

e-Services

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e-Services

Toward a New Model
of (Inter)active Community



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Preface

The editorial series “e-Citizens: Being Human in the Digital Age” aims to explore the rich set of technologies and applications that characterise the living environment of citizens in the digital age and is intended to call attention to fundamental transformations in social organisation and structure. The main technologies and issues have been carefully described in volume one; applications devoted to e-Democracy are the core of volume two; the present volume is devoted to e-Services, encompassing Health, Learning, Culture, Media and News.

In order to introduce this volume, let us review a little bit of the history of information technology. One of the most significant changes to occur in the field of information technology over the last few decades was the implementation of real-time communication and information exchange between computers—in one word: networking.

A computer was originally considered to be like Leibniz’s¹ “monad”, an ultimate atom without windows and doors: a sealed entity. Intercommunication processes enabled external access to these monads, allowing information and data exchange between them and thus multiplying their added value; networks of computers possess expanded functionalities and services. A number of different stand-alone proprietary networks were gradually merged into the network of networks: the Internet.

The Internet represents one of the most successful examples of the benefits of sustained investment and commitment to research and development of information infrastructure. Beginning with the early research in packet switching, the government, industry and academia have been partners in evolving and deploying this exciting new technology.²

¹Gottfried Wilhelm Leibniz (also Leibnitz or von Leibniz) was born on 1 July 1646 (Leipzig, Germany) and died on 14 November 1716 (Hanover, Germany). School tradition: rationalism. Main interests: metaphysics, epistemology, science, mathematics and theodicy. Notable ideas: calculus, innate knowledge, optimism and monad. See http://en.wikipedia.org/wiki/Gottfried_Leibniz, last accessed February 2019.

²B. M. Leiner et al. (2003) A brief history of the Internet. Internet Society, Reston, VA (see <http://www.isoc.org/internet/history/brief.shtml>, last accessed February 2019).

Of course, one of the main drivers for Internet usage was the introduction of the hypertext transfer protocol (http), which led to the birth of the World Wide Web, thanks to the contributions of Tim Berners-Lee and Robert Cailliau at CERN³ in 1990 and the success of Mosaic at NCSA⁴ in 1992, the first web browser.

Conceived and developed by “end-users”, one of the most important characteristics of the Web community, in the first two or three years of its life, was the bottom-up decision mechanism it employed. Enhancements and extensions were proposed, discussed and implemented mainly by active members of the community of researchers and experts involved in the process.

The Web community at that time was a mixture of ICT experts and scientific content managers. The double role of these prosumers was probably one of the key innovative aspects of that community during that period. The subsequent gradual drift from technology developers to general users is a natural process that often occurs with mature technologies. It happened, for instance, in the field of computer graphics, where computer graphics pioneers worked side by side with creative people and special effects (fx) designers.

The development of Internet technology unleashed creative energies, the first generations of Websites, mainly due to volunteers often not belonging to the IT sector; don’t forget that the cradle of the Web was CERN, the temple of physics and subatomic particles. Web technology was for sure an enabling technology, offering to almost everyone the opportunity to contribute to the creation of the textual and, later on, visual cyberspace.

The Internet has incredibly facilitated access to mass communication. This influenced even news and journalism as we will describe later. It combines a worldwide broadcasting capability with a mechanism for information dissemination, which offers us the opportunity to reach a wide audience with minimal effort. Before the Internet, the only way to reach wide audiences was radio and television broadcasting, and before these were invented, mainly printed materials or heralds. In addition, it is a medium that encourages collaborations and interactions between individuals and their computers almost without regard for geographic location.

After the “publishing” hangover, it was the time to manage and structure and index this blob of content and upgrade from information provision to service provision. ICT-based innovation “*is not only a matter of technology*”. The main aim of this work is to bridge the gap between technological solutions and successful implementation and fruitful utilisation of the main set of e-Services. Different parameters are actively influencing the success or failure of e-Services: cultural

³The name CERN is derived from the acronym for the French “Conseil Européen pour la Recherche Nucléaire”, or European Council for Nuclear Research, a provisional body founded in 1952 with the mandate of establishing a world-class fundamental physics research organization in Europe. At that time, pure physics research concentrated on understanding the inside of the atom, hence the word “nuclear”. <https://home.cern>, last accessed February 2019.

⁴National Center for Supercomputing Applications, <http://www.ncsa.illinois.edu>, last accessed February 2019.

aspects, organisational issues, bureaucracy and workflow, infrastructure and technology in general, users' habits, literacy, capacity or merely interaction design.

This requires having a significant population of citizens willing and able to adopt and use online services and developing the managerial and technical capability to implement applications to meet the needs of citizens.

A selection of success stories and failures, duly commented on, will help the reader in identifying the right approach to innovation in governmental and private e-Services.

This volume is part of a collection of books; the first three volumes are *e-Citizens: Toward a New Model of (Inter)active Citizenry*, *e-Democracy: Toward a New Model of (Inter)active Society* and *e-Services: Toward a New Model of (Inter)active Community*, all of them published by Springer International 2019.

Target Audience

Public authorities, decision-makers, stakeholders, solution developers, university students.

Prerequisite Knowledge of Audience

Informed on e-Content and e-Services, basics on technology side.

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Being Human in the Digital Age

Interior laboratory—Scene 53

“The two enter a cylindrical laboratory. There is a huge glass turbine in the middle with the metal glove inside. A DNA chain scrolls on the computer screen. . . Mactilburgh starts the operation rolling as Munro puts his hand on the self-destruct button, ready to use it. Thousands of cells form in the heart of the generator, an assemblage of DNA elements. Then the cells move down a tube, like a fluid, and gather in an imprint of a HUMAN body. Step by step bones are reconstructed, then the nervous and muscular systems. Whole veins wrap around the muscles. An entire body is reconstructing before our very eyes. . . ASSISTANT. . . End of reconstruction, beginning of reanimation.”

[LE CINQUIÈME ÉLÉMENT (THE FIFTH ELEMENT) IS A 1997 FRENCH SCIENCE FICTION FILM DIRECTED BY LUC BESSON AND STARRING BRUCE WILLIS, GARY OLDMAN AND MILLA JOVOVICH.]

This scene shows the way to reconstruct human bodies starting from a minimum portion of DNA; the science fiction machinery performs a “3D print” of an entire body, decoding the instructions encapsulated in the DNA; the scene looks very close to additive 3D printing. This technology enjoyed great popularity in different fields from dentists to hobbyists; a very special 3D printer was on display on the occasion of the WSIS Forum 2018 in Geneva; this 3D printer used chocolate instead of monomers, printing chocolate blocks instead of bones.

Does science fiction anticipate our near future even in the field of e-Health? Some experiments carried out in the field of biomaterials and biotechnologies have already tested the use of 3D printers with nanoparticles, so we never know. Anyhow 3D graphics and printing are already in use to create different prostheses.

The field of education and learning was till now the one that didn’t benefit too much from digital technologies, but at the same time suffered more than many other sectors from the shift of paradigm due to cyber technologies. The young are significantly influenced by digital technology; as we will see later in the chapter devoted to e-Learning, the huge number of hours spent playing videogames and watching television has trained their brains to behave in a very different way enabling parallel processing and immediate interaction. These completely new

abilities, together with the digitally empowered direct access to information, have created an increasing gap in information transmission between “digital immigrant” teachers and “digital native” pupils. They are used to processing parallel input from audio, video and chats, incredibly improving their ability to absorb information and rather complex concepts. They take advantage of virtual and enhanced reality to activate the most powerful and phylogenetic learning system, the perceptive-motor system. They learn by directly experiencing the specific subject by being virtually immersed in that environment, by being “hands-on”, trying and trying again; in other words, “learning by doing”.

Following the same fil rouge, we approach “Culture” as a wide territory encompassing different humanities such as heritage in the UNESCO vision, as described in detail in *e-Culture*⁵, but even issues and drawbacks due to the combined action of information communication technologies and globalisation. The global trend tends to homogenise and flatten diversities in many fields; diversities have to be considered richness not barriers. As a consequence, a relevant number of cultural models and languages risk being jeopardised and disappearing; they refer to “minorities”, or as better expressed by UNESCO IFAP they refer to “minoritised” languages and cultural models under the pressure of the dominant ones.

After learning and culture, the last chapter is devoted to media and news, one of the sectors that on one side deeply took advantage of ICTs and on the other side significantly contributed to forging the brains of young generations. This phenomenon is termed neuroplasticity by experts; social psychology offers compelling proof that thinking patterns change depending on an individual’s experiences. It is a common understanding that people who grow up in different cultures do not just think about different things; they actually think differently. The environment and culture in which people are raised affects and even determines many of their thought processes.

A major part of the population has already started the journey from Citizens to e-Citizens: already books medical services and downloads the reports through the Internet or receives customised press reviews thanks to news aggregators collecting breaking news concerning their preferred topics on the fly.

Let’s now start this journey from Health to Media.

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⁵Ronchi A.M. (2009), *e-Culture: Cultural Content in the Digital Age*, ISBN 978-3-540-75273-8, Springer, Berlin Heidelberg.

Contents

1	e-Health: Background, Today's Implementation and Future Trends	1
1.1	Introduction	2
1.2	Recent Background	2
1.3	e-Health in Europe	6
1.4	A Global Vision	9
1.5	From Medical Systems to e-Health	12
1.6	From e-Health to m-Health	16
1.7	Archiving Electronic Patient's Folders	18
1.8	In the Clouds	22
1.8.1	Health in the Clouds	26
1.9	Ethical Dimensions of the Information Society	28
1.9.1	Ethics	28
1.9.2	Information Ethics (Infoethics)	29
1.9.3	Ethical Issues	31
1.9.4	Bioethical Aspects in e-Health and "m-Health"	32
1.10	e-Health and Privacy Issues	33
1.10.1	The RFID Radio Technology, Ethics and Privacy	34
1.10.2	Medical Device or Fitness Tool?	35
1.10.3	The Use of Data and Privacy	38
1.10.4	Informed Consent and the Warsaw Declaration	40
1.10.5	EU General Data Protection Regulation (GDPR)	43
1.11	A Galaxy of Health Services	44
1.11.1	Services in the Field of Drugs	46
1.11.2	How to Report on Patient's Satisfaction	46
1.11.3	Education and Awareness	48
1.11.4	Mobile Virtual Laboratories and Mobile Medical Facilities	54
1.11.5	"Makers" in the Field of Health	55

1.12	Dependency and Technological Vulnerabilities	56
1.12.1	The Self-Management of Health	58
1.13	“Seniors”: An Increasing User Sector	59
1.13.1	Social Weakness	60
1.13.2	Aging in Europe	61
1.13.3	Most Common Chronic Diseases	62
1.14	MUSME: The Interactive Museum of History of Medicine	64
	References	67
2	e-Learning: How Teaching and Training Methods Changed in the Last 20 Years	69
2.1	Introduction	70
2.2	The European State of the Art as It Appears from Statistics	71
2.3	The Digital Revolution and Other Trends	74
2.4	The Human Capital	76
2.5	ICT Bottlenecks	77
2.6	ICT and the Young	78
2.7	Leading the Change or Losing the Challenge?	79
2.8	Dealing with Digital Natives	81
2.9	Causes and Effects: The Origin of This Pandemia	84
2.10	Lost Something, Any Concern, Drawbacks?	86
2.11	Some Key Aspects of Computing That Make the Difference	87
2.12	Gamification	88
2.13	Educational Institutions Policies	89
2.14	Virtual Laboratories	90
2.15	Videocassette and On-Line Lectures	91
2.16	Improvements Due to Technology	92
2.17	Future Developments	95
2.18	It Is Time to Reshape Educational Methodology	96
2.19	Closing Remarks	97
	References	111
3	e-Culture: On Culture in the Digital Age	115
3.1	Introduction	116
3.2	Digital Tangible and Intangible Heritage	118
3.3	Cultural Heritage	119
3.4	Origin of Museums	120
3.5	Science and Technology Museums	122
3.6	Art Collections	123
3.7	The Culture Cycle	123
3.8	Entering the Digital Communication Era	125
3.9	Virtual Universes and Heritage	126
3.10	Super Information Highways v/s Information Society	132
3.11	The Invisible Universe of Data	135
3.12	A Web of Cultural Content	136

3.13	Technology and Recommendations	142
3.14	Extending the View on Heritage	143
3.15	European Regulations and Heritage	148
3.15.1	The Regulatory Framework	151
3.15.2	EU Regulations and the Impact on Cultural Heritage . . .	152
3.15.3	The Economics of Cultural Heritage	157
3.16	The Concept of “Values” and Its Potential Impact	158
3.17	The Economic Dimension of “Values”	162
3.18	The Role of Taxonomy in Information Search	164
3.19	A Taxonomy of European Cultural Heritage “Values”	165
3.20	A Preliminary List of “Values”	166
3.20.1	Economic Values	166
3.20.2	Cultural Values	166
3.20.3	Communicability Values	167
3.20.4	Development Values	167
3.20.5	Accessibility and Fruition Values	168
3.20.6	Value of Universality	172
3.21	From Theory to Practice	179
3.22	The Role of a “Value” Platform	179
3.23	Culture Value Chain	181
3.24	Value Approach: Further Developments	183
3.25	Problems and Issues: Early Experiences	184
3.26	Making Cultural Heritage Alive: The Role of Cultural Mediators	187
3.27	Emerging Professional Profiles	189
3.28	Closing Remarks	191
	References	191
4	e-Journalism and Media	195
4.1	The “Ws”	196
4.2	The “Information” Society	196
4.3	Freedom of Expression	196
4.4	The First “Asynchronous” Way to Communicate	197
4.5	Back to Journalism	205
4.6	Characteristics of Information Products	205
4.7	Timeliness of Delivery	206
4.8	Short Product Lifecycles	207
4.9	Perishability	208
4.10	Media of the Future; Can It Be Profitable?	208
4.11	Different Phases of On Line Newspapers	209
4.12	New Media: Evolution or Revolution?	210
4.13	Languages on the Internet	210
4.13.1	Globalisation and Cultural Diversity	211
4.13.2	ICT and the Internet in a Small World	213
4.14	Information as a Valuable Good	217

4.15	Public Domain and Copy Left	220
4.16	Unprotected Works	221
4.17	Works That Are No Longer Protected	221
4.18	Works That Have Never Been Protected	221
4.19	Market Models	223
4.19.1	Subscription or Purchase of a Single Copy	223
4.19.2	Newspapers and Gadgets	224
4.19.3	Free Model	224
4.19.4	Freemium, That's to Say Free + Premium Services Model	225
4.19.5	Key Feature of the Internet News	225
4.20	The Sources	226
4.21	Digital Natives: What Are They Looking For?	229
4.22	Fake News	230
4.23	Cyber Technology and Public Opinion	233
4.24	Evolution of Fruition	236
4.25	New Consumer Model	237
4.26	WSIS C9 Media	238
4.27	Public Service Broadcasting	239
4.28	Case Studies	247
	References	256
	Index	261

List of Abbreviations

AAAA	Addis Ababa Action Agenda
AfDB	African Development Bank
App	Software Applications
CARICOM	Caribbean Community and Common Market
CDO	Chief Data Officer
CIO	Chief Information Officer
CPI	Corruption Perceptions Index
DESA	Department of Economic and Social Affairs
DPADM	Division for Public Administration and Development Management
EEA	European Environment Agency
EGDI	e-Government Development Index
EIA	Environmental Impact Assessment
EPI	e-Participation Index
FOI	Freedom of Information
FOIAs	Freedom of Information Acts
G2G	Government-to-Government
GCC	Gulf Cooperation Council
GFW	Global Forest Watch
GIS	Geographic Information System
GNI	Gross National Income
GODAN	Global Open Data for Agriculture and Nutrition
GPS	Global Positioning System
HCI	Human Capital Index
HCI	Human-Computer Interface
HTML	Hypertext Markup Language
ICT	Information and Communication Technology
ICTs	Information and Communication Technologies
IDRC	International Development Research Centre
ILO	International Labour Organization
INTOSAI	International Organization of Supreme Audit Institutions

IoT	Internet of Things
ITU	International Telecommunication Union
LDC	Least Developed Country
MAMA	Mobile Alliance for Maternal Action
MDGs	Millennium Development Goals
MENA	Middle East and North America
METEP	Measurement and Evaluation Tool for Engagement and e-Participation
MFI	Micro Finance Institutions
MYS	Mean Years of Schooling
NEPAD	New Partnership for Africa's Development
NGO	Non-governmental Organisation
OECD	Organisation for Economic Co-operation and Development
OGD	Open Government Data
OSI	Online Service Index
OSM	Open Street Map
PPPP	Public–Private–People Partnerships
RSS	Really Simple Syndication
SDGs	Sustainable Development Goals
SIDS	Small Island Developing States
SME	Small and Medium Enterprise
SMS	Short Message Service
SWOT	Strengths, Weaknesses, Opportunities and Threats
TGEG	Task Group on e-Government
TII	Telecommunication Infrastructure Index
UGC	User-Generated Content
UNCTAD	United Nations Conference on Trade and Development
UNDG	United Nations Development Group
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
UNECE	United Nations Economic Commission for Europe
UNECLAC	United Nations Economic Commission for Latin America and the Caribbean
UNEP	United Nations Environment Programme
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNESCWA	United Nations Economic and Social Commission for Western Asia
UN-OHRLLS	United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States
UNPOG	United Nations Project Office on Governance
UNSC	United Nations Statistical Commission

UNU-IAS	United Nations University Institute for the Advanced Study of Sustainability
URL	Uniform Resource Locator
W3C	World Wide Web Consortium
WOG	Whole of Government
WRI	World Resources Institute
WSIS	World Summit on the Information Society