

FUNDAMENTALS OF COMPUTING

CHAPTER 2





DISCUSSION FLOW

- Introduction to ICT Profession
- Career Opportunities in ICT
- ICT Applications in Society
- Code of Ethics for ICT Professionals

LEARNING OBJECTIVES



Introduction to Profession

ROLE OF IT PROFESSIONALS

- **It empowers businesses**
- **It enables organizations to make dramatic leaps in productivity and governments to deliver greatly enhanced service levels that their citizens now expect.**
- **Without a smooth flow of information through a company's IT systems, operations would not be efficient or even possible in some cases.**

References:

https://link.springer.com/chapter/10.1007/978-0-387-09712-1_8

<https://www.dynamixsolutions.com/what-is-an-it-professional-and-what-does-one-do/>





TOP 10 IT JOBS




```
$('.count').each(function () {  
  $(this).prop('Counter', 0).animate({  
    Counter: $(this).text()  
  }, {  
    duration: 4000,  
    easing: 'swing',  
    step: function (now) {  
      $(this).text(Math.ceil(now));  
    }  
  });  
});
```

SOFTWARE DEVELOPER

are responsible for designing computer or mobile applications. This involves understanding user needs, developing software solutions, monitoring performance and modifying programs as needed.

```
load = function(){  
  $('#object').on('click', function(){  
    // ...  
  });  
}
```



NETWORK ENGINEER

(also called network architects) who plan, construct and manage networks to ensure they're optimized and functioning as intended.

Responsible for the foundation of an organization's IT system (and by default, the entire organization).

Reference:

<https://enterpriseproject.com/articles/2020/09/it-careers-for-people-designing-it-jobs>

A person with dark hair, seen from the side, is sitting at a desk and looking at a large computer monitor. The monitor displays a website with a yellow header that says "Design anything" and a grid of various design projects below it. On the desk, there is a small potted plant in a gold pot and a closed maroon notebook. The background is a plain, light-colored wall.

SYSTEMS ENGINEER

who manage, monitor, test, and maintain all installed operating systems, application software, system management tools and other infrastructures. Ensuring the highest levels of systems and infrastructure availability.



SENIOR SOFTWARE DEVELOPER

will develop information systems by studying operations; designing, developing and installing software solutions; support and develop software team.

JAVA DEVELOPER

is responsible for the design, development, and management of Java-based applications.



A top-down view of a person's hands holding a smartphone. The phone screen displays a gallery of images, including a Ferris wheel and a city skyline. The person is sitting at a desk with a white marble pattern. On the desk, there is a black notebook, a silver pen, a black smartwatch, a pair of glasses, a pencil, a small container with colorful paper clips, and a pair of white earbuds. The background is slightly blurred, focusing on the hands and the phone.

SOFTWARE QA ENGINEER

is someone who monitors every phase of the software development process so as to ensure design quality, making sure that the software adheres to the standards set by the development company.



IT PROJECT MANAGER

are responsible for planning, organizing, allocating resources for, budgeting and successfully executing organizations' specific IT goals.



APPLICATION DEVELOPER

is responsible for developing and modifying source code for software applications.

A person wearing a headset is working at a desk. In the background, there is a laptop displaying a website, several potted plants, and a window with bright light. The person is wearing a red shirt and has a microphone attached to their headset.

COMPUTER SUPPORT SPECIALIST

is a person who analyzes an organization or business domain (real or hypothetical) and documents its business, processes, or systems, assessing the business model or its integration with technology.



Information Communication Technology Application in Society

APPLICATION OF ICT

ICT also includes the various services and applications associated with them, such as videoconferencing and distance learning, that plays a vital role in the creation of new media modes of interaction between people.

EDUCATION

ICTs are playing the remarkable role in the education sector.

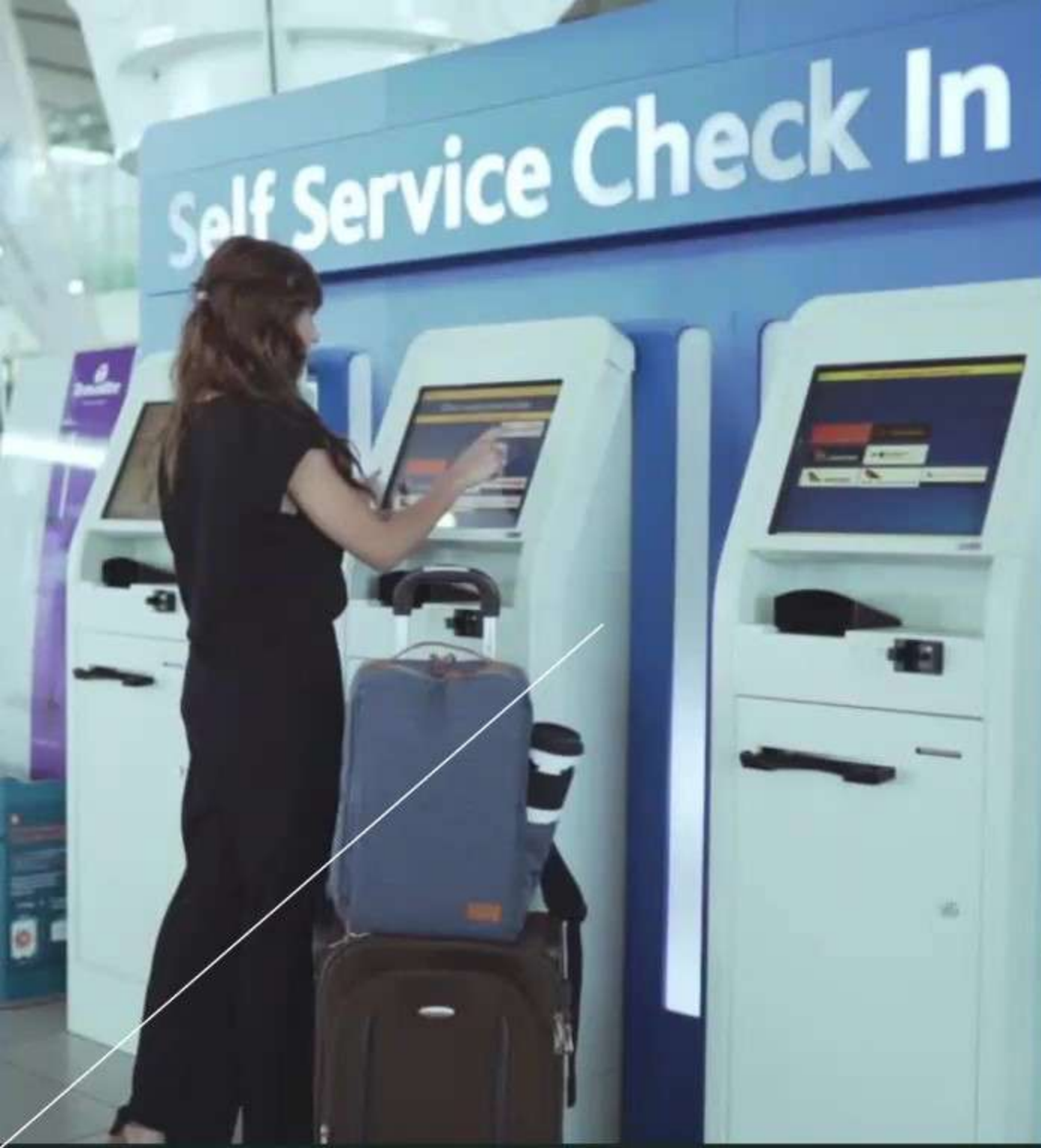
Teachers use ICTs to research for teaching materials, participate in the online conference as well to aid their teaching.

Students use ICTs as reference tool. They use Internet to search for their study materials. In an online system of study, students can access class notes, submit assignments and also join a discussion group with the help of ICTs.

Researchers use ICTs to collect and process data. School administrators use ICTs for administrative purposes.

Information
Communication
Technology Application in
Society





BANKING

ICTs control the entire banking system that also includes "Electronic Banking Services".

It is also known as the nerve center of the banking system around the world. Customers use ICTs to make transactions at 24 hours service centers.

Business persons use ICTs to save their time by using online services.

Bank administrators use ICTs to control the entire banking system.



E-COMMERCE

Buying and selling goods by the use of an internet are known as e-commerce.

E-commerce helps in boosting the economy. It makes buying and selling activities easier and faster.

In an e-commerce sector, customers, suppliers and employees get benefits from the usage of ICT.

Customers use ICTs to connected online with suppliers to purchase products.


Suppliers use ICTs to keep track of their transactions.

Employees use ICTs to communicate with their customers for any inquiries.

A photograph of an operating room with green walls. Several surgeons in blue scrubs and masks are gathered around a patient. A large overhead surgical light is positioned above them. To the right, there is a medical monitor displaying vital signs: 60, 98, 12, and 98. Other medical equipment and a computer monitor are also visible in the background.

HEALTH

ICT applications have been valuable resources in the medical field. They support the efficient exchange of information between health professionals, they enable transfer of patient records and can improve the quality of care provided by health professionals. Ct Scan, Ultra Sound, ECG are done by the help of ICTs to diagnosis different diseases.

A top-down view of a group of people sitting around a large wooden table in a meeting or collaborative workspace. They are using various devices including laptops, tablets, and smartphones. One tablet in the foreground shows a progress bar at 85.00%.

COMMUNICATION

ICT is Used for communication. Nowadays people are in touch with the help of ICT. Through chatting, E-mail, voice mail and social networking people communicate with each other. It is the cheapest means of communication.



CODE OF ETHICS FOR ICT PROFESSIONALS

The Finnish Information Processing Association's ethics workgroup has created this code to help professionals resolve ethical problems that occur in their work. The aim of the code is to encourage ethical ways behaviour and to help IT professionals to handle moral problems arising from their work.

The purpose of this code is to reinforce the ethical aspect of information technology professionalism and promote it by raising discussion amongst IT professionals. The code is not final; it will continue to evolve through feedback. Because it is not possible to anticipate all ethical problems, this code should not be taken as an absolute truth, but rather as a guide towards better choices. In the end, everyone is responsible for the choices they make.

Acting ethically is not about following an ethical code to the letter, but rather it evolves as a result of the choices between right and wrong, good and bad that we make. Choices affect our ethics.

A group of IT professionals are gathered around a desk in a modern office setting. A man with a beard and grey hair is leaning over the desk, pointing at a laptop screen. A woman with long dark hair is looking at the screen. A man with glasses is also looking at the screen. A woman with long dark hair is in the foreground, looking at the screen. The background shows large windows with vertical blinds. The text is overlaid on a dark semi-transparent rectangle.

AUTHORITY AND RESPONSIBILITY

IT professionals must not misuse their power. They must face up to their responsibility, which can be measured as actions and deeds. Knowledge is power, and using knowledge requires wisdom, as does all use of power.

CODE OF ETHICS FOR ICT PROFESSIONALS

A woman with short dark hair, wearing a light-colored top and a watch, is sitting at a desk in a modern office. She is looking at a computer screen (not fully visible) and has her hands on a keyboard. On the desk, there is a white coffee cup, a yellow notepad, and some blue folders. The background shows a bright window and a modern office interior.

CODE OF ETHICS FOR ICT PROFESSIONALS

KNOWLEDGE AND EXPERIENCE

Professionals must understand their limits: they should know the strengths and weaknesses of their skills. In a rapidly developing field, professionals must develop their skills.

They must know, for example, any laws regarding personal privacy. Professionals do not hide their knowledge, but instead pursue to enhance their own and others' skills and share their knowledge with the professional community. However, professionals also understand that information which is confidential (and must remain so) and respect the trust of their clients.



Code of Ethics for ICT Professionals

ATTITUDE

Professionals do not work just for themselves, but also for others. They will take into consideration the opinions of the subjects of their actions. They should not let greed or lack of consideration affect their decisions. They understand, that their work has meaning only through others



COMMUNICATIONS

Professionals understand the importance of communication. They communicate with their clients, document what they do and inform all relevant parties of their actions.

Professionals must aim to communicate as clearly as possible and when necessary explain the terms they use. The aim of communication is to create common understanding with other parties to achieve cooperation.

Reference

<https://www.researchgate.net/publication/311111111>



CONSEQUENCES OF PROFESSIONALS' WORK

The results of information technology work receive their meaning through application. IT professionals must understand the consequences of their work, as part of a long chain, at the end of which is the user. Professionals must take into regard the needs and wants of the consumer, the client and their employer.

In their actions professionals should always aim to understand the meaning of their work to the whole community for which the work is done and not limit themselves only to the opinions of the people with whom they have the transaction.

A photograph of three people in an office environment. On the left, a man with glasses and a purple shirt is partially visible. In the center, a woman with curly hair and a light blue shirt is looking towards the right. On the right, a woman with long brown hair and a grey shirt is smiling broadly. They are standing in front of a desk with papers and a laptop. In the background, there are white shelving units filled with binders and folders.

OTHER PEOPLE

IT professionals respect the work of other people, and in so doing take other peoples' rights to their creations into account.

The work of IT professionals affect – through various connecting groups –society at large. Professionals must understand the consequences of their work and must also take into consideration human rights, environmental questions, laws and copyrights when pursuing their work.



PROMOTION OF ETHICS

Professionals must promote ethically sustainable ways of acting within the field of information technology.

To act ethically is to make choices; each person can choose to be, or not to be, ethical. To apply ethics is often not to choose between the “right” and the “wrong” choice, but rather to develop an ethical character by constantly having regard for one’s environment and the people in it . These instructions strive to give IT professionals a framework for action that will promote their own and other peoples’ ethical growth.



Thank
you!