

TOPICS

**The Nature and History of Software
Development**

Problems with Software Development

**Software Engineering Paradigms and
Technology**

PROBLEMS WITH SOFTWARE DEVELOPMENT

 **Problems**

 **Causes**

Problems

- 1. We have little data on the software development process.**
- 2. Customers are often dissatisfied with the software they get.**
- 3. Software quality is hard to define and measure.**
- 4. Existing software is often very difficult to maintain.**

Can these problems be overcome?

Causes

- ❑ No spare parts to replace, so an error in the original software is also in every copy.**
- ❑ Software quality is a human problem.**
- ❑ Project managers often have no software development experience.**
- ❑ Software developers often have little or no formal training in engineering the development of the software product.**
- ❑ Resistance to change from programming as an art to programming as an engineering task can be significant.**

SOFTWARE MYTHS

 **Customer Myths**

 **Developer Myths**

 **Management Myths**

Customer Myths

Myth

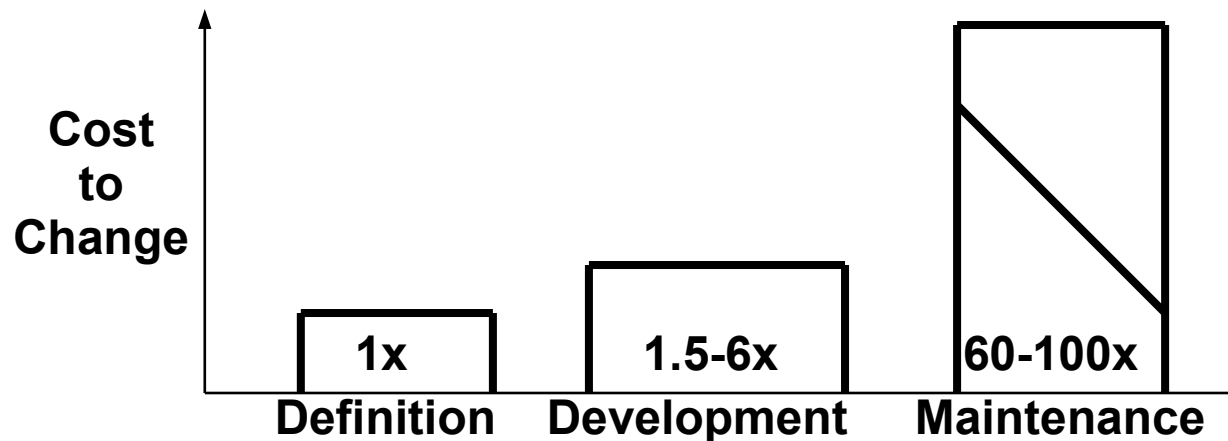
Reality

❑ A general statement of objectives is enough to get going. Fill in the details later.

❑ Poor up-front definition of the requirements is *THE* major cause of poor and late software.


❑ Project requirements continually change, but change can be easily accommodated because software is flexible.


❑ Cost of the change to software in order to fix an error increases dramatically in later phases of the life of the software.



Developer Myths


Myth

 Once a program is written and works, the developer's job is done.


 Until a program is running, there is no way to assess its quality.

 The only deliverable for a successful project is a working program.

Reality

 50%-70% of the effort expended on a program occurs after it is delivered to the customer.

 Software reviews can be more effective in finding errors than testing for certain classes of errors.

 A software configuration includes documentation, regeneration files, test input data, and test results data.

Management Myths

Myth

- ❑ Books of standards exist in-house so software will be developed satisfactorily.
- ❑ Computers and software tools that are available in-house are sufficient.
- ❑ We can always add more programmers if the project gets behind.

Reality

- ❑ Books may exist, but they are usually not up to date and not used.
- ❑ CASE tools are needed but are not usually obtained or used.
- ❑ "Adding people to a late software project makes it later." -- *Brooks*