



European Large-Scale Pilots Programme

Data protection of Active Healthy Ageing Applications based on Robots



Antonio Kung, Trialog, France

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Introduction Speaker

- Engineering background
- Involved in privacy
 - Standardisation. Editor ISO/IEC 27550, 27030, 27570
 - IPEN wiki (ipen.trialog.com)
 - EIP-SCC (European Innovation Platform Smart Cities and Communities)

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- Citizen approach to data: privacy-by-design
- European projects PRIPARE, PDP4E, Create-IoT
- Involved in active healthy ageing
 - Interoperability. Lecce declaration 2011
 - EIP-AHA (European Innovatin Platofrm Active healty ageing)
 - Recommendations for interoperability and standardisation 2015
 - European projects ReAAL, ACCRA



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Use case ACCRA (http://www.accra-project.org)



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ACCRA system (of systems)







Security and privacy assessment (based on 27550)











Threat List



Property	Description	Threat	Ρ
Authentication	The identity of users is established (or you're willing to accept anonymous users).	S poofing	Un
	Data and system resources		Ar
Integrity	are only changed in appropriate ways by appropriate people.	Tampering	P de
Nonrepudiation	Users can't perform an action and later deny performing it.	Repudiation	Unde
Confidentiality	Data is only available to the people intended to access it.	Information disclosure	Con
Availability	Systems are ready when needed and perform acceptably.	D enial Of Service	C aw
Authorization	Users are explicitly allowed or denied access to resources.	Elevation of privilege	Pc c coi

Property	Description	Threat	
Unlinkability	Hiding the link between two or more actions, identities, and pieces of information.	Linkability	
Anonymity	Hiding the link between an identity and an action or a piece of information	Identifiability	
Plausible deniability	Ability to deny having performed an action that other parties can neither confirm nor contradict	N on-repudiation	
Undetectability and unobservability	Hiding the user's actvities	Detectability	
Confidentiality	Hiding the data controlled release of data content	D isclosure of information	
Content awareness	Content User's consciousness regarding his own data		
Policy and consent compliance Data controller to inform the data subject about the system's privacy policy, or allow the data subject to specify consents in compliance with legislation		Non compliance	







Breach Example: Massive Data Leaks



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• Security threat

- Unauthorised Access to servers
 - spoofing, elevation of privilege
- Privacy threats
 - Caregiver provides information to third (Party
 - External Service provider failure

Maximum	Must be		Absolutely avoided	
Impact	avoided or		or reduced	
Significant Impact	reat	iceu		
Limited Impact				
Negligible	These risl	ks may be	Must be	
Impact	tak	ken	reduced	
	Negligible	Limited	Significant	Maximum
	Likelihood	Likelihood	Likelihood	Likelihood

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Breach Example: Massive Data Leaks

Security measures

- Unauthorised Access to servers
 - ACCRA: authentication private key
 - Robot : authentication private key
 - Context : authentication private key
- Privacy measures
 - Caregiver provides information to third Party
 - External Service provider failure
 - Minimize data provided to service provider



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- Combine security and privacy
 - Security risk analysis + Privacy impact assessment

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• GDPR+Cybersecurity act



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U4loT

CREATE-IoT



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• Complex integration of capabilities



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CREATE-IoT

ACTÓVAGE



• Interoperability of security and privacy capabilities



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Thank You!



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email: antonio.kung@trialog.com



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