



Executive summary of the public audit report

DEVELOPMENT OF THE STATE  
ELECTRONIC COMMUNICATIONS  
INFRASTRUCTURE

No. VA-2017-P-900-1-15, July 14, 2017



# TERMS AND ABBREVIATIONS

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**SAI** – the Supreme Audit Institution

**EC** – European Commission

**EU** – European Union

**ICD** – Information Technology and Communications Department under the Ministry of the Interior of the Republic of Lithuania

**ICT** – information and communication technologies

**ISDC** – Information Society Development Committee under the Ministry of Transport and Communications

**MND** – Ministry of National Defence of the Republic of Lithuania

**LE** – "Lietuvos energija" Ltd.

**LG** – "Lietuvos geležinkeliai" JSC

**LITNET** – Computer Network of Lithuanian Science and Studies Institutions (Manager – Kaunas University of Technology)

**LRTC** – Lithuanian Radio and Television Centre JSC

**ON** – State Enterprise "Oro navigacija"

**RAIN** – Rural Area Information Technology Broadband Network (Manager – Public institution "Plačiajuostis internetas".)

**MTC** – Ministry of Transport and Communications of the Republic of Lithuania

**DMRN** – special service Tetra mobile network (Manager – Information Technology and Communications Department under the Ministry of the Interior of the Republic of Lithuania)

**SSDCN** – Secure State Data Communication Network (Operator – State Enterprise "Infostruktūra"<sup>1</sup>)

**Manager** – an economic entity that provides or is authorized to provide a non-public electronic communication network or related means

**CNPA** – Communication network of Public authorities, for provision of telephony services between the public sector institutions (Manager – Governmental Communications Centre under the Ministry of National Defence)

**GCC** – Governmental Communications Centre under the Ministry of National Defence

**MI** – Ministry of the Interior of the Republic of Lithuania

**ITN** – Internal Telecommunication Network (Manager – Information Technology and Communications Department under the Ministry of the Interior of the Republic of Lithuania)

**ABC methodology** – cost allocation by activities (i.e. *Activity Based Costing*) methodology

**Electronic communications** – transmission of signals by wire, radio, optical or other electromagnetic means<sup>2</sup>.

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<sup>1</sup> Order No. 1V-167 of the Minister of the Interior of the Republic of Lithuania "On the Approval of the Regulations of Secure State Data Communication Network and Rules of Services of Secure State Data Communication Network" p. 2.

**Electronic communications infrastructure** – a set of apparatus, equipment, lines, pipelines, cables, channels, collectors, towers, masts and other devices for the implementation of electronic communications activities<sup>3</sup>.

**Electronic communications service** – a service usually provided for remuneration which is wholly or mainly composed of signals transmitted by electronic communications networks, including the broadcasting (retransmission) of telecommunications services and transmission (transfer) services via networks used. Electronic communications services do not include the provision of information content, transmitted via electronic communications network or by using electronic communications services, or editorial content control services, including information society services that completely or mainly exclude the transmission of signals through electronic communications networks<sup>4</sup>.

**Electronic communications network** – transmission and/or commutation and routing equipment, other means for transmitting signals by wire, radio, optical or other electromagnetic devices, including satellite networks, fixed (commutation of channels and packets, including the Internet) and mobile above-ground networks, electricity transmission cable systems (as long as they are used for transmitting signals), networks, used for broadcasting (retransmission) of radio and/or television programs, and networks of cable television and microwave multi-channel television, regardless of the nature of the information being transmitted<sup>5</sup>.

**Non-Public Communications Network** – A state-owned electronic communications network which does not provide public electronic communications services and is intended for organizations in public sector. The definition does not cover classified electronic communications networks<sup>6</sup>.

**State-controlled electronic communications network** – a state-controlled network of electronic communications, irrespective of the legal form of the manager/operator<sup>7</sup>.

**State information resources** – information, managed by institutions in performing statutory functions, which is processed by means of information technology and a whole set of IT processing tools<sup>8</sup>.

**Public Communications Network** – an electronic communications network, used entirely or mainly for the provision of publicly available electronic communications services<sup>9</sup>.

**Public electronic communications services** – publicly available electronic communications services<sup>10</sup>.

Other terms are understood in the way they are defined or used in the Law on Electronic Communications of the Republic of Lithuania, the Law on Cyber Security and the Law on Management of State Information Resources of the Republic of Lithuania.

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<sup>2</sup> 15 April 2004 Law on Electronic Communications of the Republic of Lithuania No. IX-2135 (wording of 22 June 2011 Law No. XI-1552), Article 3 Part 10.

<sup>3</sup> 15 April 2004 Law on Electronic Communications of the Republic of Lithuania No. IX-2135 (wording of 22 June 2011 Law No. XI-1552), Article 3 Part 12.

<sup>4</sup> Ibidem, Article 3, Part 15.

<sup>5</sup> Ibidem, Article 3, Part 16.

<sup>6</sup> In the context of this audit report, this term is defined in the way it is understood; the term is not defined in the legislation of the Republic of Lithuania.

<sup>7</sup> In the context of this audit report, this term is defined in the way it is understood; the term is not defined in the legislation of the Republic of Lithuania.

<sup>8</sup> 15 December 2011 Law on Management of State Information Resources of the Republic of Lithuania No.XI-1807 (wording of 06 November 2014 Law No. XII-1302), Article 2 Part 17.

<sup>9</sup> 15 April 2004 Law on Electronic Communications of the Republic of Lithuania No. IX-2135 (wording of 22 June 2011 Law No. XI-1552), Article 3 Part 74.

<sup>10</sup> Ibidem, Article 3, Part 75.

## SUMMARY

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More and more society's social relations are being moved to the virtual space in Lithuania – electronic communications are actively used not only for receiving or sending information but also in other functions of electronic banking, business and government.

Electronic communications are a dynamic and rapidly changing field. Therefore, technologies are continually being improved and developed. 38.7 million euros has been invested in the development of the state electronic communications infrastructure over the past four years, and investments are growing every year. To efficiently use the growing infrastructure, coordination process of the development of the electronic communications infrastructure is vitally important. The European Parliament and the Council emphasize<sup>11</sup> that part of the investments related to the passive infrastructure (such as channels, pipes, manholes, cabinets, poles, masts, antenna equipment, towers and other supporting structures), can be attributed to the ineffectiveness of the installation process and, in order to reduce the cost of electronic communications networks and save the funds allocated for the infrastructure, it is encouraged to share the existing infrastructure and to seek for the synergy of the use of electronic communications infrastructure<sup>12</sup>.

Considering the active usage of electronic communications networks and information systems, their reliability and security are of crucial importance for economic and social activities. Without adequate protection, cyber attacks can cut off the delivery of essential services to the public, derange business activities and cause significant damage to the state's economy. In recent years, the scale and frequency of security incidents in Lithuania have increased (there were 36.1 thousand of incidents in 2014, 41.5 thousand in 2015, and 49.4 thousand in 2016<sup>13</sup>), therefore in this context, states are encouraged to take care of the common high-security standards and high-reliability infrastructure<sup>14</sup>.

In order to identify whether state-controlled electronic communications infrastructure, designed for the implementation of these communications activities, ensures efficient use of resources, we have evaluated the model of the policy-making and implementation of state-controlled electronic communications networks, analysed the mechanism of state-owned electronic communications services pricing and the condition and security of state-controlled electronic communications networks infrastructure.

The main subjects of the audit were the Ministry of Transport and Communications and the Ministry of National Defense, however, the information was also collected from other related organizations of public sector that manage the state electronic communications infrastructure: Ministry of the Interior of the Republic of Lithuania, State Enterprise "Infostruktūra", Kaunas University of Technology, Information Technology and Communications Department under the Ministry of the Interior of the Republic of Lithuania, "Lietuvos geležinkeliai" JSC, State Enterprise "Oro Navigacija", "Lietuvos energija" Ltd., Lithuanian Radio and Television Centre JSC, Public institution "Plačiąjuostis internetas".

The audited period – 2013-2017 I quarter. To evaluate changes that occurred in electronic communications in the country, the data from earlier periods were also analysed.

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<sup>11</sup> 15 May 2014 Directive 2014/61/EU of the European Parliament and the Council on measures to reduce the cost of deploying high-speed electronic communications networks.

<sup>12</sup> EC study (i.e. *Study of the readiness of Member States for a common pan-European network infrastructure for public services*). Access on the Internet: <https://ec.europa.eu/digital-single-market/en/news/study-readiness-member-states-common-pan-european-network-infrastructure-public-services-%E2%80%93>

<sup>13</sup> Annual statistics of 2014-2016 incidents. Access on the Internet: <https://www.cert.lt/statistika.html>.

<sup>14</sup> Directive (EU) 2016/1148 of the European Parliament and of the Council of 6 July 2016 concerning measures for a high common level of security of network and information systems across the Union.

During the audit, we found that existing state electronic communications network infrastructure is not efficiently managed – infrastructure development solutions are duplicated, and electronic communications services are provided. No centralized mechanism for coordinating infrastructure development at the national level is established, therefore, the duplication in the planning of new investments can recur. The pricing practices of the state electronic communications services do not ensure the sufficient justification for pricing of services due to lack of maintenance and reliable pricing criteria. The security of state-owned electronic communications networks is not sufficient: safety measures recommended by the good management practice are not implemented, the network infrastructure is obsolete, and this puts a threat to the security of information, and in the case of cyber attacks, the infrastructure may be vulnerable.

After evaluation of the evidence gathered during the audit, we provide the findings of the state audit and recommendations that would lead to the establishment of an effective coordination mechanism of state-controlled electronic communications infrastructure and a network model of public sector that will ensure infrastructure synergy and allow infrastructure costs to be reduced, efficiently plan investments in infrastructure, and provide network security.

## CONCLUSIONS

1. The state electronic communications infrastructure is managed inefficiently, and synergy possibilities are not fully used:
  - 1.1. The physical infrastructure of electronic communications (3.634 km) and the services provided by the managers of non-public communications network (82%) are duplicated, therefore, the funds to maintain infrastructure are used irrationally. Using the resources of state-owned electronic communications infrastructure together, it would be possible to reduce their maintenance costs and use them more efficiently (Section 1.1, p. 12);
  - 1.2. The development of state-controlled electronic communications networks is not coordinated centrally: the condition of the network infrastructure is unknown, related information is unmanaged; Its investment projects are not coordinated with the policy maker (the value of uncoordinated projects for 2013-2016 is around 15 million euros) therefore, duplication errors of investing in development in the future may recur (Subsection 1.2, p. 15).
2. The pricing practice of state-controlled electronic communications networks does not guarantee the justification of prices:
  - 2.1. Monopoly-based pricing mechanism of the SSDCN is working improperly, and wholesale communication prices of Public institution "Plačijaustis internetas" are coordinated by the Supervisory Committee of the Ministry of Transport, although, the EC decision of 2009 states that this should be done by an independent national regulatory institution (Section 2.1, p. 17);
  - 2.2. There is a lack of reliable cost and price calculation criteria: systematic cost evaluation is not performed, methodologies (procedures) are not periodically updated, there is a lack of market analysis (Sections 2.2-2.4, p. 19);
  - 2.3. Privileges applied to RAIN are not effective: operators do not use 1,189 access points in villages, and revenue of data transmission services that are discounted accounted for only 0.5% of all data transmission services (Subsection 2.4, p. 20).
3. There are no steady security requirements for state-owned electronic communications networks, therefore, the secure conditions of these communication networks are not ensured: one-third (36%), on average, of safety requirements from sound management practices are not implemented, network

monitoring is performed incorrectly, outdated equipment prevails in networks (67%), which can lead to network vulnerabilities (Chapter 3, p. 22).

## RECOMMENDATIONS

### To the Ministry of Transport and Communications of the Republic of Lithuania

1. To ensure an efficient use of state electronic communications network infrastructure, it is necessary to eliminate duplication of physical infrastructure and services:
  - 1.1. To create a model for state-controlled electronic communications network and its standardized services for the public sector (Conclusion 1.1);
  - 1.2. To create a centralized mechanism for the coordination of state-controlled electronic communications infrastructure, including the timely receipt of information on the development of state-controlled electronic communication infrastructure, the coordination of decisions and the assessment of the conditions of state-controlled electronic communications networks (Conclusion 1.2);
  - 1.3. During the period until a mechanism for coordination is fully established, to provide measures which would ensure that duplicate solutions are not created in the planning of new investments of state-owned electronic communications infrastructure (Conclusion 1.2).
2. In order to ensure that service pricing practices justify the prices and market conditions:
  - 2.1. To establish an independent mechanism for monitoring the prices of RAIN services (Conclusion 2.1);
  - 2.2. To establish transparent and reliable criteria for the calculation of the prices of wholesale communication services, thereby ensuring the periodic update of price calculations, fulfilment of systematic market analysis and public consultations (Conclusion 2.2);
  - 2.3. Provide measures that would promote the widest possible data transmission services in all areas where broadband access is possible (Conclusion 2.3).

### To the Ministry of National Defence of the Republic of Lithuania

1. In order to ensure a high level of security of state-controlled electronic communications networks, considering the existing cyber threats, prospects for network integration and ongoing changes in responsibility and competences division, to establish steady security requirements for state-owned electronic communications networks (Conclusion 3);
2. Review the pricing mechanism for the SSDCN and determine the pricing methodology for its services (Conclusion 2.2).

The measures and deadlines for the implementation of recommendations are presented in the section "Plan for the Implementation of Recommendations" of this report (p. 27).