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Ergonomics of human-system interaction — Specification for the process assessment of human-system issues

*Ergonomie de l'interaction homme-système — Spécification pour
l'évaluation de processus des aspects homme-système*



Reference number
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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

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

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of document:

- an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;
- an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/PAS or ISO/TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/PAS or ISO/TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

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

ISO/TS 18152 was prepared by Technical Committee ISO/TC 159, *Ergonomics*, Subcommittee SC 4, *Ergonomics of human-system interaction*. It extends and formalises the user-centred processes defined in ISO 13407. It is presented in a similar form to the process definitions for software development defined in ISO/IEC 15504 developed by ISO/IEC JTC 1/SC 7.

This first edition of ISO/TS 18152 cancels and replaces ISO/PAS 18152:2003, of which it constitutes a minor revision.

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Introduction

By the time ISO/PAS 18152 had reached the end of its six-year life it had proved to be a useful collection of information with a range of uses. For example, it is cited in ISO/IEC 15288 (the reference model for systems engineering) as the means to address human-system issues in the system lifecycle. However, there are a number of ongoing developments in other standards and related pre-standardization work in ISO/TC 159 and in other ISO technical committees that need to be completed before the material in this Technical Specification can be further developed into a standard or other ISO document. In order to ensure its continued availability within ISO until a project is started to develop a possible successor, it has been converted into this Technical Specification.

This Technical Specification presents a view of system life cycle processes with an emphasis on the identification and handling of issues related to people (users and other stakeholders). It is intended for use in process assessment. The specification describes a set of processes that address issues associated with humans throughout the life cycle of a system.

Process models offer

- a) the potential to analyse the ability of an organization to deliver and/or maintain a system that meets a required level of performance,
- b) a description of the factors that hinder this ability, and
- c) the means of addressing such shortcomings and mitigating risk.

These have led to the widespread adoption of process modelling and assessment as an element in the assurance of timely and effective system delivery. Processes are defined at the level of what is done to develop and operate a system or organization. Process reference models have been defined for particular applications and industries. International Standard process models are being developed by ISO and ISO/IEC JTC 1. This Technical Specification provides a bridge between standardization in the area of Ergonomics (by ISO/TC 159) and the life cycle standardization being carried out by ISO/IEC JTC 1, *Information technology, SC 7, Software engineering*.

ISO/TS 18152 makes the contents of ISO 13407 accessible to process assessors and to those familiar with, or involved in, process modelling. ISO/TS 18152 extends the range of processes in ISO 13407 to cover the integration of human-centred design with project and organizational processes and makes a clearer separation between human-centred processes and human-centred design in the system life cycle. A mapping between ISO/TS 18152 and ISO 13407 is provided in Annex G.

ISO/TS 18152 informs the developers and users of process models who want to integrate Ergonomics/Human Factors processes in system, hardware and software life cycles in order to assure system usability, health and safety.

The processes in ISO/TS 18152 (the Human-System process model, or HS model) present a collation of good practice in ergonomics/human factors, user/human-centred design and human factors integration across a range of industries worldwide. These processes are performed by a range of staff and with different degrees of rigour depending on the industrial sector, the type of system, its purpose or use and the need for an assured level of usability.

ISO/TS 18152 has been developed with the following objectives in mind:

- To provide the means of assessing and mitigating risks arising from human-system issues that will affect usability through the life cycle, both at transition points between life cycle stages and during each stage.

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- To provide a description of human-system processes for use in project planning and for inter-disciplinary communication.
- As a basis for understanding and cooperation during the tendering process and for human-system capability evaluation to support contract award, either in a stand-alone manner or in conjunction with a software or system capability evaluation.
- To provide a basis for structured human-system process improvement by supplier, customer or employer organizations.