

Subject: Software Engineering &  
Project Management  
Topic: Introduction to Software

# The Product

- What is it?
  - Is the product that software engineers design and build.
  - Encompasses programs that executes within a computer of any size and architecture.
- Who does it?
  - Software engineer and virtually everyone in the industrialized world uses it either directly or indirectly.
- Why is it important?
  - It affects nearly every aspects of our lives and has become pervasive in our commerce, our culture and our everyday activity.

# The Product

- What are the steps?
  - By applying a process that leads to a high-quality result that meets the needs of the people who will use the product. (Software Engineers Approach)
- What is the work product?
  - Programmers point of view- the programs, documents, and data that are computers software.
- Users point of view- the resultant information that somehow makes the users world better.

# The Evolving Role of Software

- Plays dual role
  - The product
  - The vehicle for delivering the product
- Software is an information transformer-
  - Produces
  - Manages
  - Acquires
  - Modifies
  - Displays
- Software acts as the basis for
  - The computer (Operating System)
  - The communication of information (Networks)
  - The creation and control of other programs (Software tools and environments)

# The Evolving Role of Software

- Software delivers the most important product of our time
- Software transforms personal data
- It manages business information to enhance competitiveness
- Provides a gateway to worldwide information networks
- Provide means of acquiring information in all of its forms

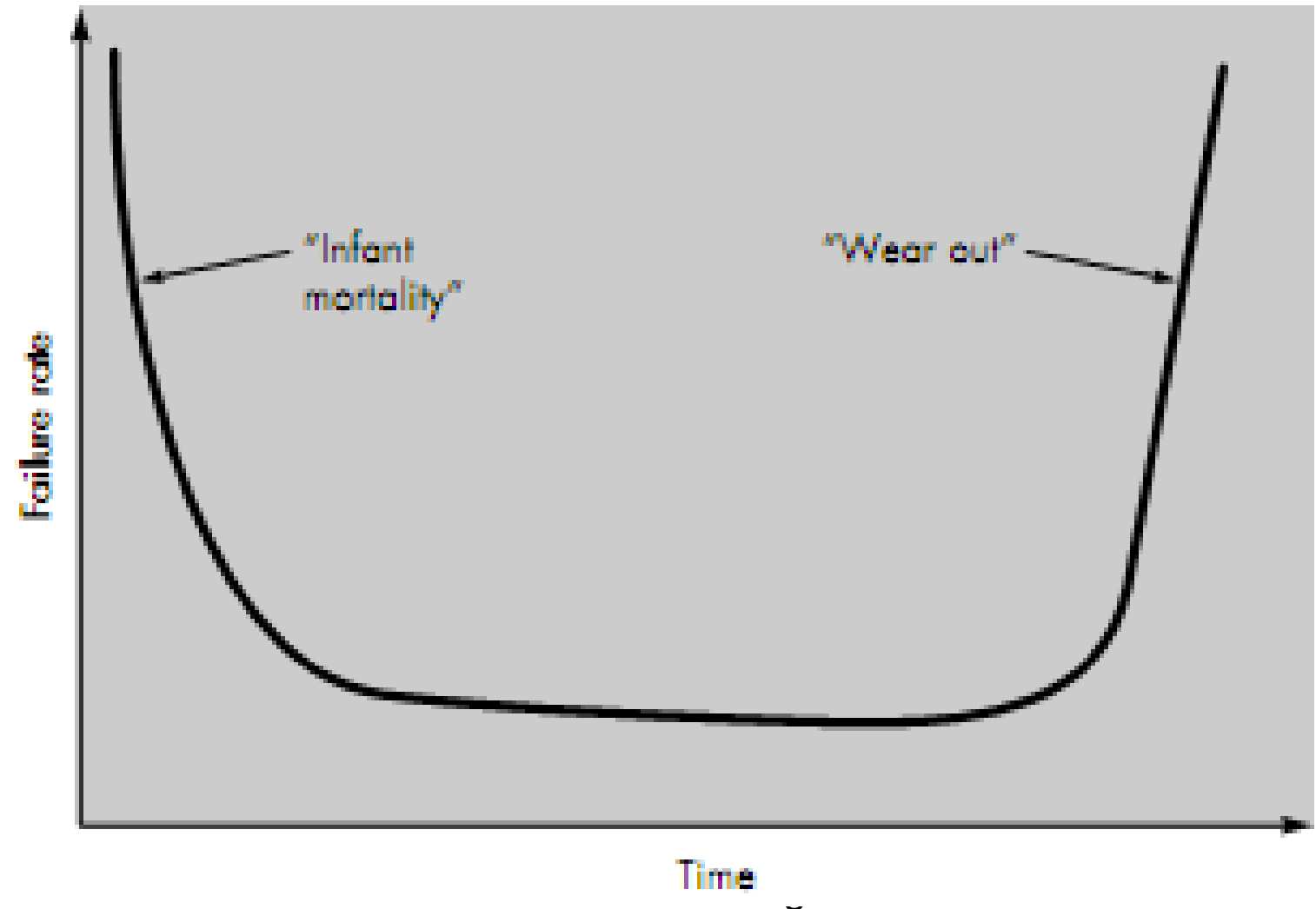
# Software

- Software is instruction that when executed provide desired function and performance.
- Is a data structure that enable the programs to adequately manipulate information.
- And documents that describes the operation and use of the program.

# Software Characteristics

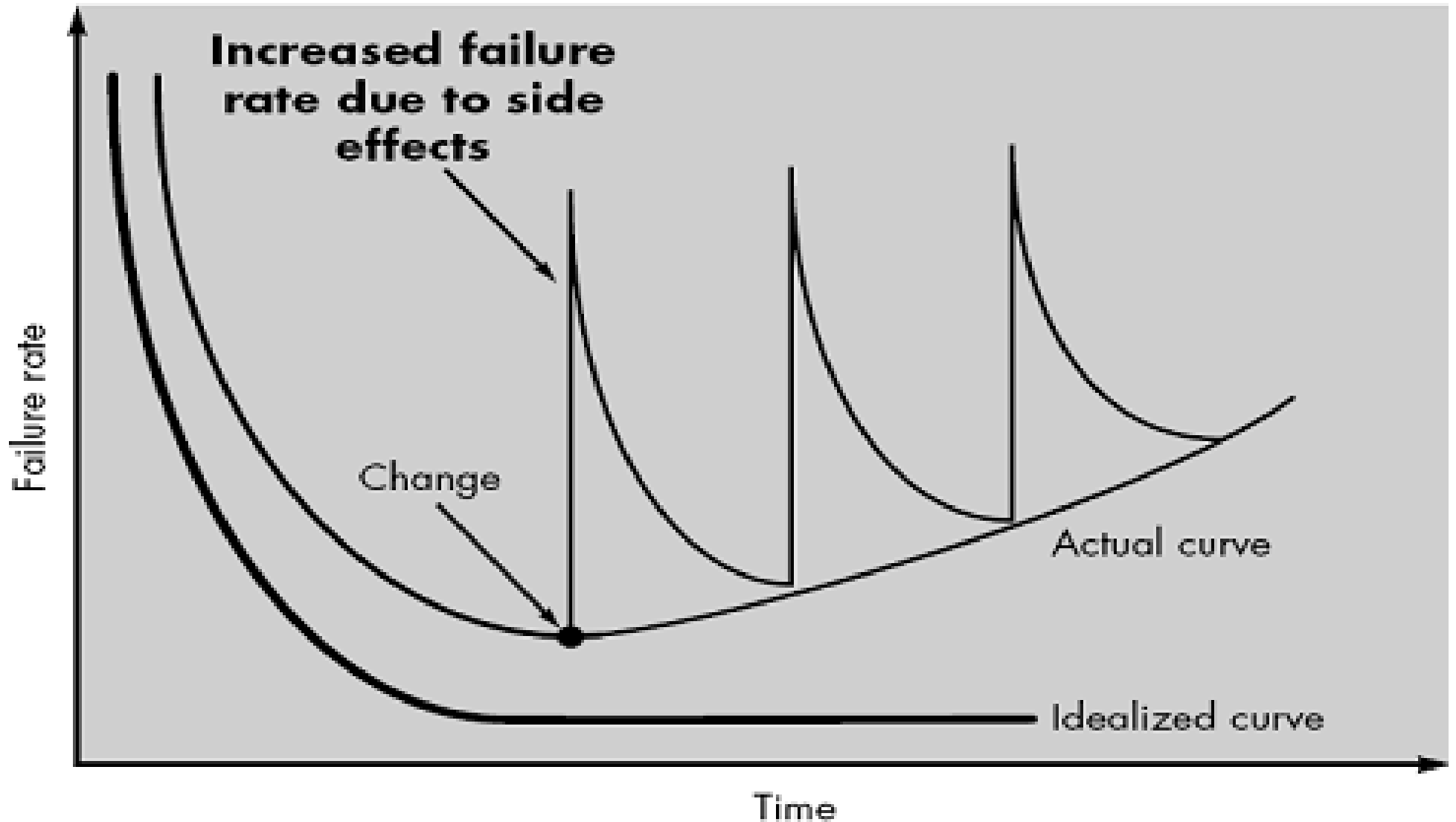
- Different from hardware.
- Software is developed or engineered, it is not manufactured in the classical sense.
- Software doesn't **wear out**.
- Although the industry is moving towards component based assembly, most software continues to be custom built.

# Failure Curve for Hardware





# Failure Curves for Software



# Software Applications

## System Software

- Written to service other programs
- Real Time Software
  - That monitors/ analyzes/ controls real time events
- Business Software
  - Business information processing system
- Engineering and Scientific Software
  - Characterized by “Number Crunching” algorithms.
- Embedded Software
  - Resides in read-only- memory and is used to control products and systems for the consumer

# Software Applications

- Personal Computer Software
  - Word processing, spreadsheets etc..
- Web Based Software
  - Web pages retrieved by a browser is a software
- Artificial Intelligence
  - Make use of non-numerical algorithms to solve complex problems that are amenable to computation or straightforward analysis.
  - Eg Expert Systems, Pattern Recognition etc....

# Categories of Computer Software

- **Application Domains:**
- Consists of standalone programs that solve a specific business need.
- used to control various business applications in real time.
- It helps a computer user to perform specific tasks.
- People use application software according to their needs.
- It is also known as application package.

# Categories of Computer Software

- **WebApps (Web applications)** : network centric software. As web 2.0 emerges, more sophisticated computing environments is supported integrated with remote database and business applications.
- **Product-line software** : focus on a limited marketplace to address mass consumer market. (word processing, graphics, database management)

# Categories of Computer Software

- **MobileApps :**
- **Cloud Computing :**

# References

- Software Engineering - A practitioner's Approach by Roger S. Pressman