Software Engineering

هندسة البرمجيات

جامعة بغداد
كلية التربيه للعلوم الصرفه/ابن الهيثم
قسم علوم الحاسبات
المرحلة الثالثة

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نظري

محاضرة الاسبوع السادس والعشرون

Software Quality Assurance (SQA)

Topics covered

- What is Quality?
- What is Software Quality?
- What is Software Quality Assurance (SQA)?
- McCall's factors model
  - Product operation factors
  - Product revision factors
  - Product transition factors

What is Quality?

- Quality is ‘hard to define, impossible to measure, easy to recognize’(Kitchenham, 1989a).

- Quality is generally transparent when present, but easily recognized in its absence, e.g. when a new car falls to pieces, or a computer program fails to perform properly.

- Quality = fitness for purpose, (Juran)

What is Software Quality?

Kitchenham (1989b) refers to software quality ‘ fitness of needs’ and claims quality involves matching expectations.

This definition specifically recognizes the two features of a piece of quality software:

✧ Is It a good solution?

✧ Does it address the right problem?

What is Software Quality Assurance (SQA)?

- Software Quality Assurance (SQA): is the process of ensuring that a software system and its associated documentation are in all respects of sufficient quality for their purpose.

McCall’s factors model

- The model was first proposed by McCalls in 1977. The model is aimed at system developers, to be used during the development process. There are three areas addressed by McCall’s model:
- Product operation factors
- Product revision factors
- Product transition factors

McCall's factors model

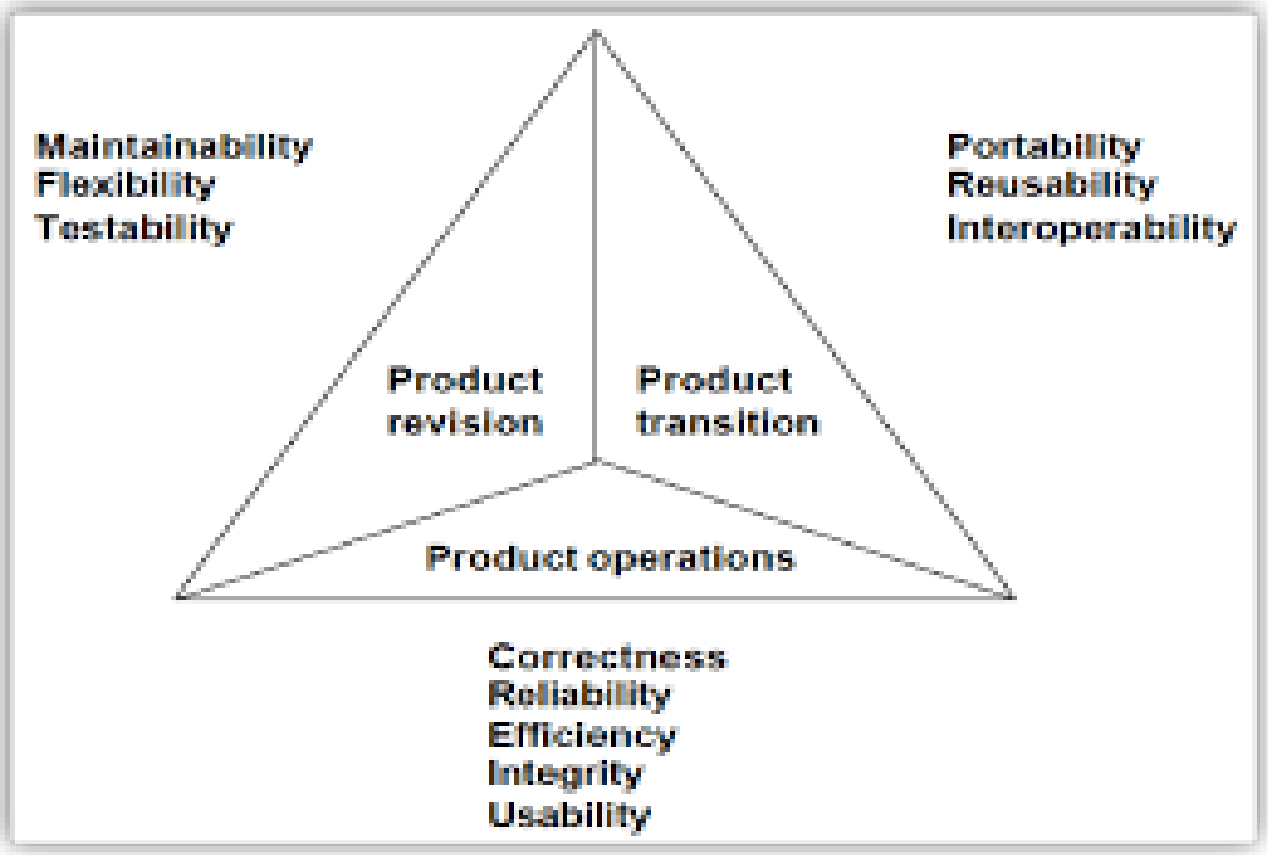

Figure 51 McCall's model

Product operation factors

1. ***Correctness:*** Does it do what I want?
2. ***Reliability:*** Does it do it accurately all the time.
3. ***Efficiency:*** Will it run on my machine as well as it can?
4. ***Integrity:*** Is it secure.
5. ***Usability:*** Can I run it?

Product revision factors

1. ***Maintainability:*** Can I fix it?
2. ***Flexibility:*** Can I change it?
3. ***Testability:*** Can I test it?

Product transition factors

1. ***Portability:*** Will I able to use it on another machine?
2. ***Reusability:*** Will I be able to reuse some of the software?
3. ***Interoperability:*** Will I able to interface it with another machine?

McCall's factors model

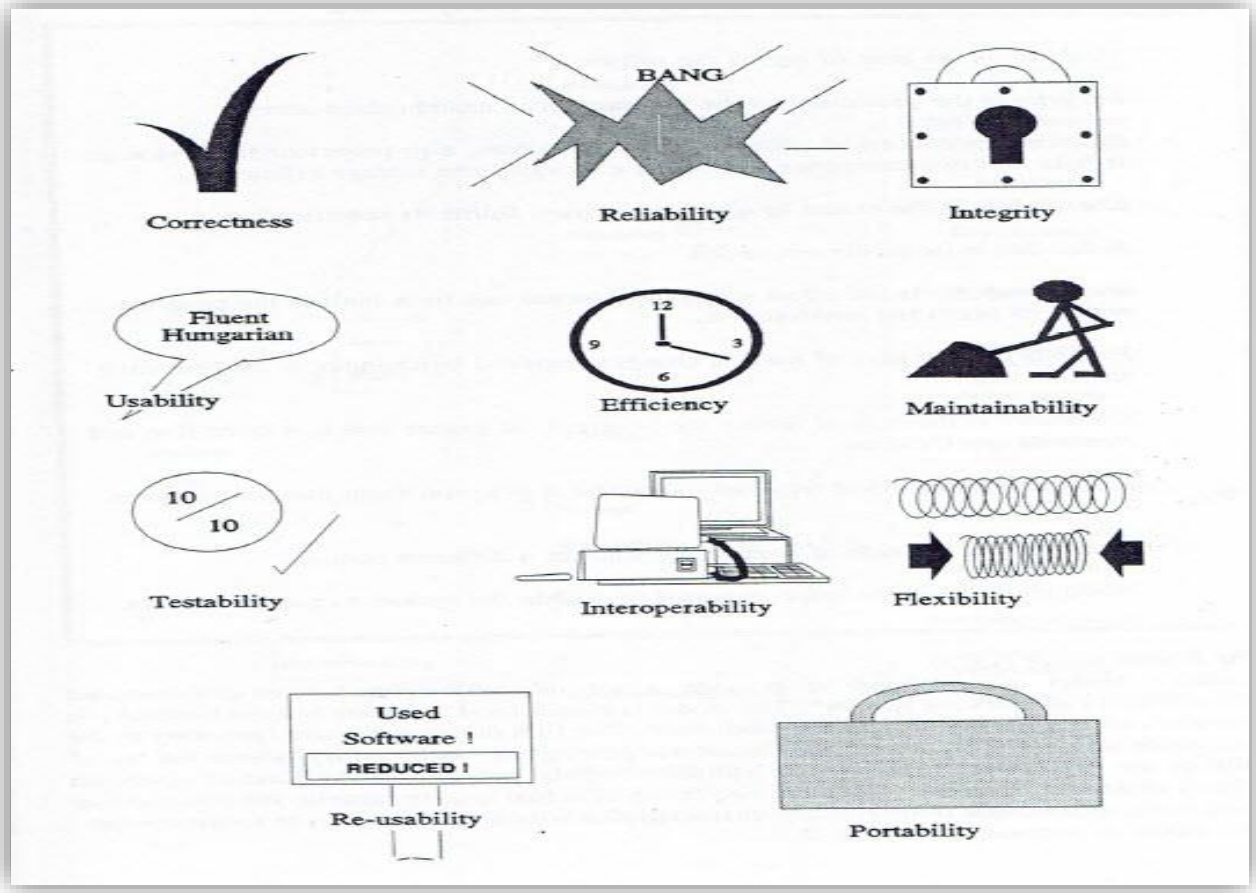

Figure 51 McCall's model

Thanks