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Information technology — Systems and software engineering — Guide for requirements engineering tool capabilities

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

In exceptional circumstances, the joint technical committee may propose the publication of a Technical Report of one of the following types:

— type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;

— type 2, when the subject is still under technical development or where for any other reason there is the future but not immediate possibility of an agreement on an International Standard;

— type 3, when the joint technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example).

Technical Reports of types 1 and 2 are subject to review within three years of publication, to decide whether they can be transformed into International Standards. Technical Reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

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Introduction

Requirements engineering (RE) is a major activity within the systems and software engineering life cycles. This activity must be carried out in a comprehensive manner to ensure that a complete set of user needs and requirements is captured. These user needs and requirements are transformed into a validated set of technical requirements and managed throughout the life cycle using the RE process activities. RE tools are used to support many RE and related life cycle activities. RE processes are identified in ISO/IEC 15288:2008, *Systems and software engineering — System life cycle processes* and ISO/IEC 12207:2008, *Systems and software engineering — Software life cycle processes*.

ISO/IEC 15288:2008 and ISO/IEC 12207:2008 describe a set of RE processes, activities and tasks to be performed when acquiring or developing systems and software. However, these documents do not address the RE tool capabilities users can expect in order to support an RE process and other related life cycle activities.

Many RE processes are human activities that, in the current state of the practice, tools cannot perform, and that might never be able to be performed by a tool. But wherever possible, a tool should support these human activities through the facilitation of documentation capture, content management, distribution, discussion forums, and decision support tools.

This Technical Report describes capabilities of RE tools to benefit the groups of people that acquire, supply, develop, operate, and maintain an RE process.

This Technical Report will help RE personnel involved in the execution of one or more RE activities to

- obtain a better understanding of the relationship between the activities in which they are involved and RE tool capabilities,
- identify processes or activities that can be improved through better support by an RE tool, and
- have an objective basis for a better comparison, evaluation and assessment of RE tools.

This Technical Report will help people involved in the purchase of RE tools to

- review RE services that can contribute to RE process improvement, and
- identify criteria for selecting RE tools.

This Technical Report will help RE tool vendors to

- provide RE tools consistent with ISO/IEC 15288:2008, ISO/IEC 12207:2008, ISO/IEC 15940:2006, and ISO/IEC 14102:2008.

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1 Scope

Requirements engineering (RE) is an essential process of the systems and software engineering life cycles. RE has been established as an ISO/IEC standard life cycle process in both ISO/IEC 15288:2008, *Systems and software engineering — System life cycle processes* and ISO/IEC 12207:2008, *Systems and software engineering — Software life cycle processes*.

This Technical Report provides guidance on desirable capabilities of RE tools. It supplements ISO/IEC 14102:2008, *Information technology — Guideline for the evaluation and selection of CASE tools*, which details a set of evaluation criteria for CASE tools without referencing a specific activity or service area.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 12207:2008, *Systems and software engineering — Software life cycle processes*

ISO/IEC 15288:2008, *Systems and software engineering — System life cycle processes*

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