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Professional Issues in IT

Topic 12:
Applying Software Quality

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Applying Software Quality Topic 1 - 1.2

Scope and Coverage

This topic will cover:

- Software quality standards
 - Including compare and contrast
- IT institutes invested in software quality
- Generating software quality plans
- Module review



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Learning Outcomes

By the end of this topic, students will be able to:

- Identify and discuss international standards;
- Name and compare (software) quality institutes;
- Create a software quality plan;
- Research quality standards and form conclusions;
- Report findings



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Standards and Institutes

- More international standards are being introduced:
 - ISO 9126
 - ISO 25010
 - TickIT
- Many institutes:
 - Consortium for IT Software Quality
 - European Foundation for Quality Management
 - American Society for Quality
 - Quality Assurance Institute
 - Software Engineering Institute

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International Standards


- ISO is once again the primary forerunner in software quality legislation.
- ISO 9126
 - Four parts ISO 9126-1 to 9126-4
 - Replaced 2011
 - Software quality evaluation
- ISO 25010
 - Systems and software quality requirements and evaluation (SQuaRE)
 - Launched 2011

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ISO 9126


- Still in use by organisations
 - Launched 1991 Updated 2001
- Software quality evaluation standard
- Flexible framework
- Four parts:
 - Quality model
 - External metrics
 - Internal metrics
 - Quality in use metrics

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Quality Model


- ISO 9126-1
- Structured software quality characteristics:
 - Functionality
 - Reliability
 - Usability
 - Efficiency
 - Maintainability
 - Portability
- Each characteristic is further divided.

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External Metrics


- Used in conjunction with 9126-1
- Measures software characteristics from 9126-1
- Not exhaustive
 - Introduce additional metrics
 - Requirements
 - Evaluation
 - Measurement
- Modifiable
- Not value specific

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Internal Metrics


- ISO 9126-3
- Measures software characteristics from 9126-1
- Software focused
- Not exhaustive
 - Introduce additional metrics
 - Requirements
 - Evaluation
 - Measurement
- Modifiable
- Not value specific

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Quality in Use Metrics

- ISO 9126-4
- Measures 9126-1 attributes
- Software effects within specific environment
- Provides guidance
 - Metrics application
 - Evaluation
 - Reporting format

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TickIT - 1

- UK developed
 - British Standards Institution (BSI)
- Software development specific
- Supports ISO standards
 - Additional information
- Objectives
 - Software development quality
 - Achieving software quality
 - Continuous quality improvement

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TickIT - 2


- Certification available
- Adopted internationally
- TickIT plus launched 2011
 - Industry best practise and IT standards

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ISO 25010:2011

- System and software quality models
- Two categories
 - Quality in use model
 - Product quality model
- Encompasses whole human-computer system
- Enables software specification and evaluation
 - From varied perspectives
 - For varied activities
- ISO 25012
 - Additional standard model for data quality

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CISQ

- Consortium for IT Software Quality
- Industry forum
- Aim
 - IT industry to agree system of software quality measurement
- Objectives
 - Provide industry and government advice
 - Educate
 - Define quality measurement methods and processes
 - Create industry accreditation

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EFQM

- European Foundation for Quality Management
- Founded in 1988
- Promotes best practice
- European Quality Promotion Policy
- Developed EFQM Excellence model
 - European organisation competitiveness
- Now adopted worldwide

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ASQ

- American Society for Quality
- Founded 1946
- Quality across all industries
- Worldwide audience
- Independent organisation
 - Field experts
- Aim
 - "...making quality a global priority..."

www.asq.org

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QAI

- Quality Assurance Institute
- Founded in 1980 in the USA
- Now also has Global Institute
 - Consulting branch of QAI
- IT-specific
- Focus
 - People Process Technology


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SEI

- Software Engineering Institute
- Started in 1984, initially working for the American government
- Government, education and industry focused
- Software engineering advancement
 - Improve quality
- Creators of CMM & CMMI maturity models


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Module Review

- Six learning outcome subject areas:
 - Social, ethical and professional issues
 - Project management
 - Software deployment
 - Risk management
 - IT service management
 - Software quality

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Topic 12 - Applying Software Quality

Any Questions?



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