B

Appendix: ISO/IEC 9126-1 quality characteristics

Definitions

Functionality	The capability of the software product to provide functions that meet stated or implied needs when the software is in use under specified conditions.
• *Suitability*	The capability of the software product to provide an appropriate set of functions for specified tasks and user objectives.
• *Accuracy*	The capability of the software product to provide the right or agreed results or effects with the needed degree of precision.
• *Interoperability*	The capability of the software product to interact with one or more specified systems.
• *Security*	The capability of the software product to protect information and data so that unauthorized persons or systems cannot read or modify them, and authorized persons or systems are not denied access to them.
• *Functionality compliance*	The capability of the software product to adhere to standards, conventions or regulations in laws and similar prescriptions relating to functionality.
Reliability	The capability of the software product to maintain a specified level of performance when used under specified conditions.
• *Maturity*	The capability of the software product to avoid failure as a result of faults in the software.
• *Fault tolerance*	The capability of the software product to maintain a specified level of performance in cases of software faults or of infringement of its specified interface.

• *Recoverability*	The capability of the software product to re-establish a specified level of performance and recover the data directly affected in the case of a failure.
• *Reliability compliance*	The capability of the software product to adhere to standards, conventions or regulations relating to reliability.
Usability	The capability of the software product to be understood, learned, used and attractive to the user under specified conditions.
• *Understandability*	The capability of the software product to enable the user to understand whether the software is suitable, and how it can be used for particular tasks and conditions of use.
• *Learnability*	The capability of the software product to enable the user to learn its application.
• *Operability*	The capability of the software product to enable the user to operate and control it.
• *Attractiveness*	The capability of the software product to be attractive to the user.
• *Usability compliance*	The capability of the software product to adhere to standards, conventions, style guides or regulations relating to usability.
Efficiency	The capability of the software product to provide appropriate performance, relative to the amount of resources used, under stated conditions.
• *Time behavior*	The capability of the software product to provide appropriate response and processing times and throughput rates when performing its function under stated conditions.
• *Resource behavior*	The capability of the software product to use appropriate amounts and types of resources when the software performs its function under stated conditions.
• *Efficiency compliance*	The capability of the software product to adhere to standards or conventions relating to efficiency.
Maintainability	The capability of the software product to be modified. Modifications may include corrections, improvements or adaptation of the software to changes in environment, and in requirements and functional specifications.

• *Analyzability*	The capability of the software product to be diagnosed for deficiencies or causes of failures in the software, or for the parts to be modified to be identified.
• *Changeability*	The capability of the software product to enable a specified modification to be implemented.
• *Stability*	The capability of the software product to avoid unexpected effects from modifications of the software.
• *Testability*	The capability of the software product to enable modified software to be validated.
• *Maintainability compliance*	The capability of the software product to adhere to standards or conventions relating to maintainability.
Portability	The capability of the software product to be transferred from one environment to another.
• *Adaptability*	The capability of the software product to be adapted for different specified environments without applying actions or means other than those provided for this purpose for the software considered.
• *Installability*	The capability of the software product to be installed in a specified environment.
• *Co-existence*	The capability of the software product to co-exist with other independent software in a common environment sharing common resources.
• *Replaceability*	The capability of the software product to be used in place of another specified software product for the same purpose in the same environment.
• *Portability compliance*	The capability of the software product to adhere to standards or conventions relating to portability.

Translation from ISO 9126 quality characteristics to TMap

Table B.1 shows how ISO 9126 quality characteristics translate to TMap. The TMap quality characteristics (suitability of) infrastructure and reusability have no equivalence within ISO 9126.

Translation from TMap quality characteristics to ISO 9126

Table B.2 shows how TMap quality characteristics translate to ISO 9126.

The ISO 9126 quality characteristics stability, co-existence, replaceability and compliance have no equivalence within TMap.

Table B.1 Translation of ISO 9126 quality characteristics to TMap

ISO 9126	TMap
Functionality	
Suitability	Suitability
	Effectivity
	Data controllability (specific functions)
	Flexibility (specific functions)
Accuracy	Functionality
Interoperability	Connectivity
Security	Security
Functionality compliance	–
Reliability	*Continuity*
Maturity	Operational reliability
Fault tolerance	Robustness
Recoverability	Recoverability
	Degradation possibilities
	Possibility of diversion
Reliability compliance	–
Usability	
Understandability	User-friendliness
	Effectivity
Learnability	User-friendliness
	Effectivity
Operability	User-friendliness (end user)
	Manageability (operator user)
	User-friendliness
Attractiveness	User-friendliness
Usability compliance	–
Efficiency	
Time behavior	Performance
Resource utilization	Efficiency
Efficiency compliance	–
Maintainability	
Analyzabilty	Maintainability
Changeability	Maintainability
Stability	–
Testability	Testability
Maintainability compliance	–
Portability	
Adaptability	Portability
Installability	Portability
Co-existence	–
Replaceability	–
Portability compliance	–

TMap	ISO 9126
Connectivity	Interoperability
Continuity	Reliability
Degradation possibilities	Fault tolerance
Possibility of diversion	Recoverability
operational reliability	Maturity
Recoverability	Recoverability
Robustness	Fault tolerance
Data controllability	Suitability
Effectivity	Learnability
	Operability
	Suitability
	Understandability
Efficiency	Resource utilization
Flexibility	Suitability
Functionality	Accuracy
(Suitability of) infrastructure	–
Maintainability	Analyzability
	Changeability
Manageability	Operability
Performance	Time behavior
Portability	Adaptability
	Installability
Reusability	–
Security	Security
Suitability	Suitability
Testability	Testability
User-friendliness	Attractiveness
	Learnability
	Operability
	Understandability

Table B.2
Translation of TMap quality characteristics to ISO 9126