

Question 24/16 – Human factors for intelligent user interfaces and services

(Continuation of Question 24/16)

1 Motivation

The studies in this Question relate to intelligent user interfaces and services with human factors that should lead to the better understanding of human factors that will accommodate persons with specific needs (including but not limited to older persons, children, indigenous people, persons with illiteracy, non-native speakers) to have greater usability of telecommunication/ICT products and services.

Intelligent user interfaces include areas such as speech user interfaces, emotion-enabled user interfaces and usable information delivery interfaces that facilitate intelligent man-machine interaction. The direct interface between human and machine is expected to increase in various areas. Recent development of technology has reached the level of directly interface with machine for human organ replacement or to supplement human function. Technologies such as replacing the loss of vision due to retina or eye damage with artificial eyes through the connection between the camera and the optic nerve, or by implanting robotic limbs in a person without arms or legs are emerging.

The acquisition and application of the required knowledge and relevant tools should enable all persons to benefit from developments in telecommunication/ICT and ensure that no new barriers to usability are created. Such studies are also needed to reduce the cultural and linguistic barriers associated with the increasing amount of travel and cross-border movement.

The Question is also responsible for the maintenance and enhancements of those Recommendations and Supplements in the E and F series that are related to human factors; see list under *Tasks*, below.

2 Study items

Study items to be considered include, but are not limited to:

- requirements for man-machine interaction, such as multimodal interaction services;
- methods for human dialogue interfaces between the user and the system;
- characteristics and requirements for intelligent user interfaces and services with human factors;
- characteristics and requirements for language-specific issues such as natural language understanding and generation;
- architectural framework for intelligent user interfaces and services with human factors;
- approaches to facilitate entering information with technologies such as voice, gesture, emotion, or eye-tracking interface, etc;
- development on new symbols, pictograms and emoticons including symbols for facilities and services;
- development of intelligent user interface to eliminate, or at least minimize barriers for public services and terminals;
- societal concerns and ethical issues related with human factors for intelligent solutions and applications;
- analysis of human factors for the new technologies, such as human-assisting devices, artificial intelligence-enabled devices/services and IoT services;
- characteristics and requirements for human-care service and wellness service.

3 Tasks

Tasks include, but are not limited to:

- maintenance and enhancement of the following Recommendations: E.120 to E.128, E.130 to E.139, E.161, E.180-series (E.181, E.182, E.183, E.184), E.330-series (E.330, E.331, E.333), F.900-series (F.901, F.902, F.910);
- maintenance and enhancement of E-series Supplements 3, 5 and 6.

NOTE – S-series Supplement 1 (under ITU-T SG2) also contains human factor elements.

An up-to-date status of work under this Question is contained in the SG16 work programme (https://www.itu.int/ITU-T/workprog/wp_search.aspx?sp=17&q=24/16).

4 Relationships

Recommendations

- System and service Recommendations with human factor aspects, in particular in the E-, F-, H- and T-series

Questions

- Questions 21/16, 26/16

Study groups

- ITU-T SG2 (Q3/2)
- ITU-T SG17
- ITU-D Q7/1

Other bodies

- ITU-T JCA-AHF
- ITU-T FG IMT-2020
- ITU IRG-AVA
- CEN TC 224 WG 6 on man-machine interfaces
- ETSI TC HF on human factors
- IEC TC 100
- ISO/TC 159/SC 4 on ergonomics of human system interaction
- ISO/IEC JTC1 SC 35 on user interfaces