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Evropski okvir poklicne etike za poklic IKT (etika EU IKT)

European Professional Ethics Framework for the ICT Profession (EU ICT Ethics)

Europäischer berufsethischer Rahmen für den IKT-Beruf (EU ICT Ethics)

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**European Professional Ethics Framework for the ICT
Profession (EU ICT Ethics)**

Europäischer berufsethischer Rahmen für den IKT-
Beruf (EU ICT Ethics)

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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European foreword

This document (CEN/TS 17834:2022) has been prepared by Technical Committee CEN/TC 428 “ICT Professionalism and Digital Competences”, the secretariat of which is held by UNI.

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Introduction

The current document, the European Professional Ethics Framework for the ICT Profession (EU ICT Ethics), provides a foundation for defining practical guidelines to improve ethics for different organisations across all technical areas. In addition, it provides a basis for aligning existing guidelines and initiatives and establishing comparisons to support the vision of an ICT professional workforce. It offers the possibility to coalesce other ethics focused initiatives around a common structure.

Professional ethics is an essential component of any profession; mutual understanding leads to improved outcomes and differentiates professions from jobs. A professional ICT workforce across European society and industry (founded on the four building blocks of ICT professionalism: Professional Ethics; Education and training; Bodies of Knowledge; Competences) will support and enhance the exchange of ICT resources and services throughout Europe and internationally.

This document is related to EN 16234-1 e-Competence Framework (e-CF) – A common European Framework for ICT Professionals in all sectors – Part 1: Framework and incorporates its structural concept. It describes a blueprint of requirements and highlights connections to the competences, skills and knowledge required to identify and address the ethical challenges that ICT professionals face in daily activities.

This strong association with the EN 16234-1 (e-CF) naturally extends to the ethics principles described in the Transversal Aspects of the EN 16234-1 (e-CF) and enables ethics related requirements and procedures to be defined and implemented in the context of specific ICT professional roles and environments.

This document organises Professional Ethics into a manageable structure and provides guidance on practical use through a methodology and application guide to support implementation through a range of methods and contexts. It also provides a platform for universities and vocational training institutions to design and improve ICT ethics courses specifically for ICT professionals. This makes qualification attainment more transparent in European internal markets and, in addition, it offers input into accreditation processes provided by relevant national ICT professional bodies.

The European Professional Ethics Framework for the ICT Profession benefits all ICT Professionals and all stakeholders reliant upon the capability of ICT Professionals. This includes wider society and a trusted, ethical and professional ICT workforce that contributes to enabling the goal of an economically vibrant, socially just and sustainable Europe.

The document is based on a fixed structure, which is intended to ensure the uniformity of such CEN documents and their reliable placement in the context of other standards, specifications and reports.

The following recommendations are given to support the readability of the document.

- **Newbie / Beginner:** If new to the topic of professional ethics and for example an ICT professional or a manager in an organisation primarily interested in the basic aspects, it is recommended to first read Clauses 4.3 and 4.4 as an introduction. Then read Clause 5.2.4 and especially the Case Studies in Clause 5.2.5 before reading Clause 5 in total and the rest of the document from the start.
- **ICT Ethics in the European Context:** If interested in the embedding of the Framework in the European context, then read Clause 4.4 before reading the rest of Clause 4 in context.
- **Ethics and organisational culture:** If interested in the connection between organisational culture and ICT ethics and want to know how you can implement this topic in your organisation, it is recommended to jump directly to Clause 7.
- **Practical application:** If already on the way to take some practical first steps in the field of ICT professional ethics in an organisation and you are interested in practical help and tools, it is recommended to jump directly to Clause 8.

1 Scope

This document contains basic information and fundamental considerations on embedding ICT in European values. It includes concepts and structures for using the framework and practical suggestions for the concrete implementation of organisational and individual aspects as scoped by the European ICT Professionalism framework and its basic underlying references.

The scope of occupations associated with Information and Communication Technology is very wide and therefore, to define a boundary, this document is based upon the target audience of the EN 16234-1 “e-Competence Framework (e-CF) – A common European Framework for ICT Professionals in all sectors – Part 1: Framework”.

Beneficiaries and users of this document include educational institutions embracing universities and VET, public and private, certification providers, industry, including HR departments, large companies and SMEs, and the ICT professional community.

An extended benefit of a common ethics framework is the enhanced perception of ICT as a ‘professional’ career. The overall attractiveness of employment within ICT from the perspective of potential employees will be improved by the establishment of a recognised ICT Profession in which ethics play a significant role.

EN 16234-1 (e-CF) is the starting point and guiding document for this technical publication, being closely connected with the other deliverables and references for a shared European language for ICT professional development.

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2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

EN 16234-1:2019, *e-Competence Framework (e-CF) – A common European Framework for ICT Professionals in all sectors – Part 1: Framework*

CEN/TS 17699:2022, *Guidelines for developing ICT Professional Curricula as scoped by EN16234-1 (e-CF)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

Information and Communication Technology (ICT)

<technical> digital computers and internet (communication) systems, including software, hardware and networks

[SOURCE: EN 16234-1:2019, definition 3.1]

3.2

Information and Communication Technology (ICT)

<economic and political> cross sector of enterprises, including manufacturers, product suppliers or service providers relating to the ICT field

[SOURCE: EN 16234-1:2019, definition 3.2]

3.3

ICT professional

person having the competence to plan, build, run, enable and/or manage ICT and having a professional ICT qualification and/or ICT occupational experience; they include both employees of ICT companies and ICT employees of organisations in all other sectors; they are all in the scope of this document

[SOURCE: EN 16234-1:2019, definition 3.3]

3.4

competence

demonstrated ability to apply knowledge, skills and attitudes for achieving observable results

[SOURCE: EN 16234-1:2019, definition 3.5]

3.5

knowledge

body of facts which can be applied in a field of work or study (know what to do)

[SOURCE: EN 16234-1:2019, definition 3.6]

3.6

skill

ability to carry out managerial or technical activities and tasks, and this may be cognitive or practical (know how to do it)

[SOURCE: EN 16234-1:2019, definition 3.7]

3.7

attitude

representing the human element of an e-competence and reflecting the way a Person integrates knowledge and skills and applies them in a contextually appropriate manner

[SOURCE: EN 16234-1:2019, definition 3.8]

3.8

transversal aspects

cross-cutting topics that are relevant to all competences defined by the EN 16234-1 (e-CF); each transversal aspect is provided by a title and a generic description that may be applied, dependent upon context by, 'being aware of' or 'behaving proactively' with regard to the transversal aspect description; awareness and proactivity influence attitude linking with knowledge and skills as applied in the definition of competence in EN 16234-1 (e-CF)

[SOURCE: EN 16234-1:2019, definition 3.9]

3.9

behavioural skills

interactive skills used to successfully engage with situations in the workplace, they may refer to work quality, social interaction or emotion. Examples include, communication, empathy, attention to detail and integrity

[SOURCE: EN 16234-1:2019, definition 3.10]

3.10

learning level

level indicating a grading and may be represented by a formal qualification; they generally derive from an education system or indicate a grading in a taxonomy of intellectual or learning behaviours (like memorising, applying, interpreting) and have a relationship with proficiency levels but are to be distinguished from these

[SOURCE: EN 16234-1:2019, definition 3.12]

4 Structure of the Professional Ethics Framework

4.1 Introduction

This clause provides an overview of the key components of the ICT Professional Ethics Framework. Firstly, it provides some definitions and contextual information on the history of the European Community and European values in terms of ethics; further it explains the more recent Berlin Declaration [1] on Digital Society and Value-based Digital Government and other international contributions on ICT and ethics. It then provides Table 3 showing how these foundational documents can be adapted and refined to develop clear ethical guidance for ICT professionals by articulating the nature of ICT professional ethical obligations into more detailed ethical knowledge items (EKIs).

4.2 Basic Definitions

4.2.1 How to define ICT professional ethics

This requires definition firstly of ethics and then of the ICT profession. Ethics is generally understood as normative value-based activity or discussion i.e. what should be done, what is the 'right' thing to do, what values should be used to guide action? It is not purely descriptive. Ethics is often quite closely connected to regulations and the law e.g. the General Data Protection Regulation reflects the ethical value placed on privacy and the ethical disapproval of the misuse of personal data. Ethics, though, is distinct from the law as it includes personal conscience and values. The law can only imperfectly capture these and can indeed contradict them in some cases. It is possible for the law to be unethical (e.g. racial segregation is unethical but it has been legal in the past). Claiming a law is unethical in terms of flouting commonly, even if not necessarily universally agreed, ethical values of, for example, equality is not in itself a legal defence if one breaks the law though it would count as a valid ethical position. Law also has the power of state sanction which ethical guidelines generally do not or only in quite a weak form. In terms of professional ethics this varies quite considerably between professions. A doctor can be struck off the medical register and no longer allowed to practise but an IT professional cannot.

The ICT Profession must then also be defined followed by an elaboration of how this can be defined in terms of ethical aspects. The following clause reiterates the definition in the EN 16234-1 (e-CF) and includes additional detail from CEDEFOP, CEPIS. CEDEFOP and CEPIS are included as additional important contributors to discussion on ICT skills and professionalism within the European context. International examples are provided mainly from IFIP and ACM and some other sources are also included. It should be noted that the recently published IFIP code is very much based on the ACM code with some modifications.

4.2.2 EN 16234-1 (e-CF) definitions of ICT and ICT professional

4.2.2.1 Information and Communication Technology ICT

<technical> digital computers and internet (communication) systems, including software, hardware and networks

[SOURCE: EN 16234-1:2019, definition 3.1]

<economic and political> cross sector of enterprises, including manufacturers, product suppliers or service providers relating to the ICT field

[SOURCE: EN 16234-1:2019, definition 3.2]

4.2.2.2 ICT professional

Person having the competence to plan, build, run, enable and/or manage Information and Communication Technology and having a professional ICT qualification and/or ICT occupational experience; they include both employees of ICT companies and ICT employees of organisations in all other sectors; they are in the scope of this document

[SOURCE: EN 16234-1:2019, definition 3.3]

4.2.3 CEPIS definition of ICT professionals

This provides information about wider professional standards, knowledge, attitude and identity.

ICT professionals:

- Possess a comprehensive and up-to-date understanding of a relevant body of knowledge.
- Demonstrate on-going commitment to professional development via an appropriate combination of qualifications, certifications, work experience, non-formal and/or informal education.
- Adhere to an agreed code of ethics/conduct and/or applicable regulatory practices.
- Deliver value for stakeholders through competent practice.

4.2.4 IFIP and ACM definition of ICT professionals

- Professional ethics is about what is expected of a professional in a field. As we act, all of us in the ICT Profession must remember that every choice that impacts others is an ethical decision and that those decisions need to be guided by professional ethics.
- The competent application of ICT technical skills is necessary for the wellbeing of contemporary society; our technical skills are important, but how we apply them is what distinguishes us as professionals. Professionals are asked to promote good while working within ethical constraints.

4.2.5 Professionalism in related e-Skills projects

Professionalism as it relates to ICT has been defined and discussed in much previous work on e-Skills, defined in summary as the skills needed to apply, develop and make use of ICT, and the related work of CEN/TC 428 (McLaughlin et al., 2012) [2]. It includes the building blocks of knowledge, competence, ethics, and accreditation. A profession can be understood as group of people with specialised knowledge in a particular area who profess they are competent and able to perform specialist work. In many professions it is strictly regulated how one can profess to be professional e.g. in order to claim one is a doctor one has to complete training to a fixed standard, and one is then put on register (from which one can be removed). There is generally and explicitly within the EU a distinction made between regulated and unregulated professions. At present in most cases the ICT profession is unregulated i.e., there is no enforced entry requirements and no or limited sanction in terms of being forced not to practice. This situation may, of course, change in the future or be applied to certain aspects of the ICT profession.

4.2.6 ICT professional ethics in related e-Skills projects

As discussed in the previous clause some of the foundational work on e-Skills in the European context consolidated the view that ethics is a key building block of ICT professionalism. This has been further developed in more recent work. An overview which includes the global context and discusses how professional ethics is connected to the wider issue of ICT professionalism is provided in an article discussing developments up to 2018 [3]. The Final Report on the European Framework for IT Professionalism [4] developed guidelines on statements of professional ethics which are defined as basic

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principles which are expected from Statements of Professional Ethics for the IT Profession in Europe and are listed below:

- Protection of Public Interest and Legal Compliance (“The IT Professional acts to protect the safety and interests of the Public, and Society; and at all times acts in compliance with the relevant law.”)
- Responsibility to Employers and Clients (“The IT Professional acts in the best interests of their employer or client, to use their relevant knowledge, skill and capability to provide the best possible solution to the best of their ability.”)
- Professional Dignity and Promotion of Professional Aims (“The IT Professional protects the dignity of the IT Profession, and acts to develop and promote both the Profession and its professionals.”)
- Competence, Responsibility and Impartiality (“The IT Professional acts openly and impartially, within their own competence, taking responsibility for their work, and any work directed by them.”).

4.2.7 Professional ethics and relationship with law and regulation

As not everyone shares expert professional knowledge, there must be a relationship of trust by the client or the public to the ICT profession. In order that this trust should not be misused or misplaced it is important that ICT professionals work in line with ethical values and use their knowledge in an ethical way. There is power differential between the ICT professional and the client in terms of knowledge and in relationships where there is power imbalance there are stronger ethical obligations on the more powerful party. Ethical values can be much discussed but in summary they are normative claims relating actions to generally (not universally) agreed social beliefs about what is “moral” or “good” behaviour. Professional ethics is inextricably linked to the competent and careful use of specialist and bounded expert knowledge. The aim of the knowledge should be the public good. This also shows the importance of knowledge and competence for ICT Professional ethics. Existing standards and ICT professionalism publications that define the scope and structure the content of ICT as professional area are an important part of improving professional ethics within ICT. EN 16234-1 (e-CF), CWA 16458 (ICT Role Profiles) [5], and the EN 17748-1 Body of Knowledge (BoK) [6] are the primary examples in terms of scope definition with metrics and curriculum guidance document (CEN/TS 17699) providing more guidance on how to implement the content of EN 16234-1 (e-CF) and the BoK into practice and education. There is also research indicating that integrating ethics into other ICT professional resources, most notably Bodies of Knowledge, increases the reach and maturity of ethics into the profession [7].

It is important to note the professional ethics is not just about the values and actions of individual professionals but that is also influenced very much by organisational values and actions as well as those of wider society. An emphasis on the role of individuals can itself be unethical and unhelpful as it under emphasises the role of power and organisational and societal structure on the kind of decisions people are able to make. Professional ethics cannot just be the responsibility of individual employees who are required to be heroic whistle blowers at the expense of their ability to earn a living. Protections and procedures must also exist at wider level to enable and foster ethical behaviour, even when it may affect profits or sales, and incorporate ethical considerations into normal business processes and practices. Some aspect of culture or practice that may initially appear ethically neutral, for example rapid development of products with short deadlines, can have important ethical implications in terms of failure to test systems properly with resultant safety issues. There are also wider social and environmental issues such as sustainability which can be negatively affected by business practises that do not immediately appear unethical, e.g. phones that cannot be repaired and have no spare parts. Progress on this could also be improved by including more ethical indicators in the annual reporting of organisations (Armstrong, 2020) [8].

The relationship between ethics and the law is discussed at a more general level in 4.2.1 and this clause provides also more detail in terms of ICT. The content of legal regulation and professional ethics is not

mutually exclusive, au contraire. There are several overlapping strands in legal regulation and professional ethics. Particularly in matters which, due to their importance, are covered in some way by both legal regulation and professional ethics, sometimes even with an impact on non-compliance and possible sanctions.

Sanctions with professional implications for breaches of legal regulation or professional ethics always have in some way the problem of controlling their effectiveness. The effectiveness of sanctions at the professional level is usually closely linked to the existence in the Member States of mechanisms for the official recognition of professional bodies that represent and organise a given profession, and which are responsible for the control of professional practice, including professional ethics and the corresponding sanctioning capacity in the event of bad practices.

In the process of evolution and maturity of ICT Professionalism, this complementarity and relationship between legal regulation and professional ethics should be considered. It is likely to be a source of regulatory novelties and also in terms of professional ethics, both because of the incessant innovation in the ICT field and, above all, because of the growing political and legal activity in relation to areas such as artificial intelligence, autonomous systems, etc., [9] both for their technical regulation and for their ethical aspect.

4.2.8 ICT Professional ethics

This pertains to ethical issues and concerns that arise from the design, development and use of ICT by ICT professionals i.e. ethical use of expert knowledge by professionals in the field. It does not concern general ethical issues that arise from ICT.

This shift in what was termed computer ethics to more of a focus on professional ethics within computing became more widespread from the 1990s with publications from Dan Gotterbarn in 1991 [10] and Ford and Gibbs in 1996 [11]. After that, most professional computing bodies developed codes of ethics and related methods of ethical support material for their members and, in some cases, engaged in raising wider societal awareness of the ethical issues arising from computers.

4.3 The history of the EC and European values in terms of ethics

4.3.1 Introduction

The goals of the treaty of Rome (1957) on the formation of the European Economic Community include specific reference to ethical values, in particular the goals below:

- Pool their resources to preserve and strengthen peace and liberty and call on other peoples of Europe who share this ideal to join them in these efforts.
- Abide by the principles of the UN charter.

More recently European Values have been further articulated. Mainly in the Charter of Fundamental Rights of the European Union, proclaimed on 7 December 2000 by the European Parliament, the Council of Ministers and the European Commission. With a full legal effect with the entry into force of the Treaty of Lisbon on 1 December 2009. The values that are common to the EU countries are a society in which inclusion, tolerance, justice, solidarity, and non-discrimination prevail. These values, as outlined in the following sub clauses, are an integral part of our European way of life.

4.3.2 Human dignity

Human dignity is inviolable. It must be respected, protected, and constitutes the real basis of fundamental rights.