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**Information technology — User
interfaces — Evaluating usability of
natural user interfaces**

*Technologie de l'information — Interfaces utilisateur — Cadre
pour l'évaluation de l'utilisabilité d'une interface utilisateur
naturelle*

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Foreword

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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 35, *User interfaces*.

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Introduction

As smart devices such as smart phones and smart speakers have become popular, new forms of user interfaces have been introduced. One aspect of the new interfaces is mimicking natural ways of interacting with the devices and utilizing speech, gestures, body language, eye gaze and other natural features of human communication through natural user interfaces (NUIs), which allow for faster, smoother, intuitive, and smarter interaction. However, while the concept of NUI is well defined, practical applications of NUI still need to be developed. This is strongly related to the lack of usability of NUI in smart devices.

When specified users of systems, products or services achieve their specified goals with effectiveness, efficiency and satisfaction in a specified context of use (as defined in ISO/IEC 9241-11), usability can be evaluated. Effectiveness is considered as the ability of users to complete tasks with the system (e.g. the NUI). Efficiency measures resources taken by users to complete specified tasks. Satisfaction measures comfort levels of user experience along with acceptance.

It is important that the usability evaluation of NUI concentrates on recognizing the user's intention and focuses on multiple modalities of information flows between the users and the devices.

This document describes a framework for evaluating the usability of NUI. Although the framework can be applied in most general contexts, it is specifically focused on optimizing user experiences in terms of NUI.

