Lecture by Engr. Sidra

Quality Concepts

LECTURE # 38

McCall's Quality Factors

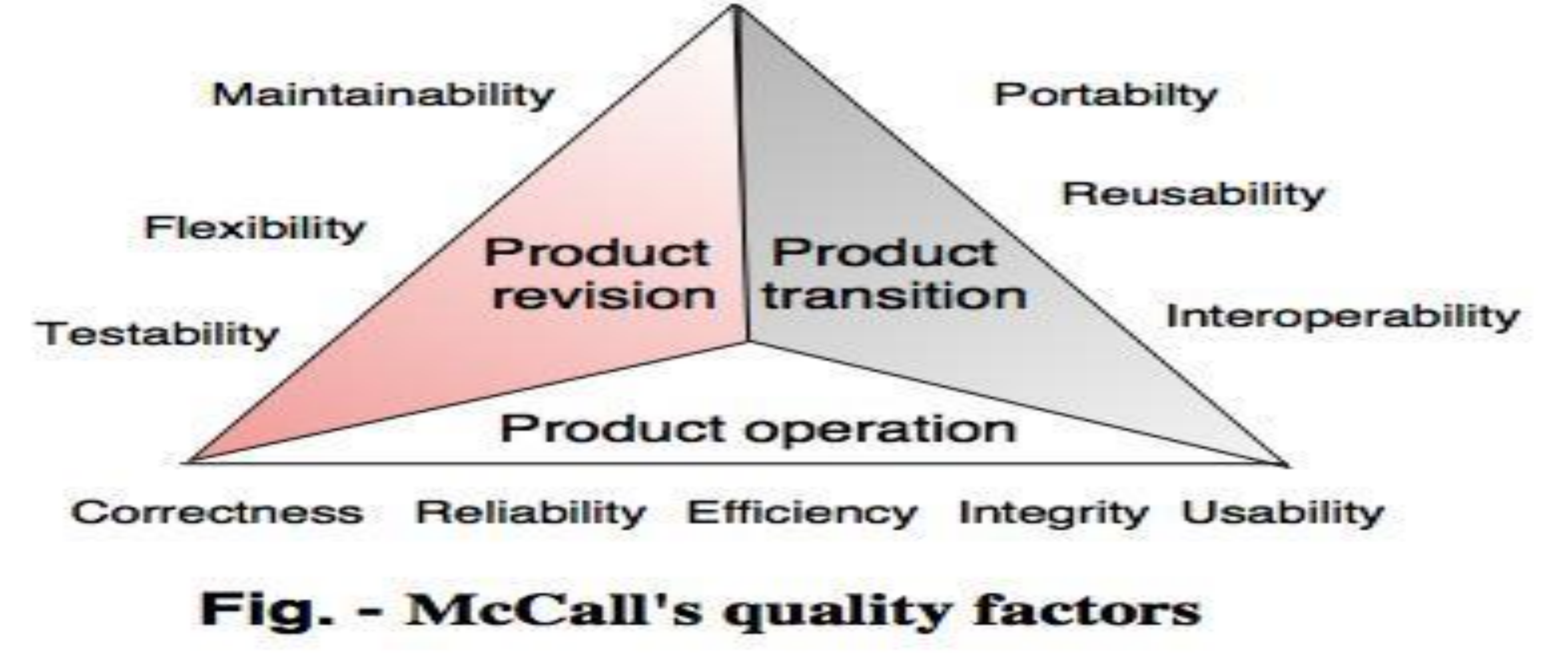

Fig. - McCall's quality factors

The Software Quality Dilemma

- If you produce a software system that has terrible quality, you lose because no one will want to buy it.
- If on the other hand you spend infinite time, extremely large effort, and huge sums of money to build the absolutely perfect piece of software, then it's going to take so long to complete and it will be so expensive to produce that you'll be out of business anyway.
- Either you missed the market window, or you simply exhausted all your resources.
- So people in industry try to get to that magical middle ground where the product is good enough not to be rejected right away, such as during evaluation, but also not the object of so much perfectionism and so much work that it would take too long or cost too much to complete.

“Good Enough” Software

- Good enough software delivers high-quality functions and features that users desire, but at the same time it delivers other more obscure or specialized functions and features that contain known bugs. The software vendor hopes that most end users will overlook the bugs because they are so happy with other application functionality.
- If you believe that “good enough” is a short cut that can solve your software quality problems. It can work, but only for a few and only in a limited set of application domains

Cost of Quality

- The cost of quality includes all costs incurred in the pursuit of quality or in performing quality-related activities and the downstream costs of lack of quality.
- The cost of quality can be divided into costs associated with prevention, appraisal, and failure.

Cost of Quality

- Prevention costs include
  - quality planning
  - formal technical reviews
  - test equipment
  - Training
- Appraisal costs include activities to gain insight into product condition the "first time through" each process. Examples of appraisal costs include:
  - Cost of conducting technical reviews for software engineering work products
  - Cost of data collection and metrics evaluation
  - Cost of testing and debugging

Cost of Quality

- Failure costs are those that would disappear if no errors appeared before or after shipping a product to customers.
- Internal failure costs are incurred when you detect an error in a product prior to shipment. Internal failure costs include
  - Rework, repair and failure mode analysis
- External failure costs are associated with defects found after the product has been shipped to the customer. It includes
  - complaint resolution, product return and replacement
  - help line support and warranty work

Achieving Software Quality

- Software Engineering Methods
- Project Management Techniques
- Quality Control
- Quality Assurance