

PANEL

Citizen Data Protection: Ownership Challenges in the Digital Transformation Era



TrendNews Citizen Data Protection: Ownership Challenges in the Digital Transformation Era tability on data use, moral and legal aspects, etc.)

Nowadays inquiring themes

(personal data, data protection, citizen protection, data classification, invasion protection, accountability on data use, moral and legal aspects, etc.)

Facets under scrutiny

- Social media and Profiling
- Awareness and Education
- Tourist Industry
- Digital Transformation in the Public Service





TrendNews Citizen Data Protection: Ownership Challenges in the Digital Transformation Era untability on data use, moral and legal aspects, etc.)

Chair Petre Dini, IARIA, USA/EU



Panelists

Anders Fongen, Norwegian Defence University College, Norway

Stavroula Barbounaki, Merchant Marine Academy of Aspropyrgos, Greece

Eszter Oroszi, National University of Public Services, Hungary

Dimitris K. Kardaras, Athens University of Economics and Business, Greece







Panellist Position

Data Complexity, Ownership Dilemma, Trusting Challenges

Petre Dini, IARIA, EU/USA petre@iaria.org

- Data complexity
- Double Facets of Privacy Protection
- Showing Limited and Full Trust
- Responsibility and Liability of Trustee
- \rightarrow Private Data will become obsolete
- ightarrow Citizen Data transferred to Virtual Citizen Representation
 - → Illusion of Data Ownership and Privacy Protection



NextTech Experts Panel II Impending Technical Societal Challenges: Qvo Vadis?

Panellist Position

Detection of inauthentic profiles in social media through graph algorithms

Anders Fongen, Norway anders@fongen.no

- Presentation of student research on graph theory for detection of inauthentic algorithms •
- Growing problems in social media, can even stir civil unrest



NextTech 2021

TrendNews Citizen Data Protection: Ownership Challenges in the Digital Transformation Era , data classification, invasion protection, accountability on data use, moral and legal aspects, etc.)

Panellist Position

LARTA

Data Protection in the Digital Transformation Era in Tourism

Stavroula Barbounaki, Greece, sbarbounaki@yahoo.gr

- Hotels collect and process vast volumes of data ٠
- Hotels use a variety of digital platforms and web services ٠
- Digital Transformation in Hotels is long way before fulfillment ٠

Issues of concern relate to:

 \rightarrow Business process mapping is far from complete

 \rightarrow Policies for data protection are patchy

 \rightarrow Management and Personnel approach data protection superficially

 \rightarrow Systems interoperability inhibits control over data and services integration



TrendNews Citizen Data Protection: Ownership Challenges in the Digital Transformation Era lassification, invasion protection, accountability on data use, moral and legal aspects, etc.)

Panellist Position

IARIA

Boardgames as security awareness improvement tools

Eszter Diána Oroszi, National University of Public Services, Hungary, eszter.oroszi@gmail.com

- Importance of information security ٠
- Security awareness level of users ٠
- Awareness trainings and campaigns ٠
- Gamification methods ٠
- Security awareness boardgame ٠
- \rightarrow Limitation of traditional educational materials
- \rightarrow Gamification is an effective way to improve security awareness level of users
 - → Boardgames as possible training tools



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Panellist Position

IARIA

Digital Transformation in the public sector

Dimitris Kardaras, Athens University of Economics and Business, Greece, dkkardaras@yahoo.co.uk

- Main priorities for facilitating digital transformation in Local Governments ٠
- **Citizen-centered Services** .
- Strategic Digital Culture ٠
- Interoperability ٠
- **Digital Skills of Employees**
- Technology Procurement ٠

There is a concern regarding the Transparency of Service Design and Data Protection mainly due to:

- \rightarrow Low level of employees' digital skills;
 - \rightarrow Lack of clear strategic vision;
- \rightarrow Users lack involvement in service design;
 - \rightarrow There are interoperability issues;
- \rightarrow Procurement of new systems and services needs redesign.





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Data Complexity

IARIA

BIG | the Vs | 3v, 5v, 7v, 10v,?

Volume (length of a records, # of records) (entity-relationship databases)(datasets) || BIG vs. HUGE

PatraDita

- Variety (types: strings, pictures, voice, etc.) (structured, non-structured)
- Veracity

(precision and accuracy of data)

- Velocity (of change)
- Value (as a business/service) IMPACT
- Volatility (temporary; quick action)
- Vasting resources (storage, computation, transfer)
- · Viability (are data still useful?)
- Visibility (open, hidden, ..)
- Validity
- (are there still valid/updated data?) (in context validity) (e-government datasets)

- incomplete - redundant - inconsistent - noisy

filling missing values with estimated values calculated for complete records of the same dataset **TrendNews**

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Data Diversity and Representation

IARIA



Citizen Data Protection: Ownership Challenges in the Digital Transformation Era

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Handling Citizen Data

IARIA



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NextTech Experts Panel II Impending Technical Societal Challenges: Qvo Vadis? gital awareness, safety and threats, personal data, discovering relevant data, online co

tion, digital awareness, safety and threats, personal data, discovering relevant data, online content, fake news, social media, citizen behavior, health accessibility, psychological/physical addiction, etc.) NextTech 2021

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anders@fongen.no

Norwegian Defence Military University

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Why are inauthentic profiles dangerous?



Two types of network





Content-based

Relational

Assumption:





Chosen algorithms for study



- SybilSCAR
- Machine learning on relational graph
- Machine learning on content-based graph



Results 1: SybilSCAR





Result 2: Machine learning on relational...





Property	F-number
Density	0,54
Global clusterin coefficient	0,65
Local clustering coefficient	0,56
Indegree centrality	0,64
Outdegree centrality	0,61
Mutuality	0,58
Assortativity	0,55
Articulation points	0,60
Totalt	0.66



Result 3: Machine learning on content...



F-number: 0.68

Results compared



Approach	F-number
SybilSCAR	0,50-0,99
Machine learning on	0,66
relations-based graph	
Machine learning on	0,68
content-based graph	

From the conclusion:



- **SybilSCAR** has given good results in networks where its assumptions hold, but works better in cooperation the machine learning algorithm.
- **The unsupervised learning** algorithm is assuming the biggest difference between inauthentic and authentic profiles, but this is not necessarily the case.
- The supervised machine learning algorithms, both of which are based on decision trees, seem to be able to find patterns, given that there are actual patterns to be found, and enough data to do so.
- The enhanced machine learning algorithm, neural networks, seems to be able to be more efficient at finding good patterns.
- Nevertheless, given all the sources of error and the small difference in accuracy, it is difficult to say which of the two monitored and one amplified machine learning algorithm is best suited for the detection of inauthentic use.

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Data Protection in the Digital Transformation Era in Tourism

Dr Stavroula Barbounaki Lecturer Merchant Marine Academy, Aspropyrgos, Greece



Contents

- 1. Definitions
 - 1. Digital Transformation
 - 2. Data Protection
- 2. Dimensions and Aims of Digital Transformation
- 3. Data Breaches in Numbers
- 4. Data in Hotels Industry
- 5. Major Issues that Restrict Digital Transformation and Risk Data Protection
- 6. Conclusions: Issues of Concern

Definitions...

Digital Transformation (DT): a definition

It implies the deployment of ICT to

- facilitate innovation,
- improve competitiveness and
- develop new business models.

Dimensions of DT

Involves **Technologies**

- > AI
- ⊳ IoT
- Big Data
- Cloud
- ≻ CRM

Needs clear Vision that

Focuses on priorities

Disrupts Business
Processes and
Services

Aims of DT in Tourism

- Increase digital revenue and website traffic
- Reduce operational costs

- Improve product and service quality
- Improve customer outcomes

Data Protection: a definition

The personal protection act - GDPR, with effect since May 2018 in the EU, defines the requirements for secure, transparent and fair processing of data.

A set of laws guidelines specify the obligations that companies and organizations need to meet.

First ... Data Breaches in numbers

According to a survey by IBM and the Ponemon Institute (IBM, 2021), the average cost of a data breach among companies surveyed reached \$4.24 million per incident in 2021, the highest in 17 years...

Reasons why...:

- Remote work impact during the COVID-19 pandemic
- Health-care breach costs surged
- Compromised credentials

Nearly half (44%) of the breaches...

...analyzed exposed customer

- personal data, such as name, email, password,
- or even healthcare data

 representing the most common type of breached record.

It is now possible...to identify the... person



Why Data protection is important in Hotel Industry?

Hotels collect lots of personal data...and sensitive data also

Hotel industry uses...

...many platforms and systems that collect and process customer data Platform and systems examples:

- > Tripadvisor
- Booking
- Hotelier
- > ERP systems
- > CRM systems

Hotels collect and process CUSTOMER data regarding

Booking requests

(through several channels, e.g., web, telephone, etc)

Hotel services

Profiling

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Name, surname, tel., email, DoB, passport, nationality, number of children and their age, babysitting requests, smoking or not, any disabilities, food requests, credit/debit cards details, purpose of travel, group they travel with, car registration plates, health data, etc.
Hotels collect and process PERSONNEL data regarding

Appointment data

Evaluation Data

Dismissal Data

CV (name, surname, tel., email, DoB, passport, nationality, number of children, photo), smoking or not, health data, salary data, evaluation reports etc.

Hotels collect and process SUPPLIERS data regarding

Company details

Personal data of individual suppliers

Adopt a holistic approach to Analyze 15 Hotels in Greece

Examine:

- Business Processes and Data Flows
- Personnel and Management
- IT Systems acquisition and interoperability
- Legal issues



Major Issues Identified relate to:

Data – Processes
– Systems
Readiness

 Management and Personnel Readiness IT and Systems
Architecture and
Policies

Using Multi-criteria Analysis the priorities are quantified...

Data - Processes - Systems Readiness



Personnel and Management Readiness

Personnel Education	/MEDIUM	0,366
Knowledge of Data Protection (Law and Methods)	/MEDIUM	0,294
Culture Management and Personnel	/MEDIUM	0,150
Communication (within and outside the hotel)	/LOW	0,190



IT and Systems Architecture and Policies

Data Protection in Business Processes	/MEDIUM	0,5	
Data Protection		,	Data Protection in Business Processes /MEDIUM
Policies	/LOW	0,3	0.6
Configuration and Architecture Management	/LOW	0,4	Systems Conforming with Data Protection Act / MEDIUM 0,4
IT staff skills	/LOW	0,29	0.3 Configuration and Architecture
Φυσική και Περιβαντολογική Ασφάλεια	/LOW	0,27	Business Continuity /VERY LOW 0,1 Management /LOW
IT Systems Physical Protection Policies	/LOW	0,27	Palicies of laformation Sustance
Access Control	/LOW	0,23	Acquisition /HIGH
Systems Acquisition Policies	/HIGH	0,6	
Business Continuity	/VERY LOW	0,1	Access Control /LOW Policies for Physical Security of IT Systems /LOW
Systems Comform with Data Protection		0.5	Communication Security /LOW
Law		0,5_	

Conclusions – Issues of Concern

Actions to be taken:

- Management and Personnel upskilling. Educate staff.
- Cultivate Culture for innovation and change.
- Invest to Systems Integration
- Embark on Business Processes Mapping with a focus of data protection
- Data Protection needs to be part of the business not just an obligation imposed by the law

References

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Thank you

Citizen Data Protection: Ownership Challenges in the Digital Transformation Era

Boardgames as security awareness improvement tools



Eszter Diána Oroszi National University of Public Services Budapest, Hungary eszter.oroszi@gmail.com



Eszter Diána Oroszi



- Lead consultant at a Hungarian information security consulting enterprise
- Ph.D student at National University of Public Services
- Certificates: CISA, CISM, CRISC
- Research area: human factor in information security, Social Engineering, security awareness measurement and improvement
- Interested in gamification: security awareness escape room, security awareness boardgame

Importance of information security

- Which are the most important values to be protected?
- The right answer: data, information
 - Personal data of citizens, clients, etc.
 - Organizational know-how
 - Enterprise strategy
 - Etc.
- Data protection
 - Legal requirements (see GDPR)
 - Supported by information security controls
- Information security risks should be evaluated and mitigated to protect data.

Human factor,

as the weakest link in the chain of information security...

- We are all attractive targets... Why? →
- Social Engineering attacks: deceiving and manipulating users
- "Small pieces" of data could be even so valuable
- Rapid changes in digital world could be lead to new threats and vulnerabilities
- Security awareness will be even more important!



Security awareness

- Security awareness is not only an organizational issue...
- Attackers using Social Engineering tricks can also threaten our privacy!
- Effective security awareness programs help the users both as employees, and as individuals.

	At the workplace, as an employee	At home, as an individual
What should we protect?	Organizational information, know-how, strategy, project information, client data, etc.	Our personal data, sensitive information (+ organizational information)
How can we protect them?	Physical security controls, information security countermeasures, etc. provided by the organization	Applying security settings, anti-malware solutions, firewalls, strong passwords, etc.
How can we learn about information security?	Regular security awareness trainings and other improvement actions	Usually at the workplace, public presentations, and will be informed from the news

Possibilities of improvement

Traditional methods

- Personal trainings
- Online trainings (for example using video-conference tools)
- E-Learning materials
- Campaign elements (posters, souvenirs, newsletters, etc.)

• Tests

Gamified elements

- Quizzes, puzzles
- Leatherboards, badges, scores
- Online games
- Mobile application
- Security awareness escape room
- Security awareness boardgame

Try to find the most effective and best applicable one!

Current project 1. – Boardgame development

- Information security is even so important at home, as at work...
- Limitation: organizational security trainings are usually boring, with known knowledge elements...
- New opportunities: Make security awareness improvement to an experience!
- Everyone loves to play!

Security awareness boardgame could be a possible solution

Current project 1. – Boardgame development



Current project 2. – Evaluating security awareness improvement methods

- Which are the most effective security awareness improvement methods? How effective could be the boardgame of Current project 1.?
- Research in progress
- Evaluating 6 methods:
 - Training in person
 - Training via online platform
 - Sharing e-Learning material
 - Sharing campaign elements (posters, newsletters, souveniers, etc.)
 - Participating in security awareness escape room
 - Playing with security awareness board game

Involved employees

- 1) fill out a preliminary survey about information security knowledge,
- 2) take part in one of the above mentioned methods
- 3) fill out a second survey about new knowledge elements,
- 4) one month later fill out the final survey how effective was the improvement method?

Thank you for the opportunity!

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- **Digital Skills of Employees**
- Technology Procurement ٠

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2021

DIGITAL TRANSFORMATION IN THE PUBLIC SECTOR

Dimitris Kardaras, Assistant Professor, in Information Systems Management Athens University of Economics and Business, Athens, Greece

Contents

- 1. Digital Transformation: Definition; Expectations and Barriers
- 2. The DESI Index in the EU
- 3. The EU Digital Compass
- 4. Conclusions.

Definitions...

Digital Transformation: Introduction

Digital transformation is a complex and radical form of enterprise transformation and refers to a disruptive process that change profoundly the way companies compete, interact and create value.

It enables innovation, creativity and stimulates significant changes within a knowledge domain.

Digital Transformation: Expectations

- >Increases productivity,
- >Deploy Innovations in value creation,
- >Create novel forms of interaction with customers,
- Disrupt existing processes,
- >Develop new business models.

Digital Transformation: Barriers

- > Technology adoption and low level of Digital Maturity,
- >Limited budget for investment to new technologies,
- >Fixed and unrealistic timelines and milestones,
- >Large-scale and complex transformations may add high uncertainty,
- >Lack of commitment from the top management,
- >lack of focus on clearly defined results,
- >Resistance to change by employees.

The Digital Economy and Society Index (DESI)

The EU uses the DESI index to...

>measure Digital Transformation in terms of the following indicators:

Indicator	Meaning
Human capital	Internet user skills and advanced digital skills
Connectivity	Fixed broadband take-up, fixed broadband coverage, mobile broadband and broadband prices
Integration of digital technology	Business digitalization and e-commerce
Digital public services	e-Government

DESI is aligned with the EU Digital Compass

The EU aligns DESI with Digital Compass

>That sets the targets for Digital Transformation

Indicator	Targets
Human capital	At least basic digital skills ICT specialists Female ICT specialists
Connectivity	Gigabit for everyone (Fixed very high-capacity network coverage) 5G coverage
Integration of digital technology	SMEs with a basic level of digital intensity Al Cloud Big data
Digital public services	Digital public services for citizens Digital public services for businesses

Transparency is highlighted in the Digital Economy and Society Index 2021 report...

...the need for Transparency is stressed.

> It is measured in terms of three elements...

1.**Transparency of service delivery**: the extent to which the service process and expectations are clarified.

2. **Transparency of personal data**: the extent to which user can manage their personal data held by government organizations.

3. **Transparency of service design**: the extent to which users are informed on and involved in policy and service design processes.

A research contacted to investigate...

the priorities to be considered in order to facilitate digital transformation in local governments.

Used Fuzzy Logic to analyse the data from 11 municipalities in the greater Athens area in Greece.

5 criteria were considered

Order	Criterion
1	Strategic Digital Culture
2	Citizen-centred Services
3	Digital Skills of Employees
4	Interoperability
5	Technology Procurement

A research contacted to investigate...



The importance of each criterion is calculated

 ...The criteria were structured in a hierarchy.

Order	Criterion	Weight
1	Citizen-centered Services	0.295
2	Strategic Digital Culture	0.243
3	Interoperability	0.192
4	Digital Skills of Employees	0.171
5	Technology Procurement	0.099
Results...I

Findings suggest

...there is lack of a citizen-centered approach, mainly due to the introversion of local government processes.

Local government agencies do not engage citizens in the development of their e-government services.

Issues of Concern

Lack of Transparency as defined in DESI, thus raising concerns for service design and citizens' data protection.

Results...II

Findings suggest

 ...local government, is still characterized by costly, timeconsuming and inhospitable services, complex procedures, and bureaucracy.

Issues of Concern

Lack of clear vision for e-government services and culture with fragmented visionary goals. Thus, transparency is problematic since citizen often are not clear as for the expectations of digital initiatives.

Results...III

Findings suggest

...The technical interoperability is not aligned to the enterprise interoperability and the actual business processes. The business processes of the municipality are complicated with several loops of information among the directorates.

Issues of Concern

Lack of Transparency as defined in DESI once more, thus raising concerns for service design and citizens' data protection, since pieces of information may circulate among departments and systems with questionable protection.

Results...IV

Findings suggest	Issues of Concern
 the level of employees' skills in digital technologies is quite low. Employees do not object to digital transformation, but they lack or necessary digital skills. Procurement of new systems needs to be reconsidered in a way that facilitates transparency. 	Lack of Transparency of service design as defined in DESI, users (either employees or citizens rarely get involved in service design due to lack of skills).

Conclusions – Issues of Concern

- > Digital Transformation pace is slow in local governments due to
- >Lack of clear strategic vision,
- >Lack of employees' digital skills.

In addition, users (citizen or employees) do not get involved in e-government services' design raising concerns regarding the transparency of services and data protection

