

TABLE OF CONTENTS

EXECUTIVE SUMMARY	5	4. CYBERSECURITY IN VERTICAL SECTORS: MANUFACTURING, ENERGY AND AUTOMOTIVE	69
1. THE DIGITAL ECONOMY AND SOCIETY IN EUROPEAN COUNTRIES	15	4.1. Cybersecurity in the manufacturing sector	71
1.1. Digital skills in the European Union	17	4.1.1. Trends in manufacturing and the intake of digital in EU industry	71
1.2. Digital service penetration in Europe. Individual and business use of social networks, e-commerce and Internet banking	20	4.1.2. The main cyber threats in the manufacturing industry	73
1.2.1. Social networks	20	4.1.3. How companies are addressing cyber risks	74
1.2.2. E-commerce	22	4.1.4. The role of cloud computing	79
1.3. How much is the digital economy worth?	27	4.2. Cybersecurity in the energy sector	82
2. THE CHALLENGES OF THE DIGITAL REVOLUTION: A SAFER INTERNET	29	4.2.1. The ongoing change in the energy sector	82
2.1. The cybersecurity threats in the information age	31	4.2.2. Cybersecurity concerns and available answers	84
2.2. Global cyber attack trends	33	4.2.3. The role of cloud computing	88
2.3. Cybersecurity in European countries	35	4.2.4. Examples of security breaches	89
2.4. The European regulatory framework	39	4.2.5. Smart grid opportunities and risks	91
3. THE IMPACT OF CYBERSECURITY ON ENTERPRISES	47	4.2.6. Challenges in the energy sector	92
3.1. Business in the crosshairs of cyber criminals	49	4.3. Cybersecurity in the automotive sector	94
3.2. The financial costs of cyber crime	52	4.3.1. Digitalization in the automotive industry	94
3.3. ICT security policies in enterprises	54	4.3.2. The current status and trends of the smart car market	96
3.4. The use of cloud services and cybersecurity in enterprises	58	4.3.3. The challenge of cybersecurity in the age of connected and autonomous vehicles	99
3.4.1. The use of cloud services: state of the art and future prospects	58	4.3.4. Main cyber threats for smart cars	102
3.4.2. The needed transition to the public cloud	60	4.3.5. The role of cloud computing	102
3.4.3. The cloud security challenge: a cloud-centric cybersecurity model to make the transition secure	64	CONCLUSIONS AND POLICY RECOMMENDATIONS	105