DIGITAL AGE AND PERSONAL DATA PROTECTION

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Radi Romansky

Technical University of Sofia; e-mail: rrom@tu-sofia.bg
Bulgaria

Abstract: The contemporary digital age is characterized by the significant informatization of society and the increasing role of technologies in people's lives, which leads to a change in their behaviour. This is related not only to social communications and free remote access to different information, but also to the virtualization and intellectualization of various processes based on cloud and mobile cloud computing, Internet of Tings, smart home & city, Big Data Analytics, etc. All this raises the question of how users' privacy is ensured and who takes care of the protection of their personal data in the global network space. Answers to such questions is the task of this book. In this respect, a summary of special features of informatization as a basis for the development of the modern information society based on the technologies of the digital age is made. The role of information technology as a tool for the implementation of public and business processes in data processing, including personal data, is considered. Ensuring adequate data protection requires application of the principles of information security and fulfilment of the requirements of the legal framework of personal data protection. The structural and technological organization of data protection requires the development of a policy and strategy for the implementation of organizational and technological means to ensure compliance with the requirements of the GDPR. However, regardless of the measures taken, it is necessary for users of services in the digital space to have the necessary level of digital literacy, which requires knowledge of the specifics of technology and especially the possible problems for privacy and personal data protection which are discussed in the last chapter of this book.

Key words: Digital world, Digital technologies, Information society, Privacy, Personal Data Protection, Problems for privacy, Data Security.

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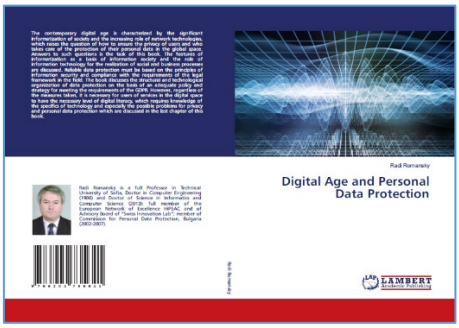

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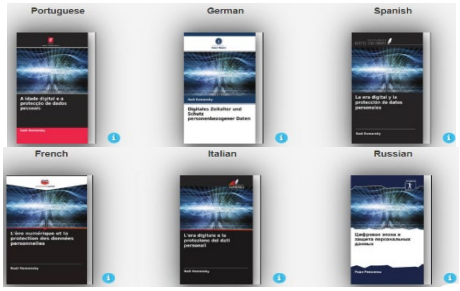

CONTENTS of the book

MINE ABBREVIATIONS IN THE TEXT	ii
INTRODUCTION	1
Globalization in the digital age	1
Informatization of the society	4
Digital age and privacy	8
CHAPTER I. FEATURES AND DEVELOPMENT OF THE DIGITAL SOCIETY	13
1.1. Specific features of informatization in the digital age	13
1.2. Features and components of contemporary information society	16
1.3. Digital space communication infrastructure	22
1.4. Economic and social aspects of the digital age	25
CHAPTER II. TECHNOLOGIES OF DIGITAL AGE	29
2.1. Technological organization of information processing	29
2.2. Business processes and information technologies	34
2.3. Data processing technologies of the digital age	40
CHAPTER III. INFORMATION SECURITY AND PRIVACY IN DIGITAL AGE	55
3.1. Principles of information security in digital world	55
3.2. Historic aspects of privacy and data protection	65
3.3. Basic legal framework for personal data protection	68
3.4. Summary of basic requirements of the data protection regulation	73
CHAPTER IV. TECHNOLOGICAL ORGANIZATION OF DATA PROTECTION	79
4.1. Organizational structures for personal data protection	79
4.2. Common organization of data protection	83
4.3. Technological means for data protection	86
CHAPTER V. POSSIBLE PROBLEMS FOR PRIVACY AND PERSONAL DATA IN THE DIGITAL AGE	93
5.1. Potential privacy issues in the network spice	94
5.2. Personal data in social computing	98
5.3. Cloud computing and privacy	100
5.4. Privacy in Internet of Things	103
5.5. Privacy in Big Data and Big Data Analytics	106
REFERENCES	109

SELECTED PARTS OF THE INTRODUCTION

Globalization in the digital age (pp. 1-2)

Globalization is a key feature of the contemporary society with an ever-increasing level of informatization as a process of expanding the capabilities and applications of information and communication technologies (ICT). The change in people's behaviour is not only in the growing opportunities for seamless communication through the global network and in sharing various information but also in changes of the way of social communications and in improving the technologies for computer processing (in a centralized and decentralized aspect). In this respect, it is need to add application of cloud services and mobile communications, creation of intellectual applications for management of various processes (smart home, smart city, etc.), and the collection and processing of large arrays of data (Big Data) for decision making and trend definition. In addition, the globalization in the field of contemporary economic relations should be characterized by increasing the interconnectedness of national economies and increasing the level of their internationalization. An analysis of this interrelation with the application of methods for searching, systematizing, evaluating and analysing microeconomic indicators was made in [1], which allowed to draw conclusions about the impact of globalization on national economies. Another study of the relationship between the terms “informatization” and “industrialization” proposes the article [2] whit a vague stochastic model to study the mechanism of integration. This theoretical study defines criteria for stagnation, prosperity is organized, and parameters of integration by determining the influence of critical functions on it.

It is known that the information society (InSoc) combines many activities carried out in the network space and related to communications and remote access to various resources (including system functionality and distributed data), thus creating a fully integrated world, defining a new perspective on the world economy and public relations as activities based on services and social communications. Confirmation of this concept can be found in [3], where the public perception that globalization represents a major systemic change for the development of international relations and the world economy, based on the integration of the world community in the globalization of social networks. The article presents an empirical study of the structure of an integrated world society using conceptual frameworks of the international political economy in various areas - security, politics, economics, knowledge, finance and ideology. Interesting is the proposed conclusion that “*on each of these dimensions, power has centralized as it has globalized, generating steep global hierarchies in world society that are similar to those that characterize national societies*”.

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Digital Age and Privacy (pp. 8-12)

The scope and content of the concept of "personal life" can be determined on the base of national culture and individual characteristics of the population, but there are also common things, such as the inviolability of personal information and its protection

(access, use, dissemination, transfer, etc.). In this sense, everyone has the right to protection of personal data included in the concept of privacy. The right to privacy forms a common basis for freedom of expression, the right to personal security, the right to refuse to incriminate oneself, etc.

There have been few attempts to define "right to privacy" and some comments are follows:

✓ The existing laws related to the privacy should include the comments for this term and it is not separate legal right.

✓ In order to define privacy, it is necessary to find a common connection between the different essences of the court case on the topic.

✓ Another comment treats privacy as "digital privacy" and suggests that the right to privacy to be seen as an independent right deserving of regulation.

The last comment links “right to privacy” to the digital age and offers a specific definition:

The right to privacy is the right to protect the space around us, which includes all things that are part of us, such as body, home, property, thoughts, feelings, secrets and identity. The right to privacy allows us to choose those parts of this space that are accessible to others, managing their expansion, as well as the manner and time of their use.

The definition reflects on the right to personal data protection (PDP) by defining it as a right that determines the relationship between the individual and society, including government institutions, company and other entities, which directly related to privacy.

The contemporary digital age has introduced the information approach in various public, social, private and business areas of society. All of these capabilities use remote access to distributed resources placed in virtual nodes, cloud services, educational and government activities, business processes, smart, and other environments. All these applications combine the means and tools of social networks [23], cloud / mobile cloud computing [24], the Internet of Things (IoT) in various forms such as wireless sensor network (WSN), Machine to Machine communications (M2M), Cyber Physical Systems(CPS) [25], Big Data Analysis (BDA) [26], et al.

E-Governance is a typical example of cooperation and relationships between different parts of society through the active use of modern technologies and this creates real conditions for the development of initiatives and systems of open government in various sectors such as executive, business, legislative and judicial systems. Open government initiatives [27] have become a major task for the development of public administration around the world, because the social communications with their advanced technological capabilities and tools increase their integration into society. This is essential in building a functioning online government and promoting effective cooperation between different community groups. As stated in [27], “*Open Government: Concepts, Methodologies, Tools, and Applications is a vital reference source that explores the use of open government initiatives and systems in the executive, legislative, and judiciary sectors*”. The effect of this new management option is the development of transparent and accessible models of work of the public administration with facilitated opportunities for citizens to participate in various government initiatives. It is acknowledged that a higher degree of data transparency is required, but it should be noted

that in certain cases, if specific requirements are not met. In these cases is possible to violate the privacy of participants in the processes.

The above advantages of globalization in the digital age definitely create expanded opportunities for developing and implementing real, rapid and effective actions for the benefit of society and individuals, but definitely require a timely assessment of the potential risk to privacy, personal date protection and security of private resources [28, 29]. This challenge to privacy also applies to e-government processes, although it makes operational processes more efficient and faster (and perhaps this could be one of the reasons). A study of strategies for implementation of e-government technology solutions related to security and confidentiality in a smart city environment is presented in [30]. A "*decentralized framework based upon blockchain and artificial intelligence to provide a secure and privacy-preserving infrastructure*" is proposed, which allows the integration of technologies for mutual trust between participants in management processes while ensuring greater transparency and reduced running costs, including in cross-border transactions.

Globalization offers many new opportunities for effective activities in the network space, which is the main and most characteristic aspect of the digital age. Unfortunately, this poses certain challenges to digital privacy, which applies to all the components of the information society listed above and may lead to a risk to the protection of personal data of individuals [31, 32]. The reason is the widespread use of Internet communications between users with exchange of data placed in different (remote) places in the network space, dissemination of information (audio, video, photos, personal profiles, etc.) and access to network resources (web applications, websites, data centres, etc.). This creates a real opportunity for illegal access to the growing volume of disseminated PD, including criminal speculation in order to make a profit. An overview of the legal framework for internet communications and PDP was made in [33], including a study of the need for additional policies in this direction. The main goal is to provide reliable protection of the individual in the digital age and to propose new methodologies and applications in the field of digital security and countering threats by discussing topics such as online privacy and security, hacking and protection against online threats.

World law defines privacy as a basic human right, uniting various forms of personal data processing, protection of personal communications via the Internet, processing of personal profiles for social media and others. As a result, globalization change the traditional understanding of confidentiality "right to be left alone" (proposed by USA lawyers Samuel D. Warren & Louis Brandeis in your publication "The Right to Privacy", 1890), whit the new paradigm "right to be forgotten/erased" introduced by GDPR for regulation the processes in this area (came into force in May 2018). The first paradigm interprets the right of everyone to choose the reason and the way of processing information from his personal life. The second paradigm extends the requirement of respect for privacy in the digital space by specifying the right of the individual owner of personal data to request their deletion if they are not needed (if the purpose for their processing has ended).

The digital world allows access to and use of components such as websites, distributed resources, content, libraries, forums, social media, cloud services, etc. Most people (individuals and employees) use the Internet to expand their knowledge, social

contacts and relationships. Social networks, forums and blogs allow contact with different users. Employers also visit social forums when selecting possible employees for their companies, as well as when assessing the loyalty of those already hired. In these cases, the publication and sharing of ill-considered information can have an adverse effect on personal integrity, financial problems or those in the family. Identical problems exist with the other technological capabilities of the digital world, which requires a serious analysis of the risk of activities using web applications and network environments. One example is the use of cloud services by companies, which reduces the investment required in increasing the capacity for processing and storing information. This form of remote data processing uses virtual machines and storages in the network environment with distributed access and placement of information arrays in different geographically distributed nodes in the global network. This allows for cross-border data transfers to countries without the required level of data protection and defines risk, especially in the case of personal data files (including personal files of a company's employees). All these activities in the digital world require the development of an adequate information security policy and the improvement of the legislation for PDP. This defines a strict hierarchical structure of policies, which follows the sequence "Security Policy" – "IT Security Policy" – "Data Protection Policy" (Figure 0.2) [34].

The place of *Data Protection Policy* is determined as a part of the global Security Policy, which first standard titled “Department of Defence Trusted Computer System Evaluation Criteria (TCSEC)” was accepted in 1985 (USA). TCSEC describes the security policy as a collection of security rules, standards, procedures, instruments and practical instructions for regulation of the management, protection and dissemination of the information. This document gives rules for control of access to the information resources.

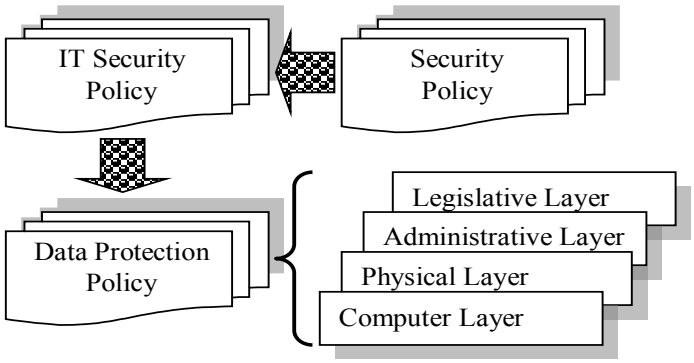

Figure 0.2. Hierarchical structure of the policies and the place of Data Protection Policy (DPP) in it

European understanding for “personal data” is the information that permits to identify a person directly or indirectly, in particular by reference to an identification number or to one or more factors specific to his physical, physiological, mental, economic, cultural or social identity. Protection of personal data is an obligation of the Data Controllers and they must organize all technological structures in an adequate system for data protection (see Figure 0.3).

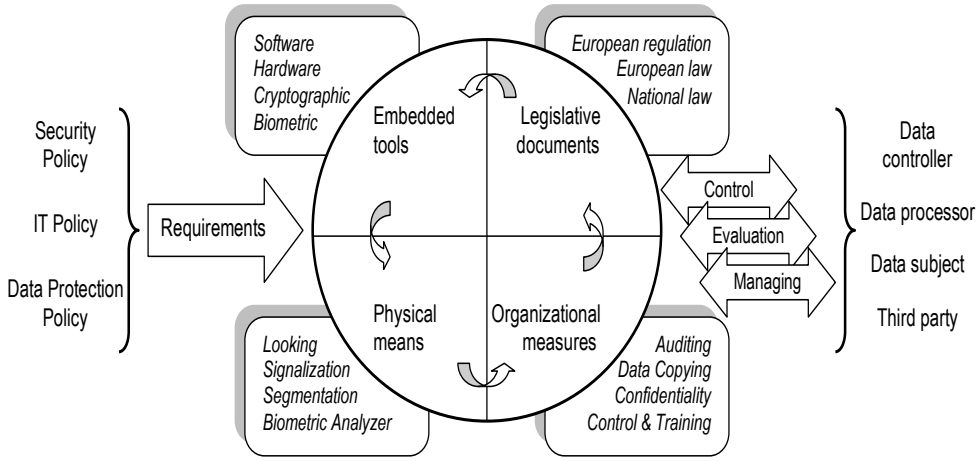

Figure 0.3. Organizational scheme of Personal Data Security System

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