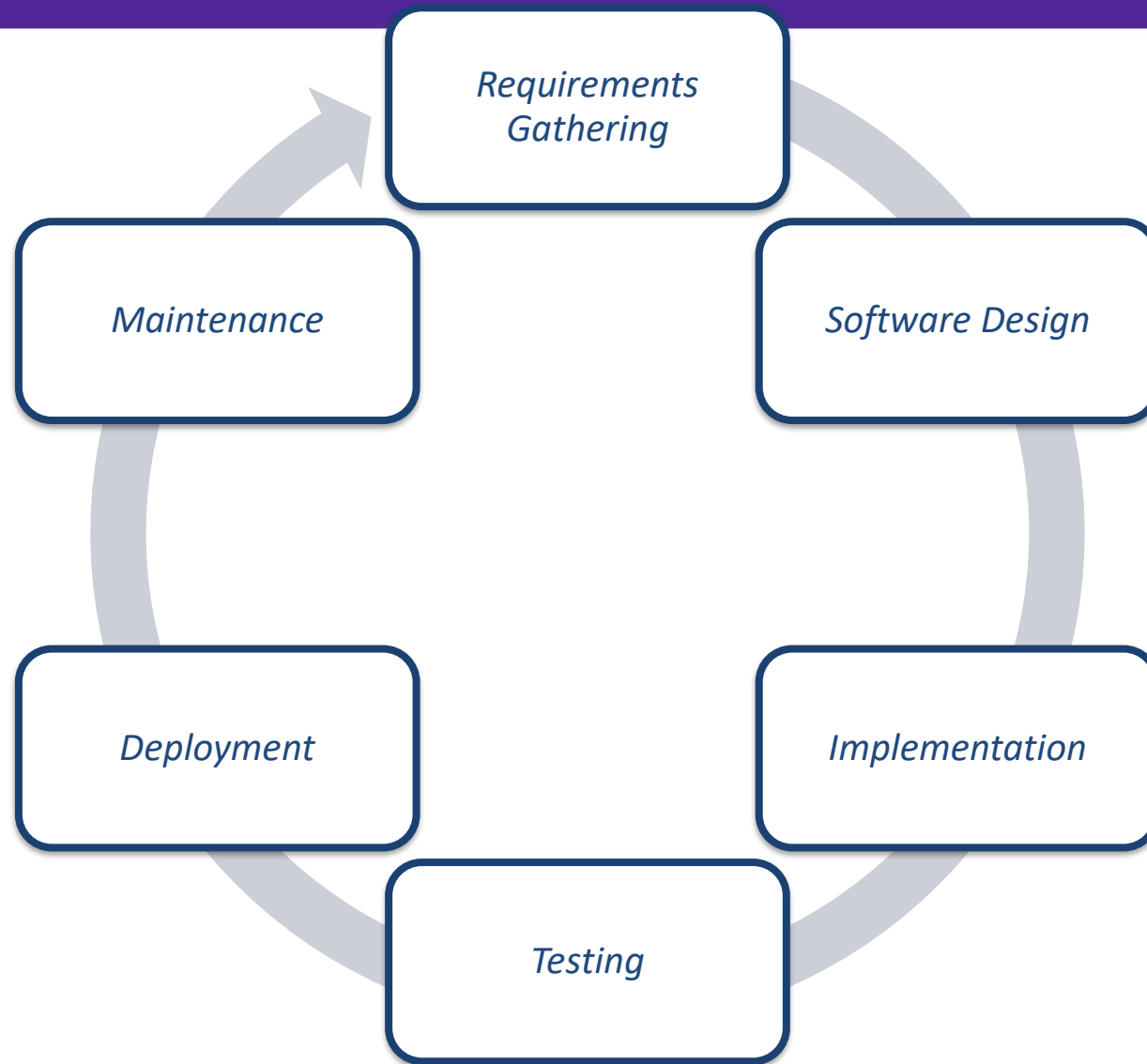
Since a number of years I am familiar with the observation that the quality of programmers is a decreasing function of the density of go to statements in the programs they produce. Later I discovered why the use of the go to statement has such disastrous effects and did I become convinced that the go to statement should be abolished from all "higher level" programming languages (i.e. everything except -perhaps- plain machine code). At that time I did not attach too much importance to this discovery; I now submit my considerations for publication because in very recent discussions in which the subject turned up, I have been urged to do so.

Software Engineering

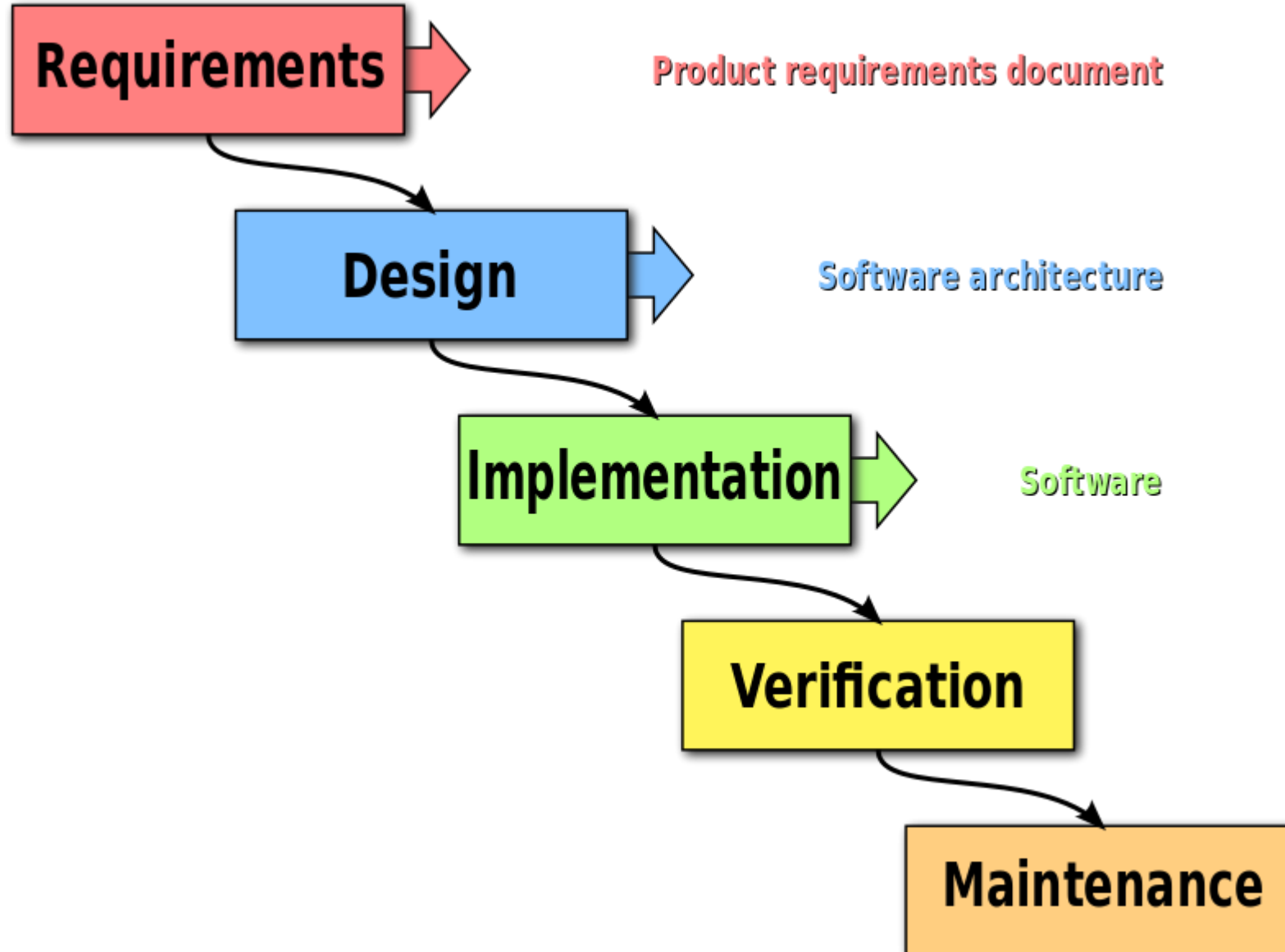


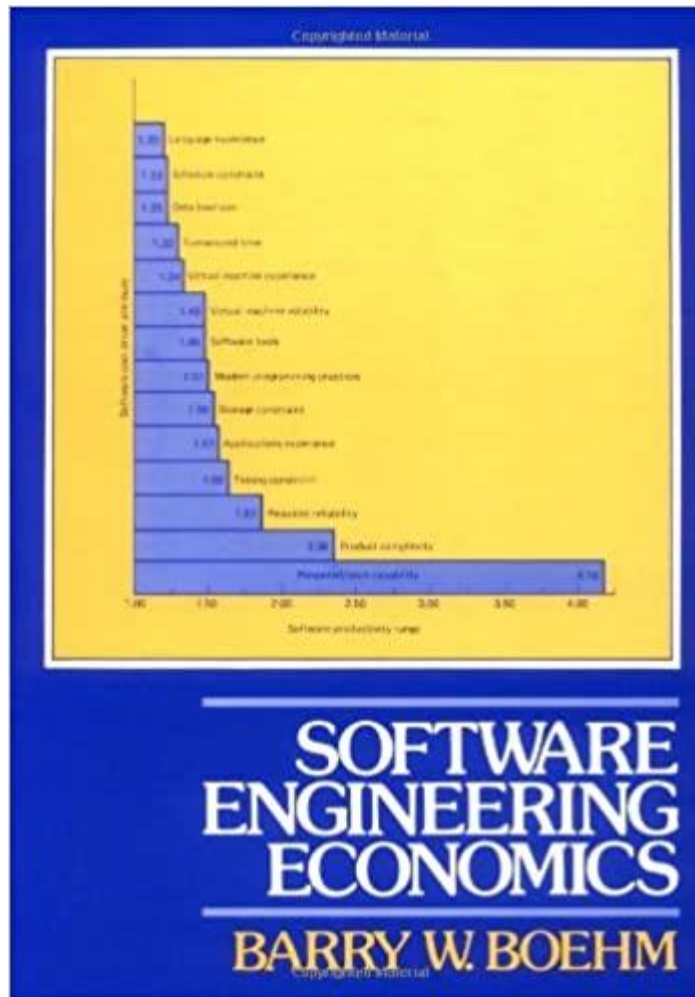
What are the Key Activities of Software Development?

Software Engineering

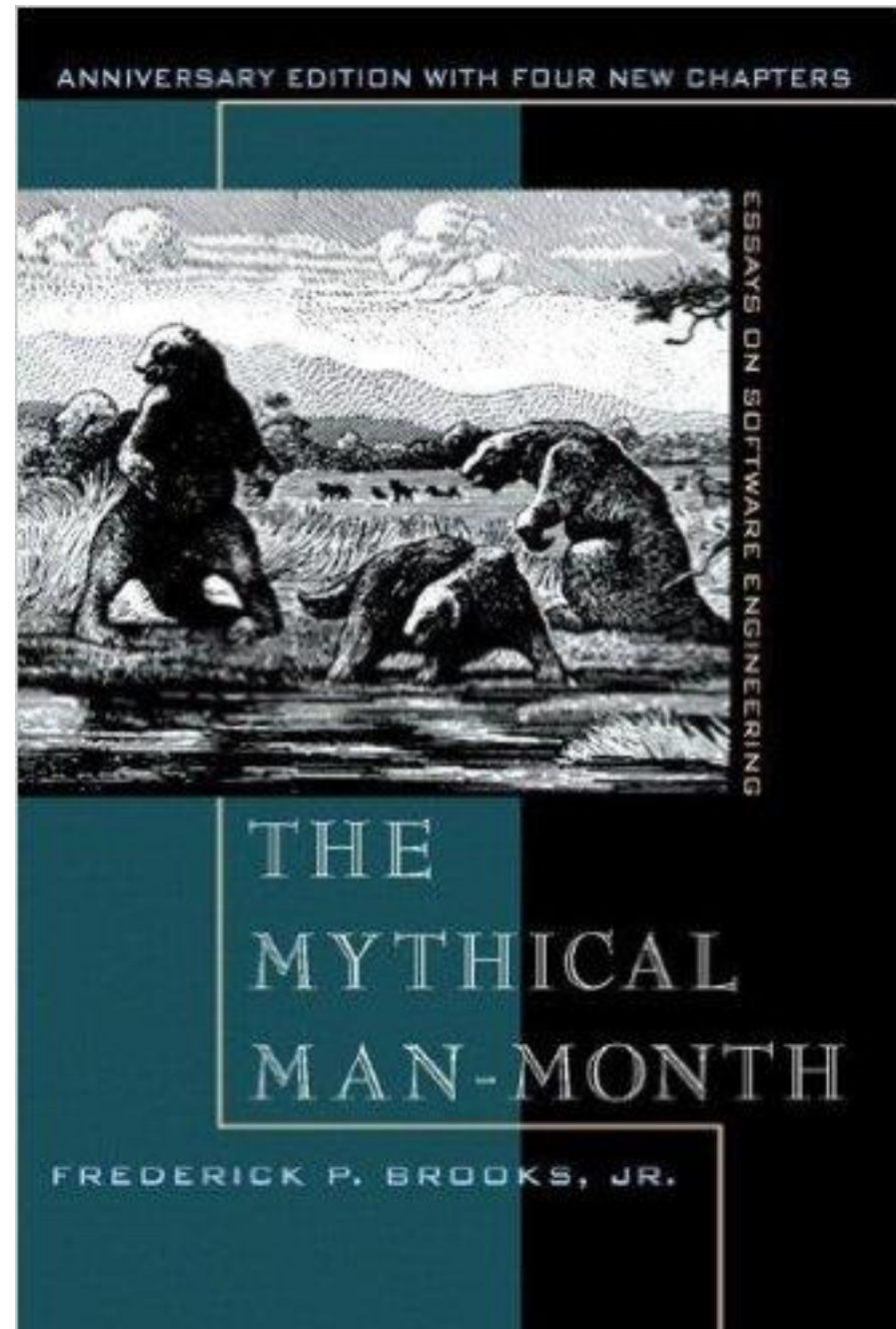


The Waterfall Model of Software Development





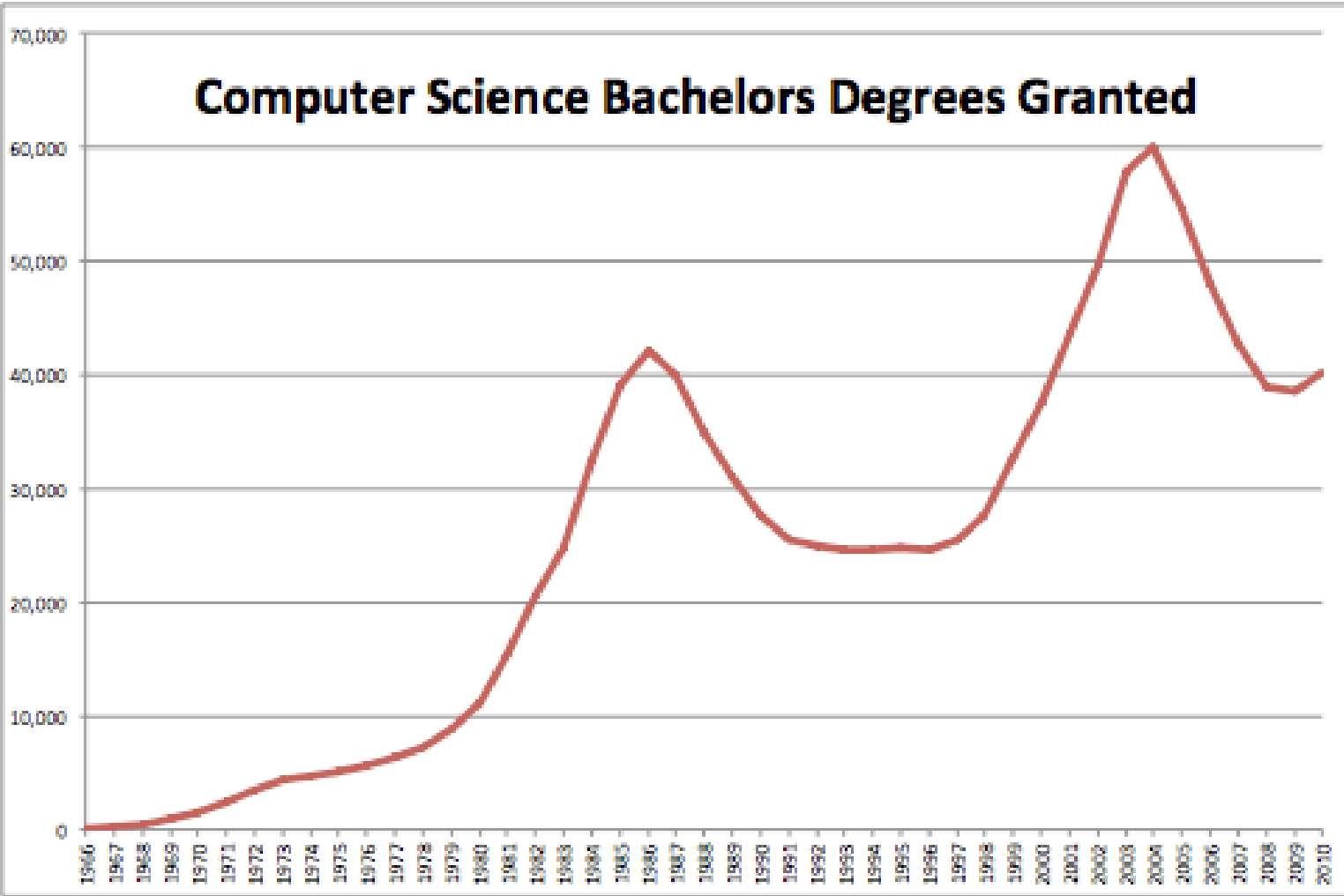
$$T = k * (\text{SLOC})^{(1+x)}$$

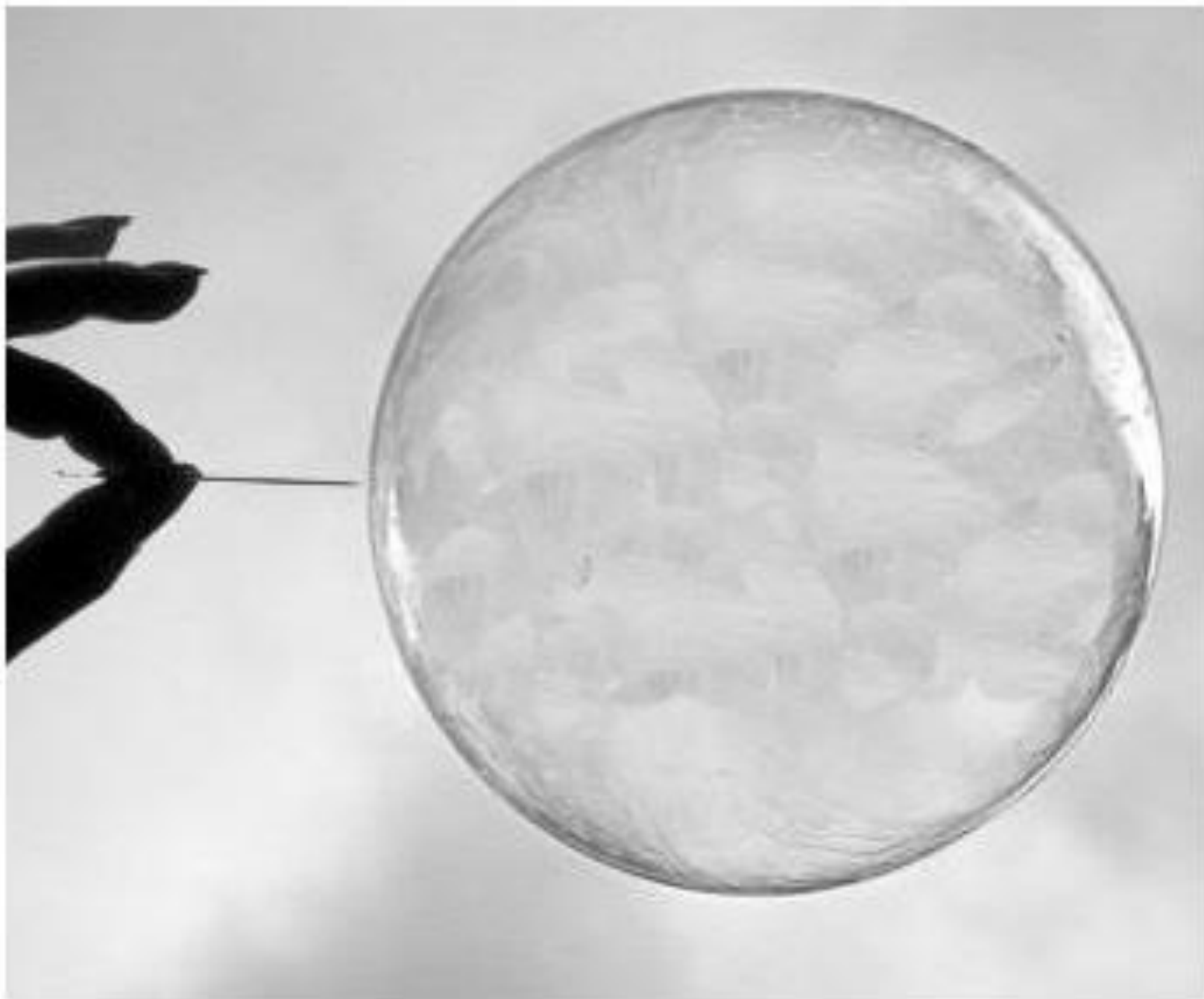


Cowboy Coding



Growth of CS Degrees

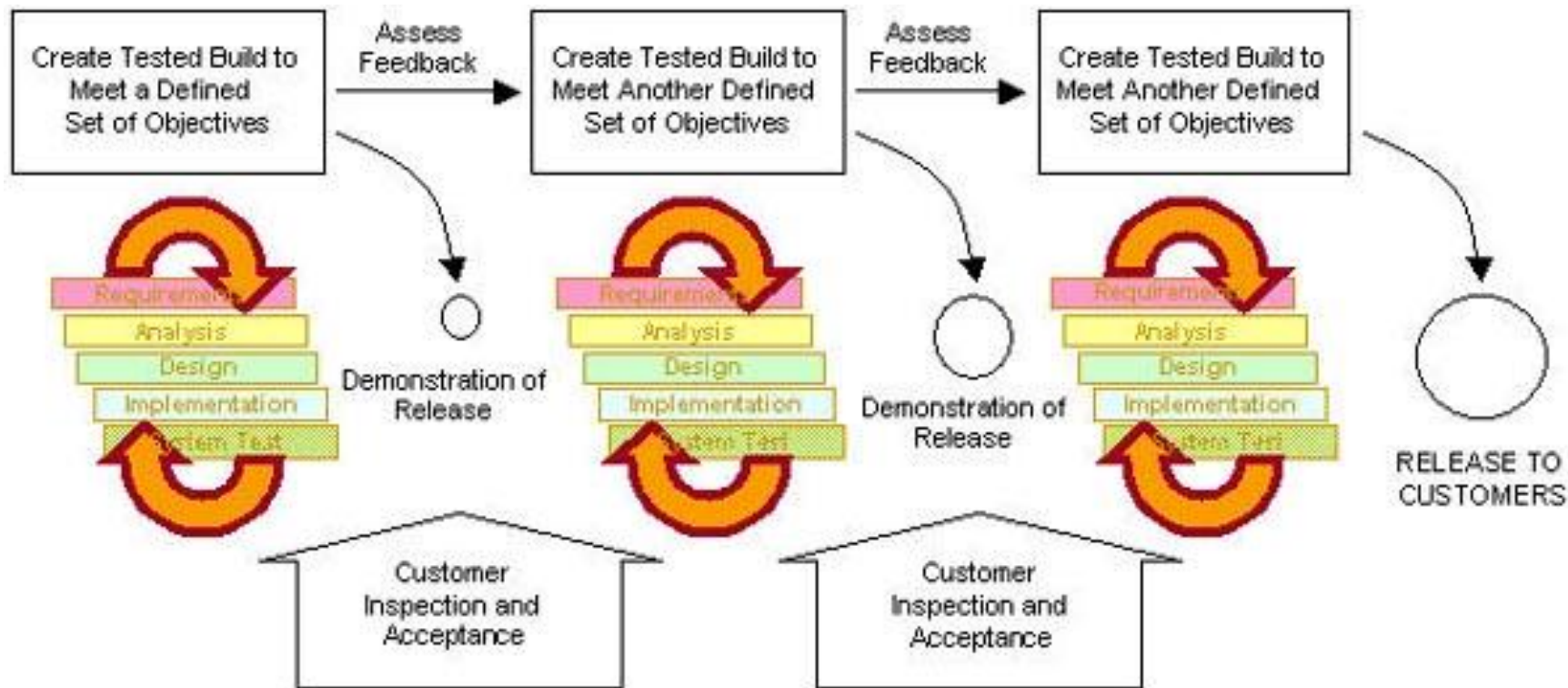




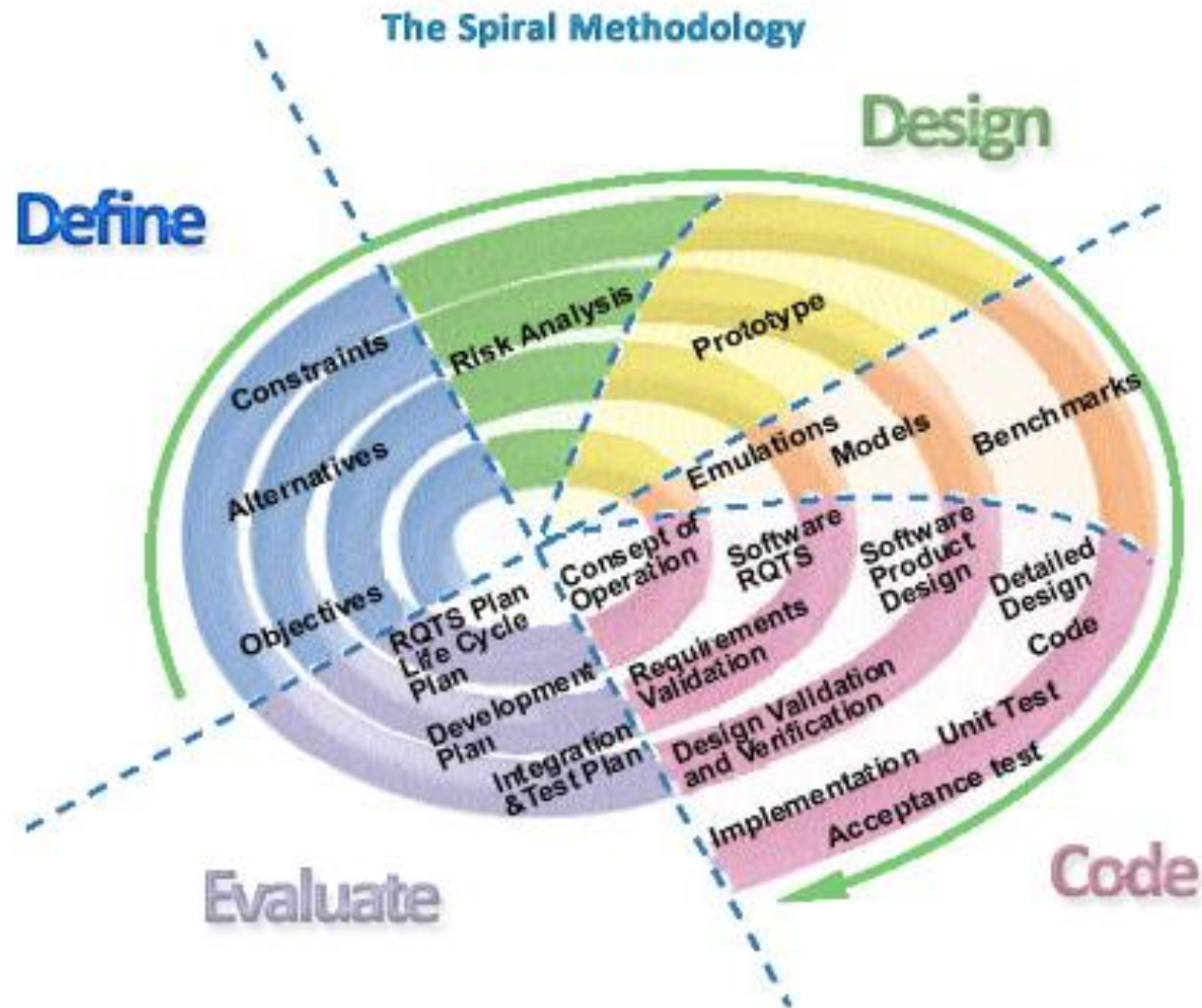
Prototyping



Iterative Development



Spiral Development



The Agile Manifesto

We are uncovering better ways of developing software by doing it and helping others do it.

Through this work we have come to value:

Individuals and interactions over processes and tools

Working software over comprehensive documentation

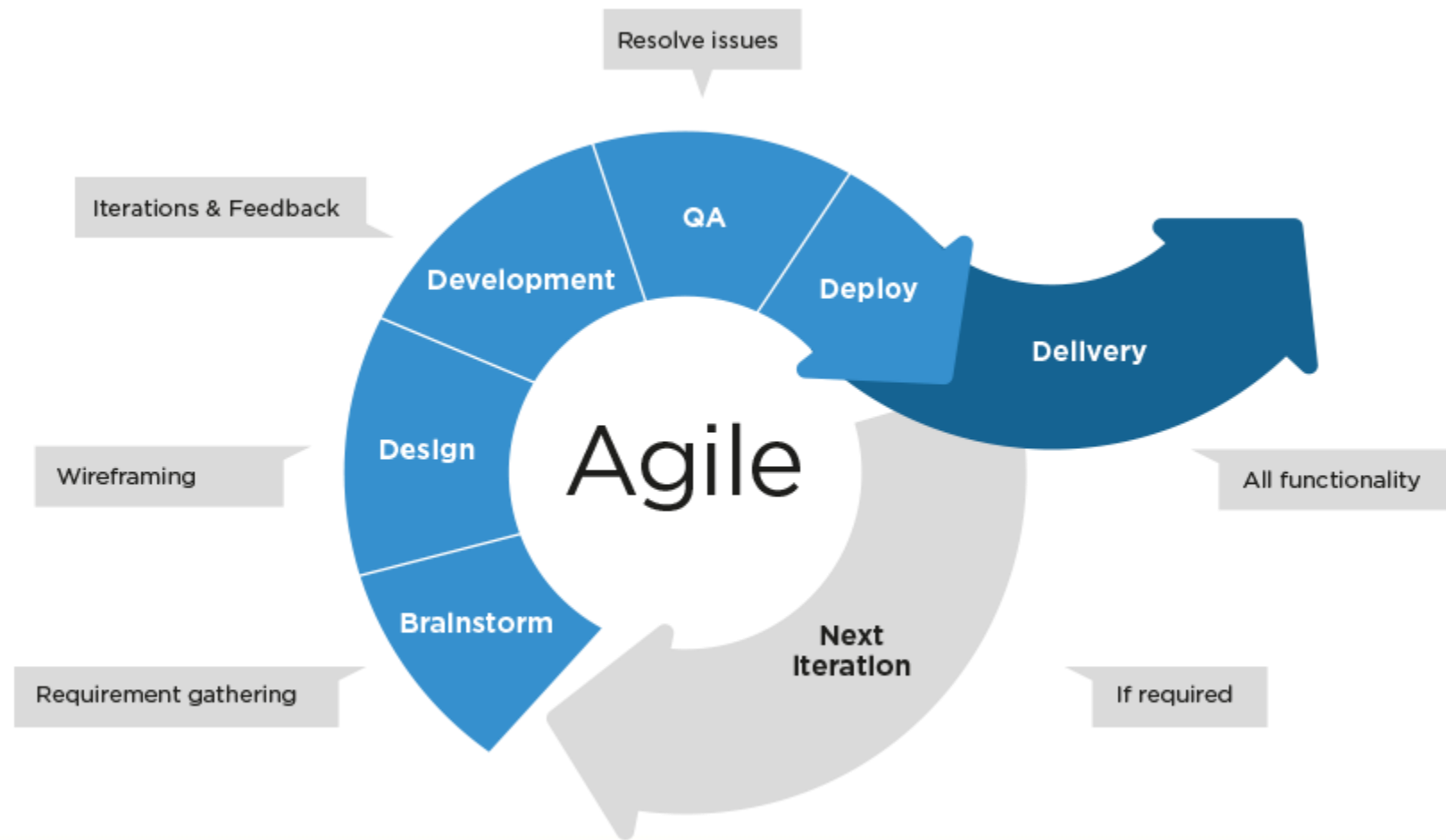
Customer collaboration over contract negotiation

Responding to change over following a plan

That is, while there is value in the items on the right, we value the items on the left more.

<http://agilemanifesto.org/principles.html>

Agile Software Development



UML Diagrams

