JABATAN PERDANA MENTERI

SOFTWARE QUALITY ASSURANCE

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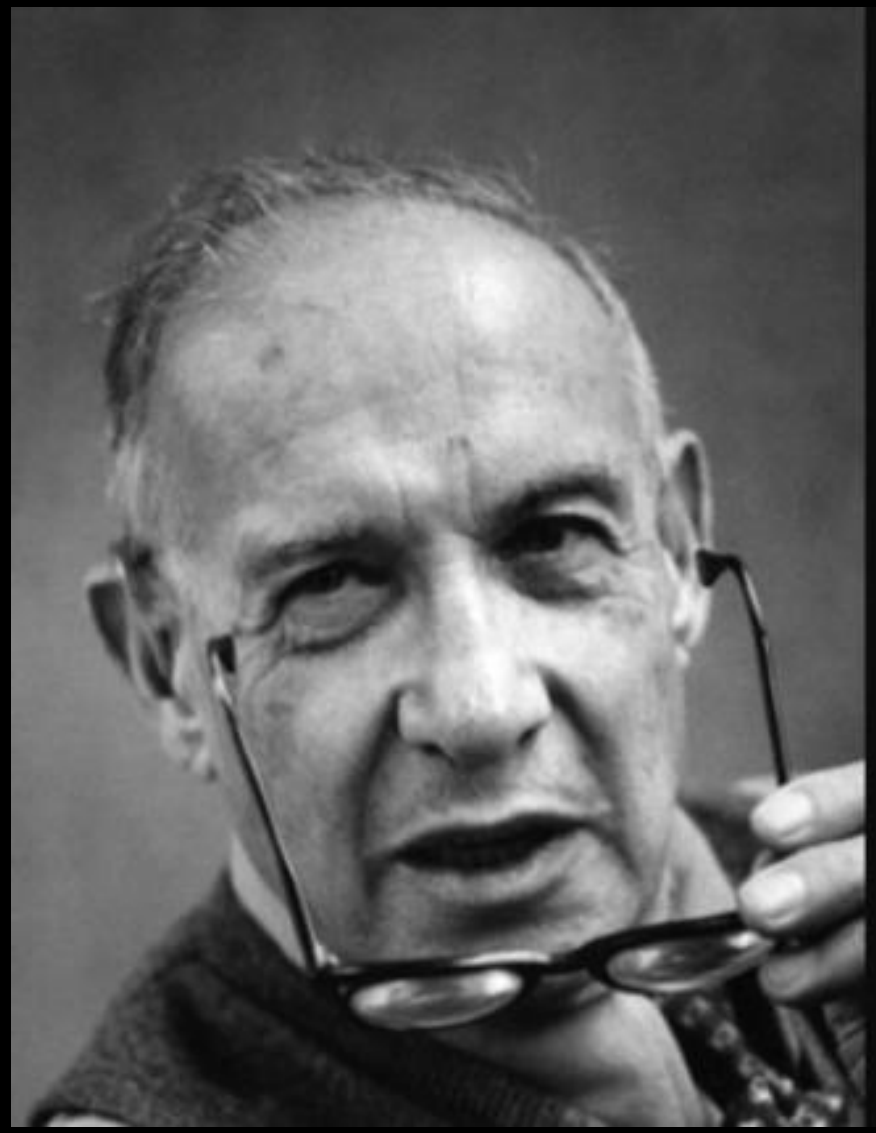


Quality in a service or product is not what you put into it. It is what the client or customer gets out of it.

— Peter Drucker —

QUALITY - DEFINITION

Deming => Meeting the customer needs

Juran => Fitness for use

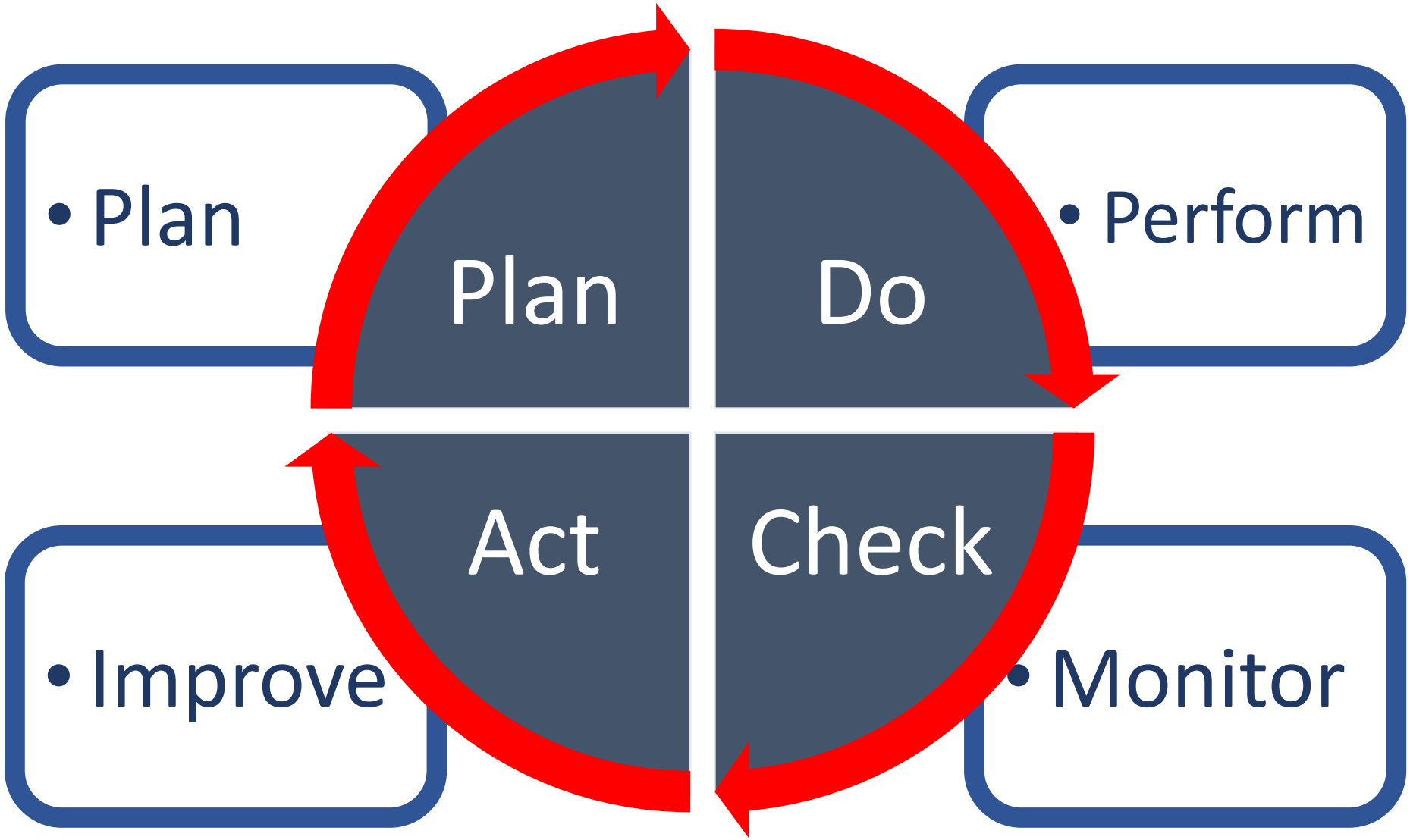
Crosby => Conformance to requirements

Ishikawa => Continuous improvement

QUALITY MANAGEMENT PRINCIPLES

- Customer Focus
- Leadership
- Engagement of People
- Process Approach
- Improvement
- Evidence base Decision Making
- Relationship Management

QUALITY MANAGEMENT - PDCA CYCLE



SOFTWARE QUALITY ASSSURANCE

DEFINITIONS

Software quality: The degree to which a software product meets established requirements; however, quality depends upon the degree to which those established requirements accurately represent stakeholder needs, wants, and expectations

Software Quality Assurance: A set of activities that define and assess the adequacy of software processes to provide evidence that establishes confidence that the software processes are appropriate for and produce software products of suitable quality for their intended purposes. A key attribute of SQA is the objectivity of the SQA function with respect to the project. The SQA function may also be organizationally independent of the project; that is, free from technical, managerial, and financial pressures from the project.

Source : IEEE Std 730-2014 IEEE Standard for Software Quality Assurance Processes

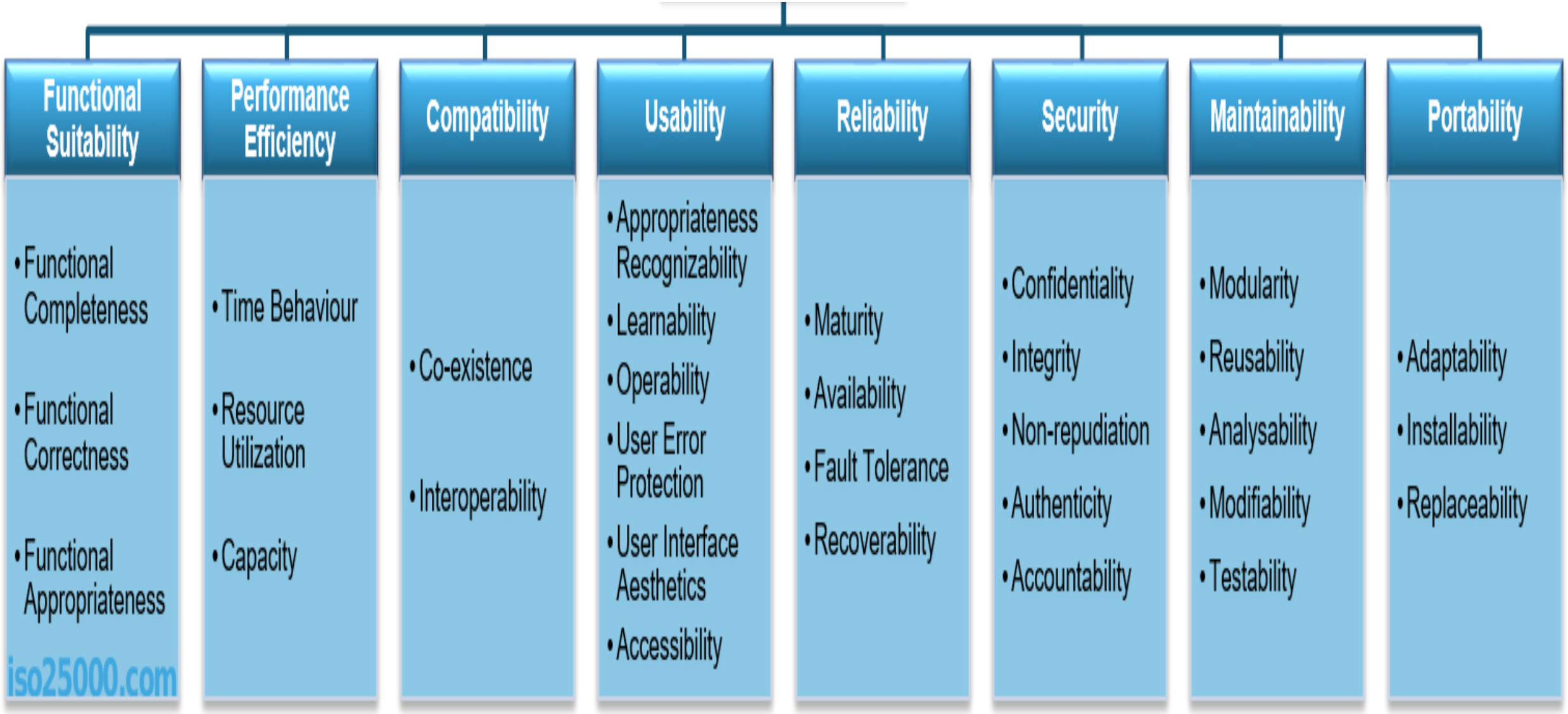
SOFTWARE QUALITY CHALLENGES

- **The uniqueness of a software product:**
  - High complexity
  - Invisibility of a product
  - Limited and late opportunities to detect defects/ bugs

- **The environment in which software is developed:**
  - Subject to customer-supplier relationship
  - Requirement of teamwork
  - The need for cooperation and coordination with other development teams
  - The need for interfaces with other software systems
  - The need to continue carrying out the project while team changes
  - The need to continue maintaining the software system for years

COMMON PROBLEMS IN SOFTWARE DEVELOPMENT

SOFTWARE PRODUCT QUALITY



SOFTWARE QUALITY ASSURANCE TECHNIQUES

SIMULATION

FUNCTIONAL TESTING

NON FUNCTIONAL TESTING

AUDITING

STATIC ANALYSIS

INSPECTION

WALKTHROUGH

SOFTWARE QUALITY ASSURANCE STANDARDS

ISO 9000:

- This standard is based on seven quality management principles which help the organizations to ensure that their products or services are aligned with the customer needs.

CMMI level:

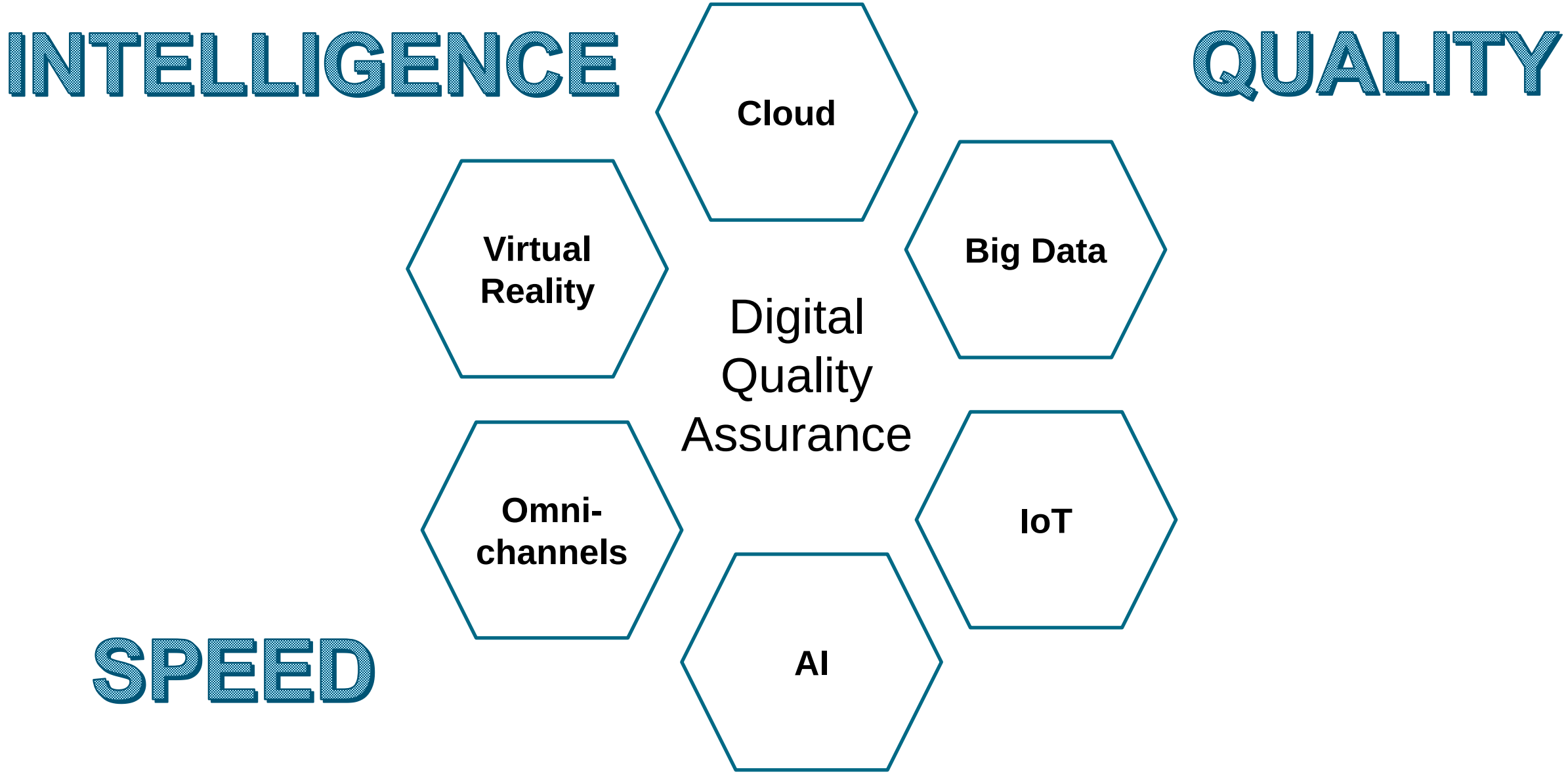
- CMMI stands for **Capability maturity model Integration**. This model originated in software engineering. It can be employed to direct process improvement throughout a project, department, or entire organization.

Test Maturity Model integration (TMMi):

- Based on CMMi, this model focuses on maturity levels in software quality management and testing.

BENEFITS SOFTWARE QUALITY ASSURANCE

DIGITAL QUALITY ASSURANCE



MyTCoE

Malaysian Public Sector Testing Centre of Excellence (MyTCoE) was setup in 2015

- *Functional Testing*
- *Non Functional Testing (Performance)*
- *Independent Verification and Validation (IV&V)*
- *Function Point Analysis*

Thank You