CSC

ICT Solutions for Brilliant Minds

Corporate Social Responsibility Report 2016

Our theme for 2016 was Making an impact.

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CSC – Finnish expertise in ICT for research, education, culture and public administration

CSC[1] is a Finnish center of expertise in ICT that provides ICT expert services at an internationally high level of quality for research, education, culture, public administration and enterprises, to help them thrive and benefit society at large.

CSC's primary customers are the Ministry of Education and Culture and organizations within its administrative sector, higher-education institutions and research institutes, and the public administration sector. We play a significant role as the Ministry of Education and Culture's vehicle for steering and developing scientific policy. Our international operations boost the vitality of the Finnish research community and educational system.

CSC's net sales totaled EUR 36,825,236.69 in 2016, and at the end of the year we employed 289 people. We have offices in Keilaniemi, Espoo and Renforsin Ranta business park in Kajaani.

Ownership and Corporate Governance

The State of Finland has been CSC's sole owner since its early years. On 6 September 2016, the Ministerial Committee for Economic Policy decided to expand CSC's ownership base. In addition to the State of Finland, all Finnish institutions of higher education became our shareholders when the State transferred a 30 per cent holding to them. This decision was put into effect on 9 December 2016, when the deeds of conveyance and shareholder agreements were signed. CSC does not seek to generate profit for its shareholders, and does not pay a dividend or any other gratuitous compensation. According to Article 12 (1 and 3) of Directive 2014/24/EU of the European Parliament and of the Council, in public procurements CSC acts as a non-profit unit belonging to its shareholders. CSC may provide services to other organizations than its owners, provided that it does not exceed the permitted limit for external sales as specified in procurement legislation.

In 2016, the Ministry of Culture and Education was responsible for CSC's ownership steering on behalf of the State, and also for assessing its overall social and financial performance. At the beginning of 2017, the Ministry of Education and Culture appointed CSC's Council whose task is to formulate the company's ownership strategy and handle issues relating to its steering.

The Annual General Meeting, Board of Directors and Managing Director share responsibility for CSC's administration and operations. Annual General Meetings are held on an annual basis before the end of June. The Board of Directors consisted of seven members in 2016. **Mirjami Laitinen** was Chair of the Board of Directors and **Kimmo Koski** was Managing Director.

The primary norms governing CSC are the Finnish Limited Liability Companies Act (624/2006) and the State Shareholdings and Ownership Steering Act (1368/2007).

CSC's corporate governance is also subject to the Government Resolution on State Ownership Policy (13 May 2016), the Ministerial Committee for Economic Policy's statement on remuneration (13 August 2012), the company's Articles of Association, and the principles and instructions defined by the Board of Directors.

CSC's 2016 Board of Directors consisted of seven members. Photo: Nina Kaverinen

[1] CSC – IT Center for Science, Business ID: 0920632-0

Key social responsibility themes and materiality analysis

The focus of CSC's reporting is based on a materiality analysis of corporate social responsibility. The materiality analysis is used to identify the economic, social and environmental responsibility themes that are significant for both CSC's business and our stakeholders.

The material aspects for 2016 were defined in accordance with the corporate responsibility reporting model contained in the Government Resolution on State Ownership Policy (3 November 2011). The materiality analysis also paid attention to the changes brought by the Government Resolution of 13 May 2016.

The main source of information used in the materiality analysis was a stakeholder survey conducted at the beginning of 2016, which collated both customers' and owners' opinions on CSC's responsibility and capacity to generate value. In conjunction with strategy work carried out in spring 2016, CSC's management also made an extensive analysis of both trends in our sector and key themes raised by personnel and different stakeholders. This analysis used feedback from our partners and information on stakeholder expectations acquired during routine business.

The results identified the following material aspects for reporting:

Social responsibility management and operating principles

Together, Expertise, With care, Responsibly form the foundation of our corporate culture.

Our responsible operating methods are guided by our
- jointly defined values and corporate culture
- Code of Conduct
- leadership and governance principles.

In 2016, we revised our guiding values in collaboration with personnel representatives. Our updated values – *Together, Expertise, With care, Responsibly* – form the foundation of our corporate culture.

Our ethical guidelines[2] (Our Way of Working – CSC Code of Conduct) help us to operate in line with our values. The Code of Conduct explains what is meant by good business practices and healthy engagement with stakeholders, society and the environment.

CSC's Board of Directors monitors the management and implementation of social responsibility as part of its rules of procedure. At its annual Financial Statement meeting, the Board of Directors also reviews the social impact of CSC's services and their capacity to generate added value for society as per our special mandate. This assessment guides the Board's decision on the distribution of bonuses to management and personnel.

The Board confirms the annually updated risk management plan and the approved residual risks. The Managing Director and Management Group are jointly responsible for ensuring that risk management has been appropriately arranged. Responsibility management and the coordination of practical procedures are carried out through the company's routine management system.

CSC's Management Group is responsible for internal control, that is, the steering and operating processes used to ensure that we operate legally and profitably, and report on our financial position and activities in a reliable manner. The CFO is responsible for internal auditing in cooperation with the auditor and other members of the company's management. CSC is committed to promoting sustainable development objectives that consider economic activities in relation to ecological, social and cultural values.

Implementing different areas of environmental management is a routine aspect of everyone's daily work at CSC. Indicators promoting responsibility are used as the basis for rewarding all personnel.

[2] www.csc.fi/en/code-of-conduct

CSC's operating environment and strategic targets

Strategic ways of working

CSC is

- Customer oriented and cost efficient
- Developing partnerships
- Impacting domestically and internationally
- Creating interoperability and cooperation
- Proactive and agile

Trends

- Data value management and data enrichment
- Uncertainty in economic development
- Technological development in research and teaching
- Cooperation and networking

Values

Together

Expertise

With care

Responsibly

Brand

- Finnish expertise in ICT for research, education, culture and public administration
- We harness our expertise, networks and information technology to enhance our customer's success and ultimately benefit the whole society

Targets

1 To establish an internationally competitive ecosystem of scientific computing serving the needs of the whole Finnish research community

2 To make digital data available and easy to use, securely, internationally, now and forever

3 To establish an internationally recognized Finnish data analytics hub for research, education and public sector

4 To make digital education and learning service into an interoperable ecosystem for all education levels

Stakeholders and stakeholder engagement

Understanding and meeting stakeholders' expectations are prerequisites for successful business operations. CSC wants to engage in open and active dialogue with all of our stakeholders.

We engage in active dialogue with our customers, shareholders, personnel, partners, and research infrastructure financiers. Other key stakeholders include authorities, local communities, and the media.

Our stakeholders' expectations are regularly assessed through surveys (such as customer surveys and interviews, personnel well-being surveys), at face-to-face meetings and quality conferences, and through participation in current debates in the sector in, for example, social media. Regular dialogue with customers, collecting and responding to feedback, and highlighting opportunities for development all play a key role.

We openly cooperate and network with all actors in the sector, and provide opportunities for development and sharing opinions. CSC's specialists are extensively involved in the sector's programmes, projects, networks and networking events.

In 2016, CSC was actively involved in key events in our sector, such as the Physics Days, AMK-päivät (UAS Days), official opening of the C-Lion 1 data cable between Finland and Germany (Northern Digital Highway), ISC High Performance, MyData 2016, NORDUnet, Educause, Korkeakoulujen IT-päivät (Higher Education IT Days), and SC16.

In 2016, we launched efforts to strengthen the CSC corporate brand. By building up our brand, we are seeking to systematically meet our customers' and stakeholders' most important expectations; boost confidence; and steer the development of both our service offering and everyday activities towards a standardized customer experience.

CSC was actively involved in the most crucial events in our sector, such as the MyData 2016 conference.
Photo: Heta Koski

We are seeking to engage in interactive and multi-channel customer communications that serve the needs of all stakeholders. Our general principles for communications are openness, timeliness and truthfulness.

By providing our customers with advice and guidance, we personally help and support researchers in finding the best possible solution in, for example, a variety of computing projects.

In 2016, we began sending regular newsletters to our various stakeholders. We worked to increase the recognition of our services, particularly among end users. We also encouraged heavier or more extensive use of our services by publishing an online campaign site detailing the services that the Ministry of Education and Culture has acquired for institutions of higher education.

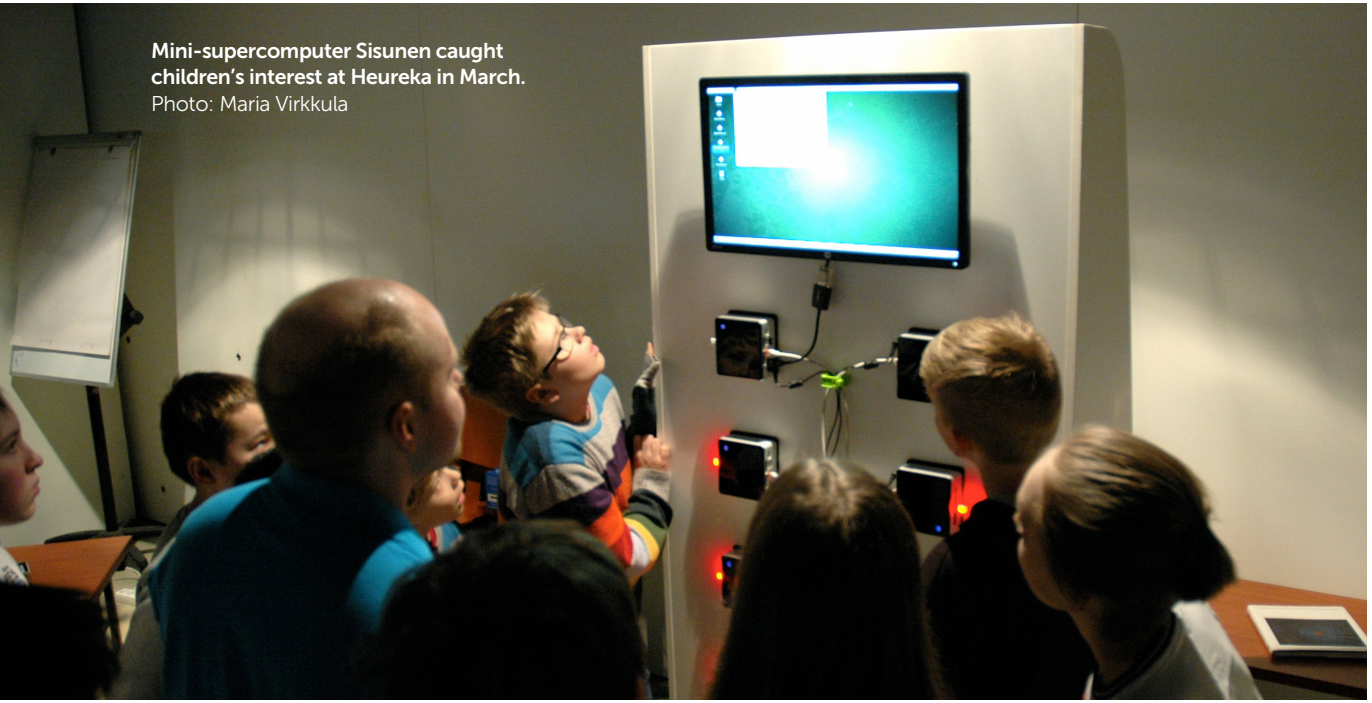
Customers and stakeholder representatives are increasingly searching for, comparing, sharing and discussing information online. CSC is developing an appropriate service channel package with the aid of both its website and a variety of customer portals. Social media have become an important channel for dialogue with customers.

In 2016, we systematically developed our public relations and communications as part of the year's 'Making an impact' theme, within CSC's social impact framework. Targeting content at decision-makers in particular could be seen in our impact on investments in high-performance computing infrastructure.

Mini-supercomputer Sisunen

Although the indirect impact of scientific computing on our daily lives is increasing, few people understand high-performance computing and the opportunities it affords in research and product development. CSC uses the mini-supercomputer Sisunen to present both supercomputers and the research that is done with them to the general public. Sisunen, which consists of ten mini PC units, enables us to outline how super-computers work in an easily approachable manner. We held two demonstrations of our mini-supercomputer during the year at Heureka, the Finnish Science Centre.

95% of those who took part in customer training thought that the topics were relevant to their own work or research.



Mini-supercomputer Sisunen caught children's interest at Heureka in March. Photo: Maria Virkkula

Customer training

CSC supports its customers with broad-ranging and high-quality training. Our training topics are mainly related to the services we provide in the fields of scientific computing, data analysis, data networks, and data management and distribution. Courses, seminars and webinars give our customers the opportunity to learn how to harness the infrastructure we provide more effectively, and also to get acquainted with fu-ture technologies and methods.

In 2016, CSC held training sessions on almost every other day of the year, both in our own premises and at universities and universities of applied sciences all around Finland. Our customer training events were attended by a total of about 2,800 people. The participants were extremely satisfied: 95 per cent of those who responded to the feedback questionnaire thought the topics were relevant to their own work or research, and the courses received an average score of 8.9 (on a scale of 1–10).

In 2016, CSC held training sessions on almost every other day of the year. Photo: Heta Koski

In Appendix 1 (Stakeholder analysis), we analyze stakeholder expectations and present a summary of the actions we took in 2016 to meet those expectations.

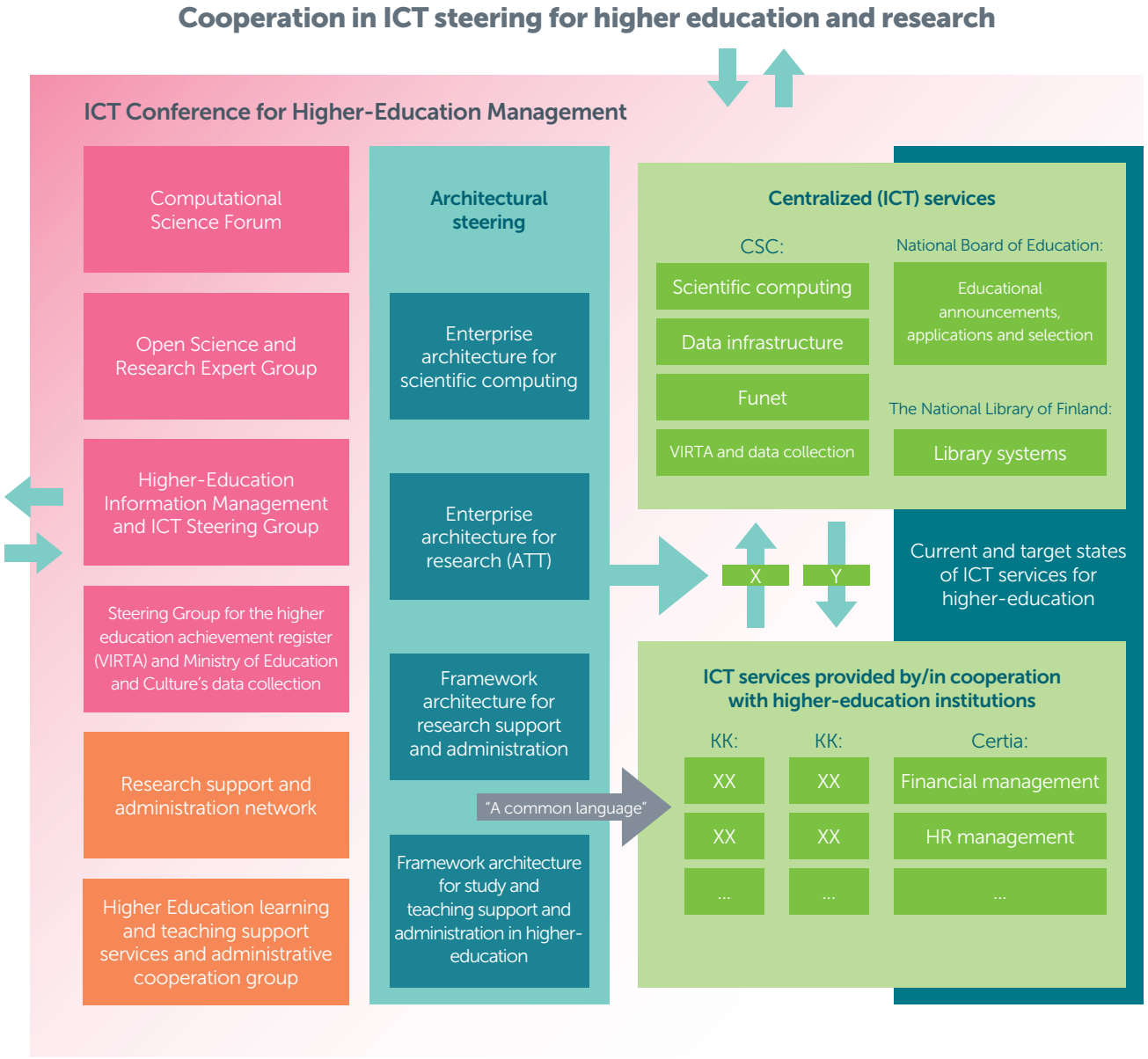
Diverse perspectives

CSC actively seeks external opinions on its own activities from a variety of expert groups.

The Higher-Education Information Management and ICT Steering Group (appointed by the Ministry of Education and Culture) steers and monitors the creation and maintenance of target infrastructure for ICT services, and acts as an enterprise architecture steering group for institutions of higher education. It also discusses and makes presentations on the CSC services that have been acquired for higher-education institutions; works with the Ministry to monitor, predict and influence issues that will impact information management at higher-education institutions; and handles other tasks required by the Ministry.

CSC receives information and feedback about its activities through a number of key collaboration networks, such as Universities Finland UNIFI, the Rectors' Conference of Finnish Universities of Applied Sciences ARENE, the HEI coordination group for student and teacher support services (KOOTuki), and the Research Support and Administration Network (TUHA).

The Computational Science Forum steers the development of national computing and data management infrastructure. The Ministry of Education and Culture has appointed the new Computational Science Forum for 2016–2018 to evaluate future developments in scientific computing with regard to Finnish higher-ed-



Source: ka.csc.fi

ucation institutions and the Finnish research field.

CSC receives regular feedback on its research services through the Scientific Customer Panel. The 2016 panel consisted of eight professors from different universities and research institutes.

Cooperation in ICT steering for higher education and research is described in more detail on page 9.

Partnerships

In 2016, we launched the development of a management model for partnerships.

In June, CSC and the Technical Research Centre of Finland (VTT) signed a strategic partnership agreement that seeks to boost Finnish competitiveness and support Finland's success in science and research. Mutually beneficial forms of cooperation were developed with the Government ICT Centre Valtori.

International collaboration and knowledge sharing

The international collaboration opportunities arising via EU projects and other networks are important at both managerial and specialist level. Sharing knowledge and best practices with reliable partners increases CSC's expertise and creates opportunities for developing new services.

Finland has joined ELIXIR, the European Life Science Infrastructure for Biological Information[3]. ELIXIR Finland, which is run by CSC, is specialized in the processing and secure handling of biological data that is used to support the use of research data in the creation of software in fields such as healthcare.

CSC has been actively involved in debate on increasing Finnish success in EU projects, and how more EU funding could be brought home by supporting Finns.

In 2016, CSC participated in 15 EU projects, two of which we coordinated. CSC also held leadership responsibility for eight work packages in a number of different projects.

EU projects in which CSC participated in 2016:

Project	Duration	Coordination responsibility	Work package leadership responsibility
PRACE 3IP	2012–2017		•
AARC	2015–2017		
CORBEL	2015–2019		
EGI-Engage	2015–2017		
ELIXIR-EXELERATE	2015–2018		•
ENVRI-plus	2015–2019		
EUDAT2020	2015–2018	•	•
NoMaD	2015–2018		•
PRACE-4IP	2015–2017		•
GN4	2015–2021		
E-CAM	2016–2017		
EMREX (Erasmus+)	2015–2017	•	• •
RDA Europe3	2015–2018		•
MARINET2	2016–2020		
SeaDataCloud	2016–2020		

[3] Covenant 7/2015

Financial responsibility

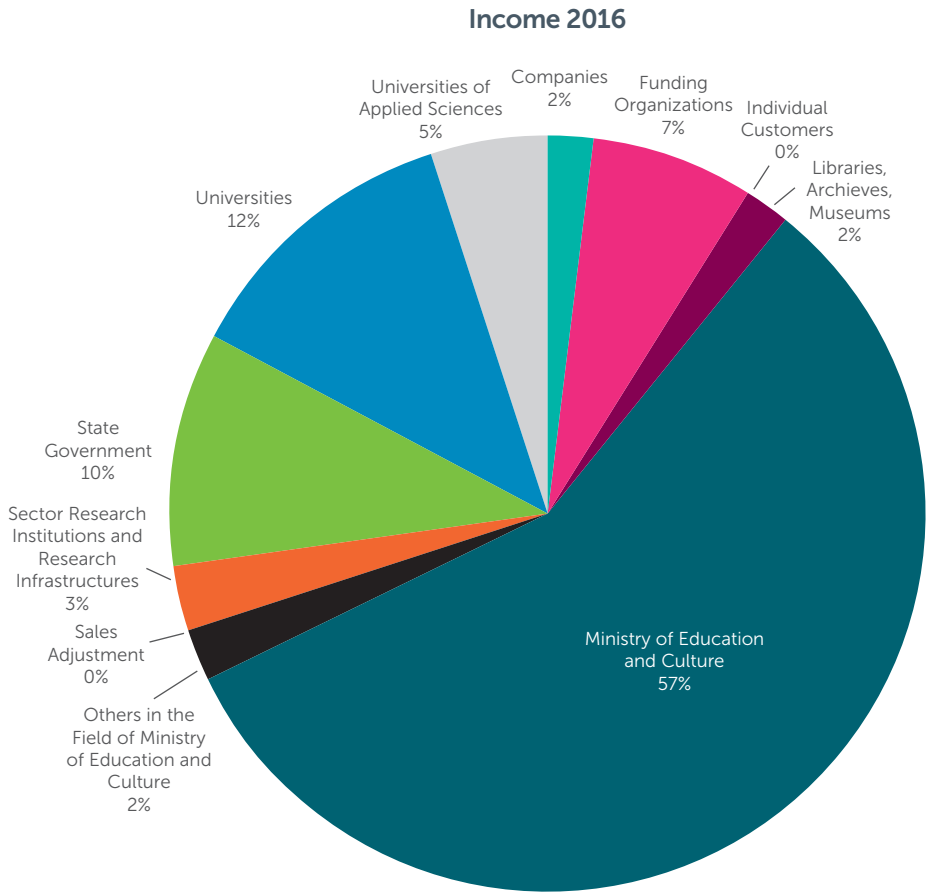
CSC's purpose is to provide non-profit services to its shareholders. CSC does not engage in market-based business activities. In accordance with our Articles of Association, we provide services to the organizations specified by our shareholders in the business areas specified by our shareholders. At CSC, financial responsibility means transparency, open financial management, and the provision of high-quality yet cost-effective services

Financial objectives and their attainment

CSC's financial objectives for 2016 related to cost management in a changing operating environment and changes arising from our new ownership arrangements. We sought to address these changes by boosting the efficiency of our operations and processes.

Due to the tougher economic situation in our operating environment, we only expected slight economic growth for the financial year. However, our expectations for the financial year were fulfilled and we achieved our financial objectives. Growth was achieved through both the acquisition of new customers and expanding our existing customer relationships.

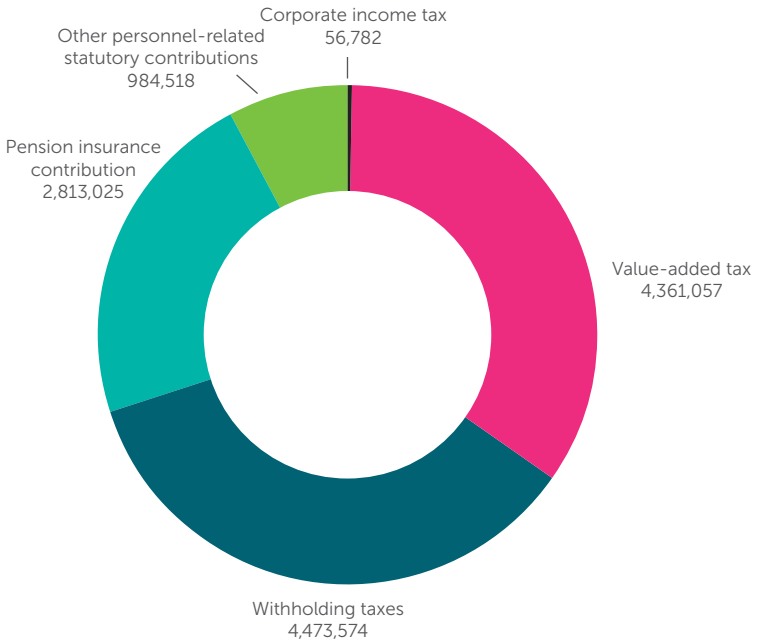
The result for the period fell on the previous year, reflecting the tougher financial situation. However, efficiency measures for the financial year had a favorable impact on cost accrual, and our result was in line with expectations.



Key indicators for CSC's financial result and financial activities are presented in more detail in Appendix 3 (Balance Sheet 1 Jan 2016–31 Dec 2016 and the Auditor's Report).

Our tax footprint shows how much revenue CSC generates for society through the payment of taxes and tax-like charges. CSC's tax footprint for 2016 was EUR 12.7 million.

Tax footprint 2016

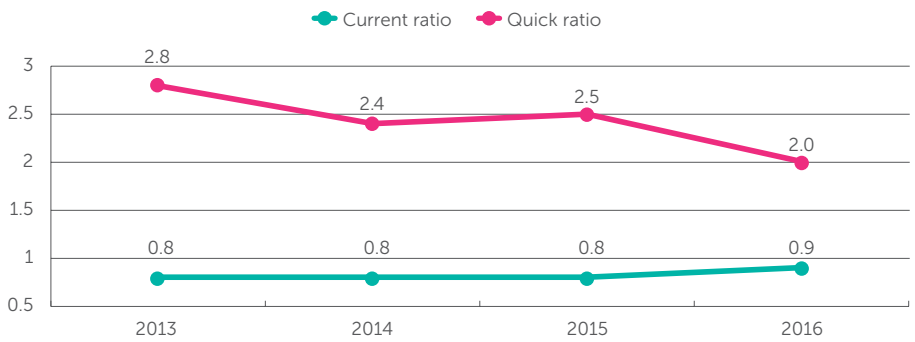


Key financial indicators

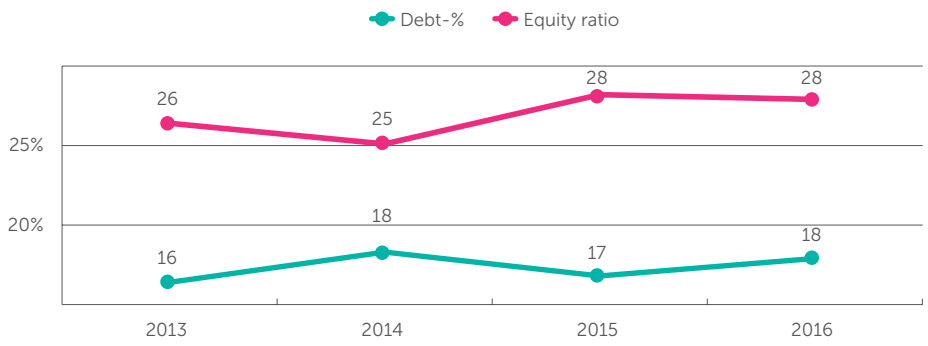
Our net sales for 2016 totaled EUR 36.8 million.

Key indicators	2016
- Operating profit	0.7%
- Return on equity	8.0%
- Return on investment	10.7%
- Quick ratio	2.0
- Current ratio	0.9
- Equity ratio	27.9%
- Relative indebtedness	17.9%

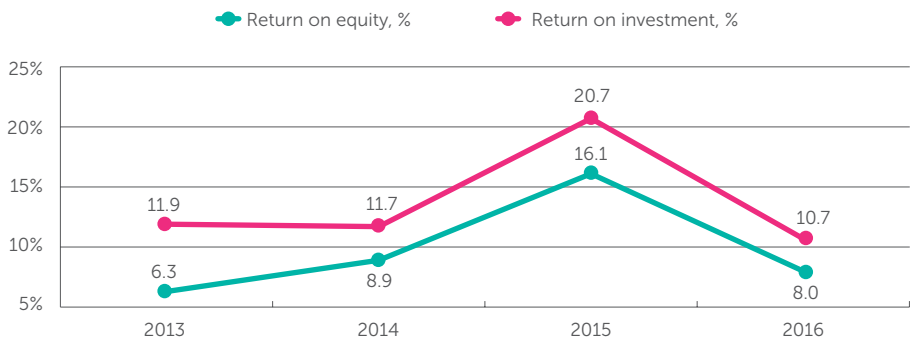
Liquidity



Solvency



Return on capital



Financial support received from the State

Support	€	Purpose
Government subsidy	2.74 million	The government subsidy is intended for the development of computing service infrastructure, service concepts, and data warehouse services.
Investment support from the Ministry of Education and Culture	1.53 million	This covers investments in the maintenance, monitoring and security of the state-owned and/or state-funded computing environment administered by CSC.

Cash flows to stakeholders

Stakeholders	€	Direct and indirect impact
Customers	Net sales 36.825 million Support from the EU, Tekes, Academy of Finland 2.89 million	**Direct financial impact:** Through CSC, the Ministry of Education and Culture fulfils its obligation under the Information Management Act to promote cooperation and IT system interoperability in the fields of education, science, culture and public administration. CSC's customers are given access to scientific computing services, a world-class data network, and training and expert guidance in the use of supercomputers. **Indirect financial impact:** CSC has an impact on the competitiveness of Finnish research and education.
Suppliers	-18.927 million	**Direct financial impact:** CSC primarily purchases goods and services from suppliers operating in Finland. **Indirect financial impact:** Cooperation creates business opportunities and jobs for suppliers.
Employees	18.927 million	**Direct financial impact:** All of CSC's personnel are stationed in Finland. Salaries and bonuses have an impact on private consumption, and the taxes paid by personnel contribute to social well-being. **Indirect financial impact:** We use training and task rotation to enhance our personnel's expertise and performance. CSC personnel have unique expertise in areas such as data management, interoperability and analytics, scientific computing and storage services.
Public Sector	-57,000	Taxes paid by CSC to the State
Support and donations given to non-profit organizations	0	In accordance with its Code of Conduct, CSC does not make donations, support non-profit organizations, or sponsor any type of group.
Shareholders	0	CSC does not pay a dividend. CSC's operating profit was transferred to retained earnings in its entirety.
Funding agencies	-9,000 12,000	Financial expenses Financial income
Result for the financial year	196,000	The profit for the financial year was transferred to retained earnings in its entirety.
Investments: depreciation	-715,000	Our own investments focus on the maintenance, monitoring and security of the state-owned and/or state-funded computing environment and data infrastructure administered by CSC.

Responsible service provision

At CSC, we harness IT, networks and the expertise of our specialists to further our customers' success. Our customers' best interests lie at the heart of everything we do. We provide our customers with solutions that are perfectly scaled to their needs – neither too big nor too small. Finnish research, education, culture, public administration and companies receive world-class ICT services and unique networks that enable them to fare better against international competition.

CSC's key tasks are to provide specialist, software and information services for science and IT; national and international data connections and IT resources for high-performance computing; and the storage and analysis of large volumes of data. In accordance with its special mandate, CSC provides services within its sector at cost price without seeking to make a profit.

A reliable partner

CSC's operations are based on good and transparent governance, compliance with data protection regulations, and adherence to best practices in service provision and security. CSC has been granted the esteemed international ISO/IEC 27001 certificate for Information Security Management.

With the aid of this certificate, which is based on reliable third-party verification, CSC can demonstrate its ability to manage, control and continually improve the information security of its services and operations. This certificate covers our data centers, ICT platforms, digital preservation (DP), and IaaS cloud services.

CSC's management system covers a broad range of areas including leadership, HR management, communications, stakeholder relations, contractual matters, premises, risks and deviations, resource management, and access control. CSC has several sets of internal guidelines that relate to data protection and transparency in particular: our administrator's guidelines, data protection guidelines, and email policy. You can read more about how we implement data security on CSC's website[4].

We monitor service availability and service-related guidelines, responsibilities and classifications on the basis of our internal production catalogue. CSC's Management Group discusses any significant deviations in information security.

Service-related responsibilities are agreed upon with customers and suppliers in service contracts and their associated security agreements. Service quality is monitored during regular quality conferences.

CSC regularly conducts customer satisfaction surveys to measure service quality, service expectations, and our customer experience. These surveys also monitor feedback on service security.

The EU's General Data Protection Regulation (GDPR, EU 2016/679) was approved on 14 April 2016, and CSC is preparing to meet its requirements. The GDPR will begin to be applied in Member States in 2018.

Services with impact

CSC's services have national significance and they affect the majority of Finns. Our activities in international collaboration networks aim to bolster Finland's competitiveness. International collaboration proactively seeks innovations and new services for our customers.

CSC's service offering is built around openness and system interoperability. We seek to take both the expertise we have acquired and the services we provide to our shareholders and higher education within the framework of our special mandate, and harness them more extensively throughout public administration as a whole. When signing agreements, we seek to retain user rights to the solutions we implement, so that they can be reused. Reuse increases cost effectiveness and promotes interoperability.

[4]www.csc.fi/en/web/guest/security

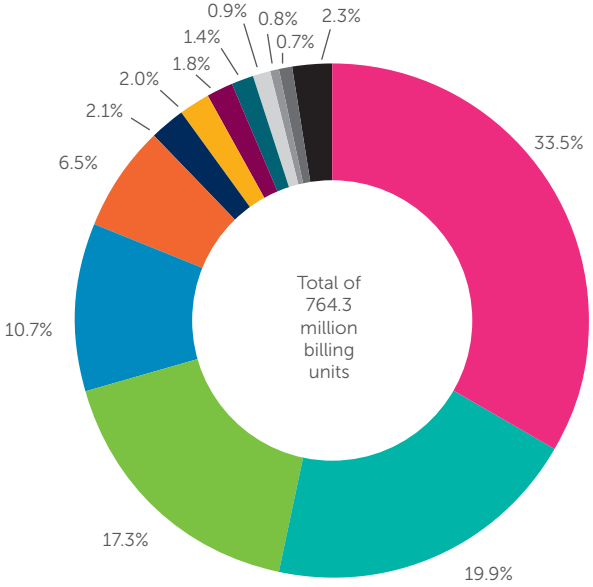
Enabling scientific breakthroughs

A significant proportion of Finnish research teams use CSC's services to support their research. Almost a fourth of the Academy of Finland's research funding is allocated to research that utilizes CSC's resources[5].

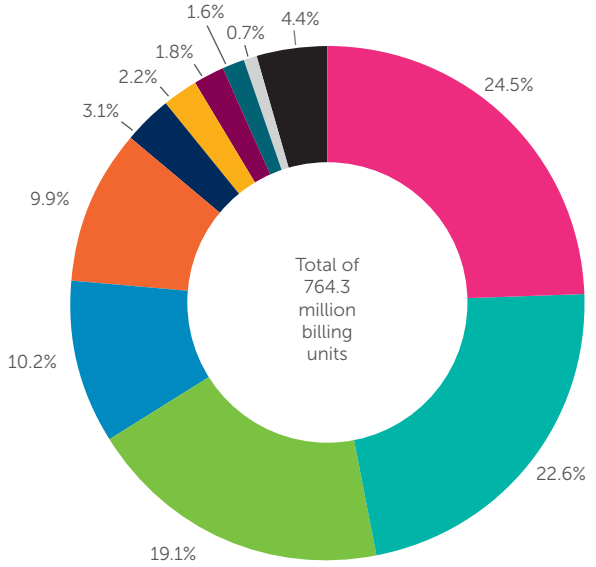
Supercomputer Sisu's usage rate rose to over 80 per cent in 2016. Photo: Maria Virkkula

Thanks to our annual agreement with the Ministry of Education and Culture, researchers at Finnish institutions of higher education can use Finland's national computing and data management environment and its associated services free of charge. Research services can be adapted to all scientific fields, and support is offered at all stages of the research process. CSC does not concern itself with what kind of science is being done with the support of its services – all research is treated equally. As we do not engage in our own research, CSC can be a neutral partner even in highly competitive fields.

Computing server usage by science area in 2016



Computing server usage by organization in 2016



(including Sisu, Taito, Taito-shell and cPouta usage)

- Physical sciences
- Biological sciences
- Chemical sciences
- Nanotechnology
- Astronomy and space science
- Medical biotechnology
- Mechanical engineering
- Not defined
- Computer and information sciences
- Other engineering and technologies
- Materials engineering
- Geography and environmental sciences
- Other science areas

- University of Helsinki
- Tampere University of Technology
- Aalto University
- University of Jyväskylä
- CSC Grand Challenge Projects
- Lappeenranta University of Technology
- University of Oulu
- CSC projects
- International usage
- University of Eastern Finland
- Other organizations

[5] The Academy of Finland allocated EUR 871 million to a total of 2,395 research projects in 2013–2015. 486 of the researchers who received funding in 2016 held positions of responsibility in CSC computing projects. The research funding they received (EUR 200 million) accounts for about 23 per cent of all research funded by the Academy of Finland.

The CSC Resource Allocation Group allocates the computing and storage resources applied for by our customers. When allocating resources, we do not directly evaluate the scientific quality of an application. Instead, we make a technical evaluation to ensure the functionality of the methods employed in the research. We also check that the use of resources leads to scientific publications. Resource Allocation Group follows national science policy and adheres to the priorities set by Finland's science administration. Computing resources are primarily allocated to national research. Reports on allocated resources are made once a year to CSC's Board of Directors and twice a year to the Ministry of Culture and Education.

Applications for international high-performance computing resources and Grand Challenge research projects, which require a considerably large volume of computing or storage resources, are evaluated by the Scientific Customer Panel[6], which consists of Finnish research team leaders from a variety of scientific fields.

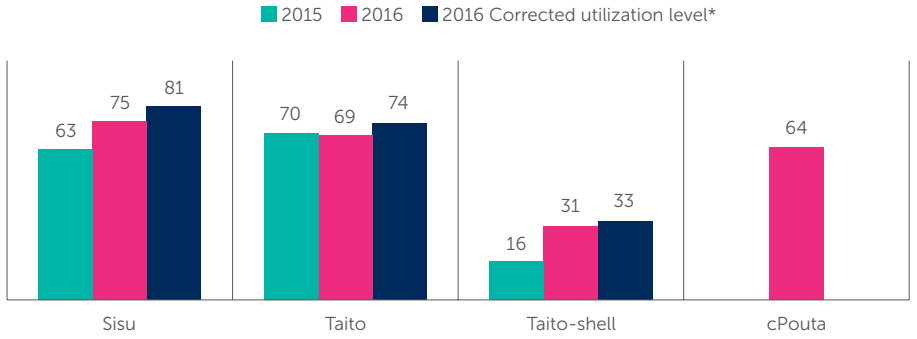
In 2016, CSC handled over 600 applications for computing resources:

	No. of applications	**Resources applied for** (millions of billing units)	**Resources granted** (millions of billing units)	**Successful applications** (%)
Computing resource applications	583	764.6	622.3	81
Grand Challenge applications	20	354.7	224.2	63
Total	603	1,119.3	846.5	76
Annual available resources			826.0	
Resources used in 2016			764.3	

Responsibility principles for research services:

- Equal access rights
- Responsible resource allocation
- Efficient use of resources

Computing and data management environment utilization levels (%)



*The utilization level is corrected for service breaks

[6] research.csc.fi/scientific-customer-panel

Finland's national computing and data management environment is being developed through long-term collaboration between the Ministry of Education and Culture and the research community. Acquired resources are scaled to meet the needs of Finnish science. If researchers are using software that will require an extremely high volume of computing resources, we perform scalability tests to ensure the efficient use of resources.

The availability of the computing and data management environment fell compared to the previous year. This was due to file system usage issues, which affected the availability of Sisu and Taito servers. The longest service breaks occurred in February and September. Disk area downtime did not affect the cPouta cloud service.

However, the usage rate of the computing and data management environment increased in 2016, and in particular that of our supercomputer Sisu, which rose to over 75 per cent (2015: 63 per cent). We seek to maintain a high usage rate, but increased usage also leads to longer waiting times, which reduces the appeal of the computing environment among small and medium users.

CSC's research services continued to grow in popularity. In 2016, we invested in developing our data analytics services and expertise in particular, and also in expanding into new scientific fields (such as the digital humanities). Most of the large volumes of data processed in CSC's computing and data management environment originate from research in the biosciences, and services to meet the needs of the biosciences are being developed in collaboration with the ELIXIR research infrastructure.

In 2016, we also published Researcher's Path, an online brochure[7] containing an extensive presentation of the services available to researchers via CSC at different stages in the research process.

An information specialist and supporter of interoperability

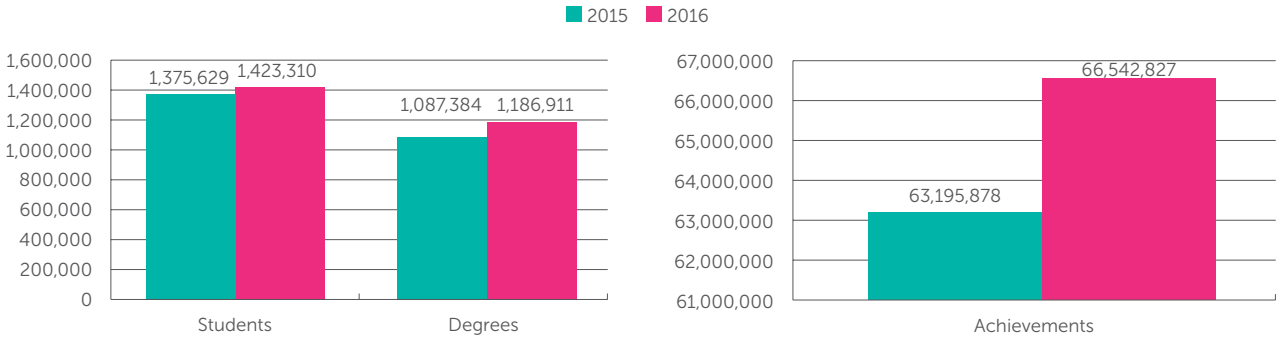
Every student studying at a Finnish institution of higher education uses services provided by CSC. The services implemented and administered by CSC help to steer and develop the Finnish education system as a whole.

In 2016, we expanded our operations to cover all educational levels, and our e-services for learners have become an established part of the core services used in higher-education training and teaching. CSC also administers and develops key national services required for interoperability, such as the higher education achievement register (VIRTA).

VIRTA contains about 1.2 million degrees awarded by Finnish higher-education institutions, and the details of about 2.5 million students. 2016 was the first year that Finland's Social Insurance Institution (Kela) monitored the completion of higher-education studies using information available in the achievement register. Details of the study credits gained by over 130,000 students were supplied to Kela for this purpose.

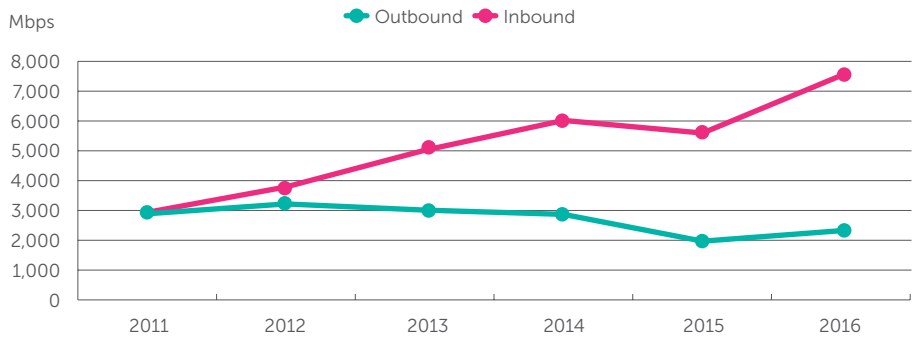
The VIRTA publication service collates information about research publications from all Finnish research organizations: the details of approximately 60,000 publications are transferred to the service every year (a total of 292,262 publications).

Higher education achievement register VIRTA



[7] www.csc.fi/fi/-/tutkijan-polku

International Funet traffic, 2011–2016 (annual average values)



We expanded our operations to all educational levels from early childhood education to research.

Arvo (the impact information service for educational administration) was used to conduct a survey on students graduating from universities of applied sciences (AVOP). This survey received responses from 19,701 UAS degree students and 2,058 post-graduate students.

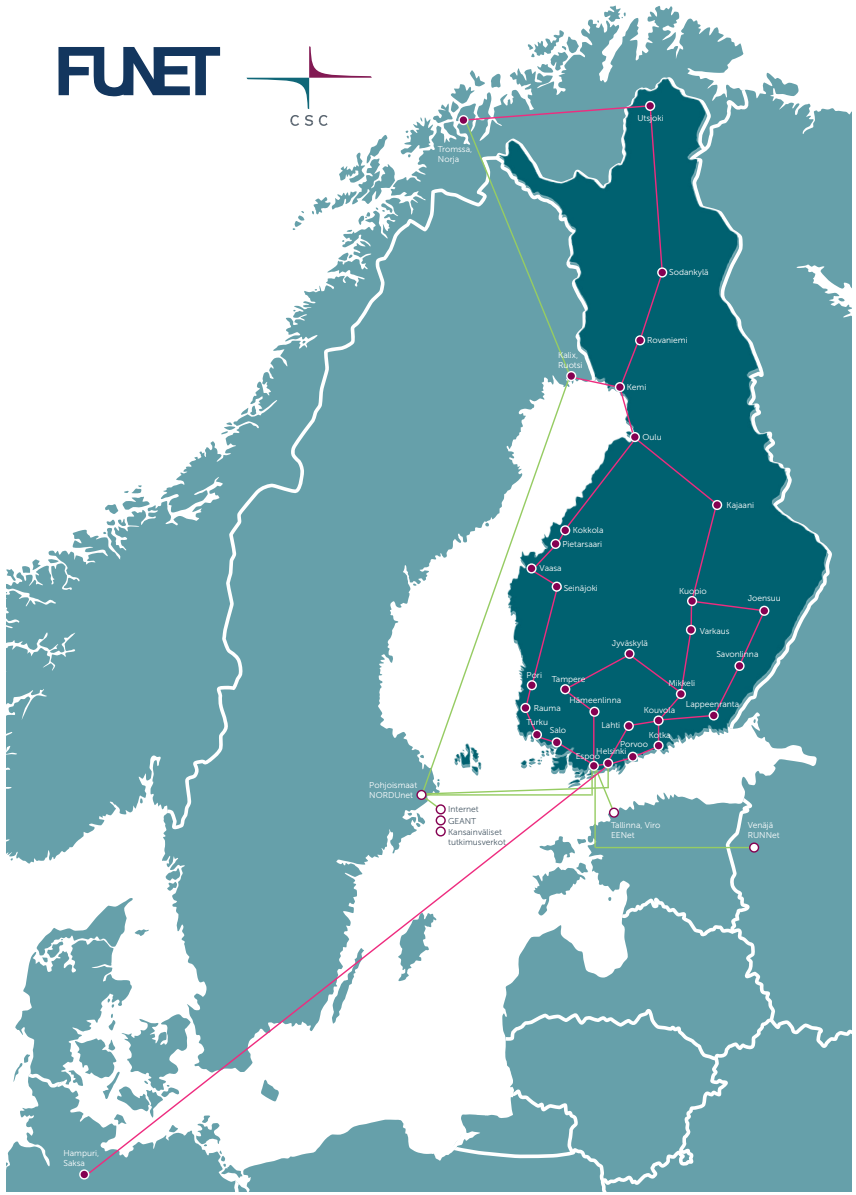
User numbers for Vipunen[8] – a statistics service maintained by CSC for the National Board of Education – rose by 54 per cent on the previous year (2016: 37,451 users, 2015: 24,387 users). This service contains information on Finnish educational and research organizations (of which there are about 3,500). Topics include student and degree numbers, student choices, study progress, graduate placement, personnel, finances, internationality, and publications. The information is used in decision-making on educational policy, and also to support leadership at educational and research organizations. In late 2016, 1,766 different reports on the statistics and indicators contained in Vipunen were available in three different languages (Finnish, Swedish and English).

In 2016, CSC strengthened its role as a partner in public administration development projects, such as the Ministry of Finance's priority project Joint Information Management, and the Municipal Finance Information Service project. CSC also linked its first services to Finland's national service architecture.

An IT system and network specialist

By using the digital preservation service implemented by CSC and funded by the Ministry of Culture and Education, cultural memory organizations can fulfil their statutory obligations to preserve national digital cultural heritage. The National Library, National Board of Antiquities, National Archives, and Finnish Social Science Data Archive have already joined the service. Digital preservation is not just a means of preserving the bits of which digital data is composed, but also

[8] www.vipunen.fi



Funet serves over 360,000 end users all across Finland.

secures the availability and preservation of the intelligibility of such data – for up to tens or hundreds of years. During its first year in production, the digital preservation service received and approved about 90 terabytes of materials for storage.

Funet, Finland's fast and reliable data network for research and education, covers all Finnish institutions of higher education irrespective of their administrative sector, and serves over 360,000 end users all across Finland. In 2016, its bandwidth was upgraded to 100 Gbit/s throughout the network. The construction of a new Funet connection from Sodankylä to Finnmark in the far north of Norway improved the scope for Nordic research collaboration and research carried out north of the Arctic Circle.

All Finnish higher-education institutions are Funet members – serving over 360,000 end users.

In 2016, we conducted an extensive analysis of our customers' needs and identified alternative ways of implementing the future range of services required in the Funet network and their technical solutions.

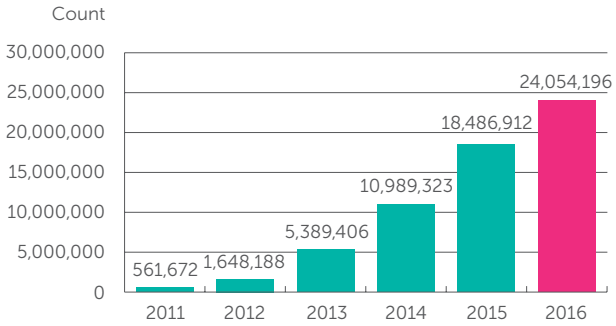
The wireless campus network eduroam supports and promotes worldwide mobility for its users. Thirty-four organizations in Finland have joined eduroam, which can be used in about 400 places around the country, from Helsinki to Utsjoki. Globally, eduroam can be found in almost 19,000 locations. Eduroam logins in Finland increased tenfold in 2011–2015, and this brisk growth continued in 2016. At best, there have been over three million logins per month.

The Funet Tiimi web conference system enables collaboration across organizational boarders irrespective of time and place. A total of 118,644 hours and 36 minutes of conferences, video broadcasts, and online training were held in this environment during 2016. About 30,000 higher-education users have registered for the service via the Haka identification system.

Our identification and user rights management services enable the effortless allocation of identification and user rights in numerous different systems across organizational borders.

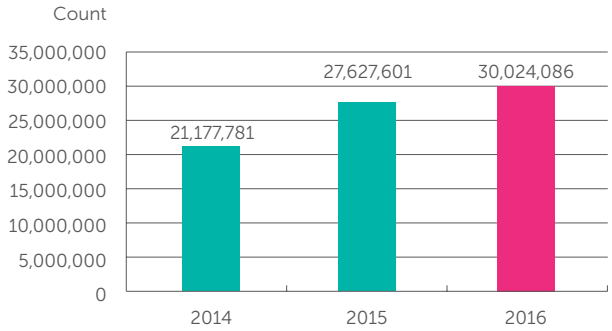
With about 296,000 end users, Haka is the most-used identification system among Finnish higher-education institutions and research institutes. About 30 million service logins are made through Haka every year, at best over 3.7 million per month.

Logins to eduroam roaming service, 2011–2016



Includes roaming outside user's home organization.

Logins to Haka services, 2011–2016



Customer understanding

Understanding our customers better and taking a more customer-oriented approach are two of CSC's strategic targets.

In 2016, we strengthened our customer-oriented approach and firmly established our new operating model for customer relationship management. Customer managers supported service areas in their work with customers, and customer relations teams collated from different service areas met regularly with the aim of improving internal cooperation and information flow. By engaging in systematic customer work, we have sought to enhance customer relations management, improve our customer experience, and develop the correct solutions to meet our customers' needs.

This more customer-oriented approach will be even more evident during 2017, as CSC's main units will be reorganized according to customer segments and our new customer solution managers will have a closer relationship with service production.

Alongside customer work, we are developing customer-oriented offerings for different target groups with the aim of improving the clarity, commercialization and cost transparency of our service range. A further goal is to create means for involving customers in service development.

In the future, we intend to analyze our customer experience more frequently during interactions, so that we can react to feedback more rapidly.

Customer satisfaction

In June 2016, CSC introduced a new type of customer satisfaction survey: Customer Pulse. This survey gives customers the chance to evaluate our customer service immediately after a service situation.

Customers can assess the speed and friendliness of the service they have just experienced, and also the usefulness of the answer received. One of the questions is a Net Promoter Score (NPS), which measures how willing respondents would be to recommend CSC's services to their colleagues.

Almost 1,300 of our customers were asked to take the survey by the end of the year, and one in four responded.

More than three out of four survey respondents were willing to recommend CSC's services to their colleagues (an average net promoter score of 76.6). This can be considered an excellent result.

We have also received constructive feedback and suggested improvements through Customer Pulse. We read all feedback and use this information to, for example, develop our website. The guidelines on our website are also being improved on the basis of feedback.

More than 3 out of 4 customers would recommend CSC's services to their colleagues (NPS 77).

Responsible procurements

CSC adheres to both its own procurement guidelines and the Act (348/2007) and Decree (614/2007) on Public Procurements. Procurements are also governed by legal practice relating to the Act on Public Procurement.

We also consider other acts relating to the procurement in question and other legislative requirements (such as the Act on the Openness of Government Activities and, on a case-by-case basis, also the Act on the Contractor's Obligations and Liability when Work is Tendered out).

Even minor procurements that do not fall within the scope of the Act on Public Procurement are tendered out in accordance with CSC's procurement guidelines. For strategically significant procurements, suppliers' subcontractors must also be approved in advance.

CSC has entered into several framework agreements with goods and service providers. Unless there is a particular reason not to, CSC always uses these framework agreements, which are tendered by Hansel Oy. Hansel's framework agreements take environmental perspectives into account.

CSC's procurement guidelines instruct purchasers to consider environmental factors in accordance with the life-cycle model: during the planning phase, during use, and at the end of the cycle. When planning procurements, personnel also have a materials bank for sustainable procurements, competition guidelines, and a carbon footprint calculator at their disposal.

CSC includes all information security requirements in its calls for tenders. Procurement contracts, and in particular those for IT services, software and equipment, will have a separate security appendix. If necessary, the head of information security or their named representative will be involved in the planning and implementation phases of a procurement.

CSC's procurement expertise was harnessed to acquire shared computing capacity for universities and research institutes. The Finnish Grid and Cloud Infrastructure (FGCI), which is funded by the Academy of Finland and 13 Finnish research organizations, went online on 20 April 2016.

The official opening ceremony of the Finnish Grid and Cloud Infrastructure (FGCI) was held at CSC in Espoo.
Photo: Maria Virkkula

Social responsibility

At CSC, we take care of our employees and society as a whole. CSC's services are based on profound expertise, which means that our personnel's competence, versatility, diversity and solution-centric approach play a key role in our success. CSC is actively involved in social debate, and we seek to improve our own and our stakeholders' capacity to operate both nationally and internationally.

In 2016 we updated our ethical guidelines (Our Way of Working – CSC Code of Conduct) to reflect our revised values.

Our Code of Conduct contains principles governing bribery, corruption and political lobbying. These guidelines cover all CSC personnel and all members of the Board of Directors. All topics addressed in the Code of Conduct are covered during induction. You can read CSC's Code of Conduct on our website[9]. Goods and service providers are expected to adhere to the same principles.

CSC complies with the UN Convention against Corruption (UNCAC) and the OECD (Organisation for Economic Co-operation and Development) Anti-Bribery Convention. We will not accept any action that seeks to influence our own or our stakeholders' judgement. Neither do we provide any direct or indirect support for political party candidates, parties, or political groups.

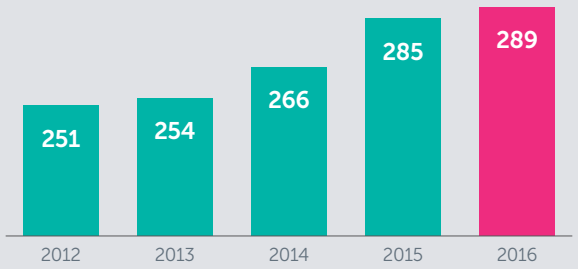
The Ministry of Education and Culture is responsible for ownership steering on behalf of the State.

At CSC, we take care of our employees and society as a whole.
Photo: Nina Kaverinen

[9] www.csc.fi/meidan-tapamme-toimia

CSC Staff 2016

Employees



Staff turnover 2012–2016, %

3.5–6.9

Average days of illness / person

5.7

Average age

42

Training days / person

2–5

Gender

♂ **73%**

♀ **27%**

Employment

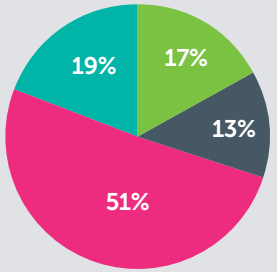
92% permanent

8% temporary

96% full-time

4% part-time

Educational background



- Basic and vocational
- University of Applied Sciences
- University
- Postgraduate

Average period of service, years

8.9

Average retirement age

64

Have been working under 5 years, %

38

100 persons teleworking regularly

Employees

CSC had 289 employees at the end of 2016. 92 per cent had a permanent employment contract. The average length of service was 8.9 years and personnel turnover stood at a moderate level in relation to the industry average.

In 2016, labor market negotiations led to the signing of a competitiveness agreement, on the basis of which the agreed working hours contained in collective agreements were extended by 24 hours. In autumn 2016, CSC negotiated a local agreement on implementing the extended working hours.

HR management

Commitment, achievements and well-being require good leadership. CSC seeks to be a desirable and responsible employer that inspires its personnel to maintain and get the best out of their expertise. We measured our employer image by participating in the Universum student survey. In 2016, we ranked 23rd among IT students.

We involve personnel in the development of our company, which during 2016 included revising our values, enhancing our premises, and brand work.

At CSC, managerial and leadership tasks are fixed-term. This system seeks to maintain the appeal of supervisory tasks and give everyone the opportunity to engage in diverse task rotation. All managerial positions were open to applications in autumn 2016, and our new organization started up on 1 January 2017.

In IT work, the results are more significant than the amount of time spent working. At the turn of the year, we revised both our guidelines on working hours and the way we monitor working hours. The goal was to give our specialists extensive responsibility and discretion with regard to planning and carrying out their own work.

A working environment to meet the needs of IT work

CSC wants to be actively involved in current changes in working habits by offering our personnel a variety of working environments and opportunities for flexible working. We are developing and planning our working environment to meet modern working habits and our personnel's expectations.

CSC has built two multifunctional working spaces for about 90 people.
Photo: Nina Kaverinen

In 2015 and 2016, we built two multifunctional spaces for Activity Based Working (ABW) for about 90 people. The renovations sought to improve internal information flow, networking and well-being by paying particular attention to space and furnishing solutions, ergonomics and acoustics, and general comfort. Feedback from these initial experiments will be used to design future working spaces.

Competence development and remuneration

Twice a year, all personnel attend performance and development discussions in which their achievements during the previous period are evaluated and new targets are set for the following period. A personal development plan, which enables horizontal or vertical career paths, is also drawn up during these development discussions. These career paths are linked to job titles that indicate a person's experience and level of expertise. Once a year, decisions are made on whether employees should be promoted to the next job title on the basis of an assessment and proposal put forward by their supervisors.

The performance evaluation carried out during development discussions affects the size of the employee's personal performance-based incentive. The Board of Directors makes an annual decision on the size of the performance-based incentive and the criteria for awarding it, and also authorizes the Managing Director to distribute the incentive amongst personnel. In 2016, performance-based incentives could not exceed 12.5 per cent of annual salary.

CSC encourages lifelong learning and also supports further studies with sabbaticals for competence development. Personnel used a total of 555 training days in 2016, excluding learning on the job, which also plays a considerable role in personnel development.

Ensuring well-being at work

Mental working capacity plays a key role in information workers' motivation and ability to cope at work. CSC pays attention to this in a number of ways, such as involving and listening to personnel in work-related issues. CSC offers extensive occupational healthcare and health insurance, as well as a diverse range of subsidized opportunities for exercise, hobbies and recreational activities.

CSC arranges its occupational healthcare in cooperation with Terveystalo. Four steering group quality conferences are held with occupational healthcare personnel every year, plus an annual meeting with management. Personnel representatives also attend these meetings.

An average of 2.4 visits per employee were made to the occupational healthcare center in 2016, which was slightly less than in the previous year. Sickness absences also declined.

CSC's data centers are challenging environments with regard to occupational safety, and we seek to minimize the amount of time personnel spend working in these areas with the aid of technical monitoring and control solutions that can be operated from office premises. Working in data centers is highly regulated, and we are continually developing our operating methods. Every specialist working in our data centers is required to complete a safety card training course before starting work. Our operating instructions also require personnel to use appropriate protective gear in these areas. In accordance with legislation, those who regularly work in data centers have their hearing monitored by our occupational healthcare team.

An equal opportunities workplace

CSC's Code of Conduct provides a comprehensive description of the human rights principles that we adhere to in all of our operations. These are supplemented by our statutory equality plan, which is regularly updated and contains practical measures for ensuring equality.

CSC regularly surveys personnel's experiences of equal treatment with a well-being questionnaire. Every supervisor is responsible for ensuring that equality principles are adhered to in practice. If necessary, issues relating to equality and discrimination will be investigated in cooperation with industrial safety delegates. Collective negotiations between the company and personnel groups are standard procedure. In these negotiations, the company is represented by the HR director.

Social impact

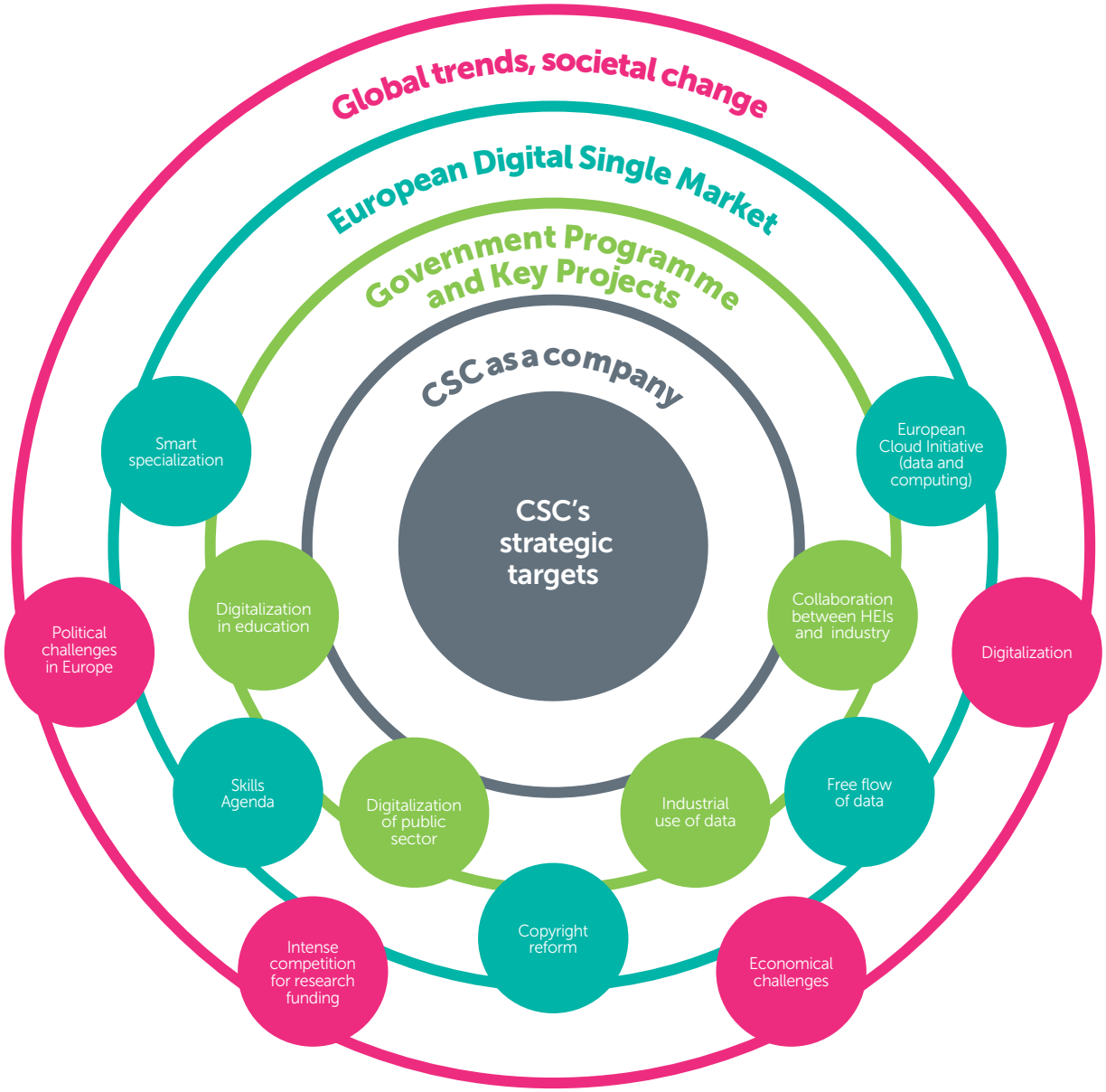
CSC actively seeks to participate in social debate and influence national and international operating preconditions (such as legislation) that are highly significant for the company or our stakeholders.

Boosting the competitiveness of Finnish research is a key objective in CSC's lobbying efforts.

The main achievements of our lobbying in 2016 were:

- Influencing discussion of the communication on the European Cloud Initiative in the European Parliament
- Influencing the Government Resolution on harnessing big data in business operations
- Influencing discussion on investment requirements in Finland's high-performance computing and data analytics environment
- Active involvement in social debate about, for example, the Act on Public Procurement
- Influencing the formulation of Finland's position on the 2018–2020 strategic configuration of the H2020 Work Programme
- Influencing the Government's priority projects, for example, by highlighting the significance of data analytics

Framework for Strategic Influencing



In 2016, CSC established an EU and Public Affairs group to make social impact more systematic and visible. The group's goal is to expand the range of EU funding instruments and their impact in line with CSC's strategic objectives.

CSC's goal is to build one of Finland's most significant data analytics expertise clusters in Kajaani. In 2016, CSC joined the Centre for Measurement and Information Systems (CEMIS), which operates out of Kainuu. This research and training center specializes in measurement and information systems, and is founded on a joint agreement between the University of Oulu, Kajaani University of Applied Sciences, University of Jyväskylä, Technical Research Centre of Finland (VTT), and CSC – IT Center for Science.

CSC is bringing its expertise to play in making Finland a pioneer and internationally desirable partner in harnessing genome data in healthcare, cutting-edge research and global business. A representative from CSC has been appointed as permanent expert member of the working group appointed by the Ministry of Social Affairs and Health to prepare for the establishment of a national genome center.

In connection with International Women's Day, CSC ran the Perfect Equation campaign[10], which highlighted the significance of scientific computing to society, and also encouraged girls and women to study natural and technical sciences, become researchers and, in particular, work in scientific computing. The campaign reached thousands of people through social media and websites, and was also covered in YLE's main news broadcast on 8 March 2016.

CSC's International Women's Day campaign, The Perfect Equation, encouraged women and girls to work in computer science.

[10] csc.fi/web/taydellinenyhtalo

Environmental responsibility

CSC is a pioneer in the sustainable development of ICT services and is committed to promoting sustainable development targets in all of its operations. Environmental management is a routine aspect of the Management Group's work. We seek to minimize the environmental loading caused by our activities.

Business flights and the electricity consumed by data centers account for the largest share of CSC's environmental loading. Data centers accounted for 98 per cent of CSC's electrical energy consumption in 2016.

The environmental principles that govern CSC's environmental responsibility:

- CSC seeks energy-efficient solutions in its data centers.
- CSC seeks to save energy and natural resources, and to reduce its carbon footprint.
- CSC guides and supports personnel to ensure they have adopted environmentally friendly working methods.

Under the Energy Efficiency Act, major companies are required to perform a corporate energy review at four-year intervals. CSC's last energy review was commissioned in 2015.

CSC's services are primarily digital and all of the electricity used at our data centers and offices in 2016 was generated using renewable sources. The majority of the services we provide have been virtualized, resulting in lower server electricity consumption and resource usage than if the services had been implemented using physical devices.

Energy-efficient data centers

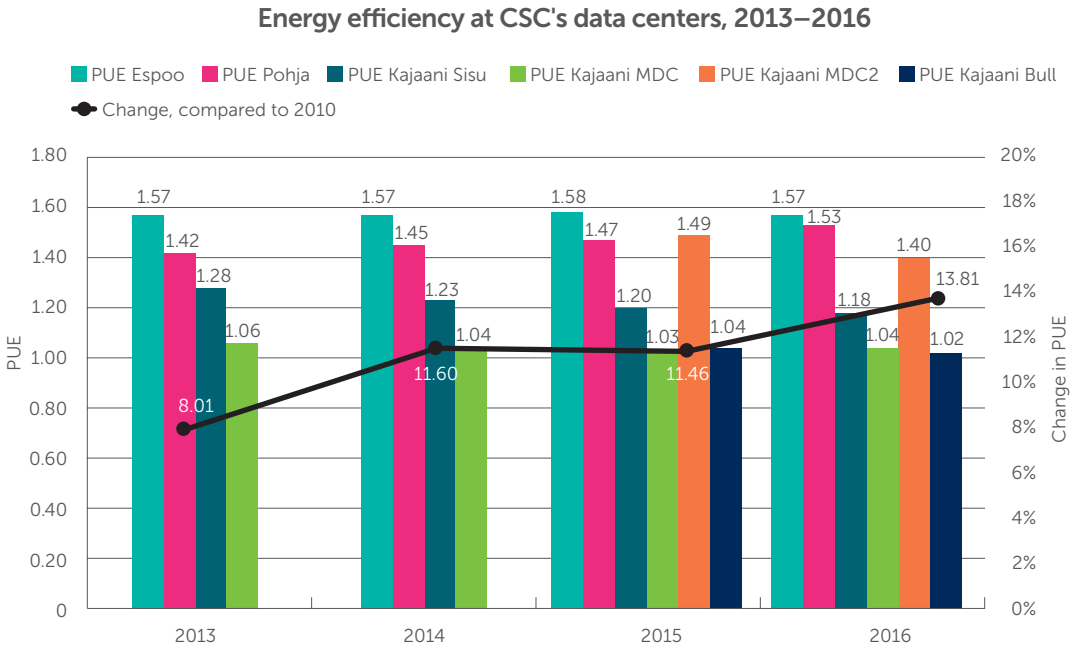
CSC's data center in Kajaani is one of the most energy efficient in the world. The modular data center (MDC) introduced in 2012 achieved a world-class PUE of 1.04.

On a global scale, the energy efficiency of all our data centers is excellent (PUE values 1.04–1.57, see figure on page 31). During the last six years, we have improved these values by over 13 per cent by enhancing cooling systems, boosting and renewing server capacity, and choosing the latest in energy-efficient machine room technology.

Another important aspect of energy efficiency is ensuring that all of the energy consumed is used to significant operations. The computing services CSC offers to Finnish research have a high usage rate and we employ, among other things, scaling tests to ensure the efficient use of resources.

All of the electricity used at our data centers in 2016 came from renewable energy sources.

The energy efficiency of our data centers is measured using a PUE value (Power Usage Effectiveness), which is the total energy divided by the energy used by servers. A 'perfectly efficient' machine room would therefore have a PUE value of 1. The energy efficiency of a data center typically ranges between 1.5–2.5.



Environmental risks

Potential environmental risks at data centers are managed in accordance with current regulations. No environmental damage was reported in 2016.

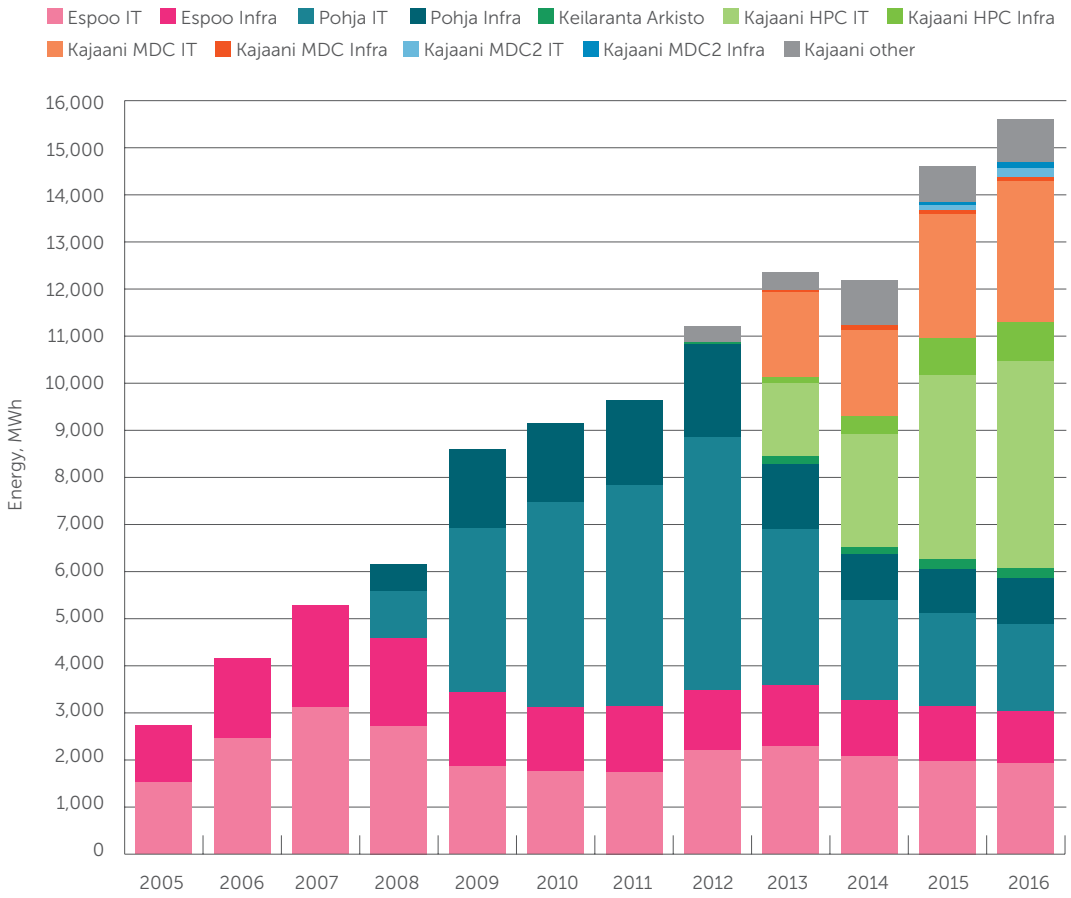
The greatest environmental risks associated with CSC's operations relate to the handling of the gas mixtures, refrigerants and generator fuel oils used in the data center infrastructure, and the disposal of decommissioned equipment. Data center maintenance contracts require suppliers to ensure that hazardous substances and materials are disposed of in an appropriate manner. Whenever possible, refrigerants and gas extinguishants are recycled during maintenance or repairs.

The decommissioning of IT equipment is agreed upon in procurement contracts. Depending on these agreements, equipment may either be returned to the manufacturer or separately recycled.

Data centers and when they were taken into service:

- Kajaani other: Other technical areas, test use and office electricity (since 2012)
- Kajaani MDC2: Second modular data center (taken into service in 2015)
- Kajaani MDC: Modular data center (taken into service in 2013)
- Kajaani HPC: Supercomputers (Sisu and Bull) (taken into service in 2013)
- Keilaranta Archive: Storage systems (taken into service in 2012)
- Pohja: Customer service production data center (taken into service in 2008)
- Espoo: High-reliability data center (taken into service in 2005)

Energy consumption at CSC's data centers, 2005–2015



Environmental responsibility in other operations

CSC has improved the energy efficiency of its premises through renovation. In 2015 and 2016, a total of 800m^2 was turned into multifunctional office spaces for about 90 people. Improved space efficiency enabled us to end our lease on an office space measuring about 450m^2.

Energy and water

Electricity consumption at CSC's office totaled 310.6 MWh in 2016, which represents 2 per cent of our total electricity consumption. Electricity consumption per person remained at the same level as in the previous year (1.1 MWh/person).

CSC is not a major consumer of water. A precise figure for CSC's water consumption in Espoo cannot be given, as the property does not have lessor-specific water meters. Our data centers employ a closed loop water cooling system with minimal water requirements.

Carbon footprint and travel

All of the electricity used at our data centers and offices in 2016 came from renewable energy sources that did not generate carbon dioxide emissions. Direct greenhouse gas emissions are only produced by the diesel aggregators used as a reserve power supply for data centers.

Air travel is CSC's most significant source of greenhouse gas emissions. In 2016, air travel by personnel (in terms of kilometers) decreased slightly on the previous year. As in 2015, the district heating used in offices was the second largest source of carbon dioxide emissions.

Domestic train travel also decreased slightly on the previous year, as did taxi usage and kilometer allowances for employees using their own cars.

CSC's role in the Finnish and international research infrastructure requires networking and, therefore, travel. We have sought to reduce travel by increasing opportunities for teleconferences and encouraging personnel to use public transport.

We have focused our travel-related procurements on government-tendered airline and accommodation services with environmental criteria.

Materials and waste

In its material procurements, CSC adheres to Hansel framework agreements that take environmental perspectives into account. CSC's procurement policy also instructs employees to examine environmental factors at all stages, from planning to use and decommissioning.

We reduce printing and paper consumption by employing digital work processes. The most environmentally default settings are used for multifunction devices in our offices (double-sided black-and-white printing, automatic energy-saving mode).

CSC aims for the highest possible waste-sorting rate and we always seek to recycle usable goods.

CSC mainly primarily acquires furniture and ICT equipment through leasing agreements, which saves resources and reduces environmental loading. ICT equipment is returned to the leasing company after 2–5 years of use.

No hazardous substances are used in our offices.

Reporting principles and formulae

CSC's Corporate Social Responsibility Report is published annually. The report covers all of the operations under CSC's control. Comparison data for the previous year is presented in accordance with the organizational model and operations of the year in question. Earlier key indicators have not been converted to reflect later changes.

As CSC does not have a direct or indirect holding of 50 per cent or more in any company, no information about companies in which CSC has holdings is included in our Corporate Social Responsibility Report.

CSC is aware of the challenges posed by gathering and collating data, and seeks to develop appropriate monitoring practices.

	Formulae
Financial responsibility	The data used to calculate key indicators has been gathered from the accounting system and the audited Financial Statements. Key indicators have been calculated as follows: • Operating profit, % = operating profit / net sales • Return on equity = net result / equity • Return on investment = (net result + taxes + financial items) / capital employed • Quick ratio = financial assets / (current liabilities – advances received) • Current ratio = (financial assets + inventories) / current liabilities • Equity ratio = equity / balance sheet total x 100 • Gearing, % = balance sheet liabilities / net sales (12 months)
Social responsibility	Our data on HR responsibility is taken from a variety of source systems, such as the working-hour monitoring system and personnel database. HR management personnel are appointed to collate the information and submit reports on the required key indicators and statistics. Key indicators have been calculated as follows: • Turnover = (number of employees leaving the company 1 Jan–31 Dec) / (number of employees at 31 Dec) x 100% • Accident frequency = (number of accidents 1 Jan–31 Dec) / (1,000,000 hours worked) • Sickness absence rate, % = (number of days of sickness absence 1 Jan–31 Dec) / (theoretical standard workings hours 1 Jan–31 Dec) x 100% The Net Promoter Score (NPS) has been calculated as follows: • NPS = (number of promoters – number of detractors)/(number of respondents) x 100 • Customer responses (on a scale of 0–10) were classified as follows: 0–6 = detractors, 7–8 = passive, 9–10 = promoters
Environmental responsibility	At our Espoo and Kajaani data centers, the energy consumed by infrastructure and IT systems is separately monitored. Energy efficiency is measured with a PUE value (Power Usage Effectiveness) as follows: • PUE = (total energy used by the data center) / (energy used by servers) PUE does not provide a complete picture of energy efficiency, as it should take the data center's usage rate into account. However, being the most internationally used benchmark, PUE was chosen as a key indicator for its comparability.

Correspondence with the Government Resolution on State Ownership Policy

The following table compares the scope of CSC's corporate social responsibility reporting to the model defined by the Government Resolution on State Ownership Policy (3 November 2011). The table uses the following abbreviations to indicate where the relevant information may be found:

- FS = Financial Statements
- CSR = Corporate Social Responsibility Report

ID	Reporting in accordance with the government resolution on state ownership policy	Included	Document and page number	Additional information / deficiencies / exceptions
1	Organization, Corporate Governance, and operating principles			
1.1	Basic information	Yes	CSR 3	
1.2	Social responsibility management and operating principles	Yes	CSR 5	
1.3	Stakeholders and stakeholder dialogue	Yes	CSR 7–10	Appendix 1 Stakeholder analysis
2	Financial responsibility			
2.1	Financial responsibility management			
2.1.1	Financial targets and their achievement	Yes	CSR 11–13 / FS	
2.2	Financial key indicators			
2.2.1	Cash flow to stakeholders	Yes	CSR 14	Notes to the Financial Statements, 31 Dec 2016
2.2.2	Support for non-profit organizations and sponsorship	No		CSC neither supports non-profit organizations nor sponsors any groups.
2.2.3	Financial support received from the State	Yes	CSR 13	
3	Personnel			
3.1	HR management			
3.1.1	HR management	Yes	CSR 26	
3.1.2	HR targets	Yes	CSR 26–27	
3.2	Number and breakdown of personnel			
3.2.1	Number of personnel	Yes	CSR 25	
3.2.2	Employment contracts	Yes	CSR 25	
3.2.3	Turnover	Yes	CSR 25	
3.2.4	Length of service	Yes	CSR 25	

3.2.5	Age structure	Yes	CSR 25	
3.3	Reorganizations and redundancies / Employer-personnel relations			
3.3.1	Terminations and lay-offs	No		CSC has never made any redundancies or lay-offs.
3.4	Equality			
3.4.1	Gender breakdown	Yes	CSR 25	
3.4.2	Equality plan	Yes	CSR 27	
3.5	Remuneration			
3.5.1	Remuneration system and performance-based incentives	Yes	CSR 27	
3.6	Competence development and training			
3.6.1	Development discussions	Yes	CSR 27	
3.6.2	Training and competence development	Yes	CSR 27	
3.7	Well-being at work			
3.7.1	Personnel satisfaction	Yes	CSR 27	
3.7.2	Working capacity and well-being	Yes	CSR 27	
3.8	Occupational health and safety			
3.8.1	Accidents	Yes	CSR 27	
3.8.2	Sickness absences	Yes	CSR 27	
3.8.3	Occupational health	Yes	CSR 27	
4	The environment			
4.1	Environmental management			
4.1.1	Key environmental impacts of operations	Yes	CSR 30–33	
4.1.2	Environmental management	Yes	CSR 30	
4.1.3	Environmental targets and their achievement	Yes	CSR 30–33	
4.2	Environmental key indicators			
4.2.1	Energy	Yes	CSR 30–33	
4.2.2	Air emissions	Yes	CSR 33	
4.2.3	Water	Partially	CSR 33	CSC is not a major consumer of water. A precise figure cannot be given, as the property does not have lessor-specific water meters.
4.2.4	Waste	Partially	CSR 33	The property has a common waste area and the proportion generated by CSC cannot be measured.

4.2.5	Compliance and environmental expenses	Yes	CSR 30–33	No environmental damage has occurred.
4.2.6	Products and services	Yes	CSR 30–33	
4.2.7	Transportation	Yes	CSR 33	
4.2.8	Materials	Yes	CSR 33	
5	Social responsibility			
5.1	Local communities			
5.1.1	Impact on local communities	Partially	CSR 7, 28–29	Estimated in relation to environmental perspectives.
5.2	Bribery and corruption			
5.2.1	Measures and practices to combat bribery and corruption	Yes	CSR 24	
5.3	Political influence			
5.3.1	Political influence and support	Yes	CSR 24	CSC does not directly or indirectly support any political activities.
5.4	Restriction on competition			
5.4.1	Compliance with competition law	Yes	CSR 23	
5.5	Compliance			
5.5.1	Compliance with legislation and regulations	Yes	CSR 3, 23	CSC has not been involved in legal proceedings or received any fines or sanctions.
6	Product responsibility			
6.1	Customer satisfaction			
6.1.1	Customer service and customer satisfaction	Yes	CSR 7–8, 22	
6.2	The health and safety of products and services	No		CSC produces intangible services.
6.3	Product and service information and marketing communications	Yes	CSR 15–21	
6.4	Protecting documents and privacy	Yes	CSR 15	
6.5	Sustainable consumption	Yes	CSR 33	
7	Human rights			
7.1	Human rights issues relating to operations	Yes	CSR 5	
8	Supply chains			
8.1	Supply chain management			
8.1.1	Procurement principles and policies	Yes	CSR 23	
9	Reporting principles and formulae			
9.1	Reporting principles	Yes	CSR 34	
9.2	Formulae	Yes	CSR 34	

APPENDICES

- **Appendix 1 Stakeholder analysis**
- **Appendix 2 Report of Activities 2016**
- **Appendix 3 Financial Statements 1 Jan 2016–31 Dec 2016 and the Auditor's Report**
- **Appendix 4 The members of the 2016 Board of Directors and Management Group, with details of their external interests**

Appendix 1 Stakeholder analysis

Stakeholders and their expectations of CSC	How we analyze stakeholder expectations and measure our performance	How we meet their expectations	Examples of engagement and action in 2016
Customers			
A reliable and secure provider **Good customer relations and professional service** **High-quality, cost-effective services and customer support** **Communications that customers can understand** **Supporting open science through the Ministry of Education and Culture's Open Science and Research Initiative (ATT)**	Customer satisfaction surveys Customer feedback from various interactions Quality conferences Regular dialogue with customers, collecting and responding to feedback	Face-to-face meetings Customer events, training Technical support Responding to customer queries Regular quality conferences Networking events Customer extranets and www.csc.fi Targeted customer communications	In 2016, we strengthened our customer-oriented approach and firmly established our new operating model for customer relationship management. Customer relationship managers supported service areas in their work with customers, and customer segment teams collated from different service areas met regularly. In 2016, we launched efforts to strengthen the CSC brand, which will also help us to steer everyday activities towards a standardized customer experience. During the autumn, we developed an overall concept for CSC's services. Our intention was to formulate a package of service channels and a service offering based on customer expectations, and also to provide our customers with the most user-friendly and effortless service path possible. We kept in contact with our customers at a variety of different meetings, events, trade fairs, seminars, and training sessions. We arranged numerous visits to institutions of higher education all across Finland. We arranged 83 customer training events and 12 webinars, totaling 148 training days and 2,783 participants. We developed interactive customer communications in digital channels: an online magazine, blogs, newsletters, webinars and Twitter, LinkedIn, Facebook, SlideShare and YouTube. In May 2016, we published a separate customer-oriented website presenting the services provided under the Department of Science and Education (KTPO) agreement. CSC introduced a new type of customer satisfaction survey: Customer Pulse. We sent 18 newsletters during the year: ten (10) CSC Training Newsletters and two (2) to each segment (Information, Education and Research Management Newsletter, Research Newsletter, Public Administration Newsletter, Corporate and Research Institute Newsletter).

Employees			
Open and trustworthy dialogue **Timely communications** **Equal treatment** **A motivating remuneration system** **Ensuring well-being at work**	Well-being surveys Competence analyses Initiatives	Daily discussion Regular briefings from management once a month Managers' Days twice a year Personal development discussions twice a year Competence development Intranet and other internal communications channels BOF (Birds of a Feather) meetings Involving personnel in corporate development Orientation	We organized management briefings on current topics affecting CSC – ten for all personnel and five targeted at supervisors. All supervisors also attended a training course called "The supervisor as an occupational safety representative", which focused on responsibility for well-being at work and its importance. We increased our communications about occupational healthcare services to all personnel. We implemented a second multifunctional space for Activity Based Working (ABW), where people can choose the most suitable working area for their current activity from a variety of alternatives. This change also achieved savings in premises costs. In connection with the development of our working environment, we conducted an extensive survey that received 168 responses. CSC negotiated a local agreement to apply the extended working hours agreed upon in a national agreement that was signed after labor market negotiations. In 2016, we revised our guiding values in collaboration with personnel representatives. Our updated values – Together, Expertise, With care, Responsibly – form the foundation of our corporate culture. In 2016 we updated our operating guidelines ("Our Way of Working – CSC Code of Conduct") to reflect our revised values. We restructured our organization at the turn of the year. In addition to management, we also involved our supervisors in planning with the goal of further improving information flow and work organization.

Shareholder			
Carrying out our special mandate cost-effectively and to a high standard **Healthy finances and social impact**	Proactively keeping in contact	Regular meetings between management and the Ministry of Education and Culture, which is responsible for ownership steering Reporting on results in accordance with the annual calendar Financial Statements, Corporate Social Responsibility Report, and Annual Report Annual General Meeting	We reported on our results in accordance with the agreed annual schedule, and separately as necessary.
Suppliers (Partners)			
Long-term, open partnerships **Corporate responsibility** **Equal treatment in procurements**	Feedback from suppliers Price and other negotiations	Regular meetings and quality conferences / development meetings Long-term agreements Participation in industry activities and events CSC's website	We complied with legislation on public procurement. We are a reliable partner in projects funded by the EU, Academy of Finland, Tekes, and Nord-Forsk. In 2016, we launched the development of a management model for partnerships. CSC and the Technical Research Centre of Finland (VTT) signed a strategic partnership agreement in June. Mutually beneficial forms of cooperation were developed with the Government ICT Centre Valtori.
Research infrastructure financiers			
Responsible cost monitoring and result reporting	Success measured by the number of projects and their monetary value	Keeping in regular contact Reporting as agreed High-quality applications CSC's website	CSC submitted grant applications to framework programmes run by the Academy of Finland (FIRI) and the EU (Horizon 2020).

Authorities, associations, local communities and other organizations			
Complying with legislation and regulations **Paying taxes** **Maintaining good cooperation** **Providing information to facilitate decision-making** **Open dialogue and cooperation** **Data center security and considering environmental perspectives** **A good employer** **Regional development in Kainuu**	Proactive participation in community dialogue and the activities of a variety of organizations Open dialogue with authorities and decision-makers Cooperation on a variety of development projects	Regular meetings and other frequent contact via a variety of working groups and events CSC's website Annual Report and Corporate Social Responsibility Report Statements Newsletters Cooperation with local authorities Participating in associations' activities Interviews, answering queries Open days	CSC engages in extensive and pre-emptive lobbying with both national and EU-level political decision-makers and officials. We systematically developed our efforts in this area during 2016. CSC has strengthened its expert role by, for example, actively participating in general debate and issuing statements on projects and proposed developments relating to science/research and other legislative proposals and analyses affecting our sector. The hot topics in 2016 were investments in high-performance computing infrastructure, issues concerning big data, and the new Public Procurement Act. At the EU level, noteworthy topics included initiatives related to the European Commission's Digital Single Market strategy, such as the European Open Science Cloud, copyright, and the free movement of data. CSC has been actively involved in debate on boosting Finnish success in EU projects. We issued open and proactive communications about our operations in, for example, Kajaani, and cooperated with representatives from local communities. One new initiative involved promoting cooperation projects between data analytics actors in the Kajaani region. We organized several visits to our Kajaani Data center and Espoo office. We actively participated in recruitment fairs all across Finland. We offered placements to a large number of trainees and those working on dissertations and theses.
Media			
Open and timely communications **Reaching the right audience** **Providing expert opinions**	Systematic media tracking Active contact with media representatives	Newsletters Proactively considering the interests of the media: interviews, answering queries, media conferences, briefings CSC's website Social media channels: Twitter, Facebook, LinkedIn	We actively reported on topical issues relating to CSC via bulletins, our website, and social media channels. We published 66 news items on our website, 24 articles or columns in our online magazine, and 15 expert blog posts.

General public			
Social responsibility	Following and participating in public debate	CSC's website Social media Media	We aim for openness, a good presence, and intelligibility. Two demonstrations of our mini-supercomputer Sisunen were held at Heureka, the Finnish Science Centre. During the Night of Researchers, an event held in Kajaani, visits to our data center were organized on the supercomputer bus. The Perfect Equation campaign encouraged girls and women to study natural and technical sciences, become researchers and, in particular, work with scientific computing. The campaign was launched on 8 March 2016 in honor of National Women's Day, and immediately received a great deal of positive feedback. For example, YLE reported on the campaign in its evening news broadcast and on its website.

Appendix 2 Report of Activities 2016

CSC – IT Center for Science Ltd's operations in 2016

CSC – IT Center for Science Ltd (CSC) develops and provides ICT expert services at an internationally high level of quality for research, education, culture, public administration and enterprises, to help them thrive and benefit society at large. Our primary customers are the Ministry of Education and Culture and organizations within its administrative sector, higher-education institutions and research institutes, and public administration. Our international operations boost the vitality of the Finnish research community and educational system.

Major events of the financial year

The State of Finland has been CSC's sole owner since its early years. Finnish institutions of higher education also became our shareholders in 2016, when the State transferred a 30 per cent holding to them. The decision was put into effect on 9 December 2016, when the deeds of conveyance and shareholder agreements were signed.

Services for Research

CSC continued to provide first-class expert and infrastructure services for research. In 2016 we focused especially on the development of data analytics services and expertise, and promoting collaboration projects among data analytics actors in the Kajaani region. CSC status as an Intel Parallel Computing Center was renewed, indicating the high global esteem for our high-performance expertise.

The Language Bank of Finland – language research infrastructure center – received the highest service level certificate issued by the CLARIN ERIC consortium. Cloud service use, particularly in bioinformatics research and education, was developed in collaboration with ELIXIR, the European Life Science Infrastructure for Biological Information. We arranged new courses in emerging technological fields, such as machine learning and quantum computing.

Both demand for CSC's open-source software and its usage in a broad range of fields remained good. For example, Elmer software is a key technology in both glacier modelling and the Finnish corporate SEMTEC project in the field of electromagnetism. The Chipster bioinformatics analysis environment was also adapted for use in language sciences.

CSC implemented the Finnish Grid and Cloud Infrastructure as a joint project with universities. In cooperation with our stakeholders, we also conducted impact, cost-effectiveness and requirements analyses that were used in lobbying to ensure funding for future research data processing and analysis, and the renewal of the scientific computing environment.

Information Infrastructure Services

We supplied the Ministry of Education and Culture's Open Science and Research Initiative with services to support open science and access to research results (the IDA Storage Service for research data, Etsin research data finder, and AVAA open-access publishing platform). CSC also developed the Finnish research infrastructures databank, which has now reached the pilot phase, and a service to guarantee the digital preservation of research results (Digital Preservation Solution for Research Data (PAS)). The latter will be launched in 2017. We used the openscience.fi website to increase awareness of open science. In November, the national and international open science and data policy community met in Finland for the Nordic Open Science and Research Forum and a Research Data Alliance (RDA) debate.

CSC manages and develops the National Digital Library's digital preservation service (NDL-DP), which helps cultural memory organizations to fulfil their statutory obligations to preserve national digital cultural heritage – for up to decades and even hundreds of years. During 2016 – its first year in production – the National Library, National Board of Antiquities, National Archives, and Finnish Social Science Data Archive transferred over 90 terabytes of materials to the service for digital preservation. The NDL–DP service ensured the logical functionality and bit-level integrity and authenticity of the materials.

Interoperability Services for Education and Research

We strengthened our role as a partner in government development projects: Our expertise plays a key role in the Ministry of Finance's Shared Information Management priority project (YTI-hanke), which began using an interoperability suite developed by CSC. CSC was also chosen as the technical implementer of the Mu-

nicipal Financial Information Service launched by the State Treasury. We developed collaboration solutions for the Government ICT Centre Valtori, and linked the first services to Finland's national service architecture.

With the launch of VARDA, a data warehouse and information flow project for early childhood education, CSC's operations expanded into all educational levels from early childhood education to research. CSC's digital education services and e-services for learners have become an established part of the core services used in higher-education training and teaching. For example, OILI (a digital enrollment service for higher-education institutions), EMREX (which enables the transfer of student data between international organizations) and EXAM (a digital examination system). Arvo, which CSC developed for the Finnish National Agency for Education, was introduced at universities of applied science. This education management information service collates feedback from graduating students.

CSC also developed key national services required for interoperability, such as the higher education achievement register (VIRTA), to support cooperation in higher-education. The VIRTA publication service was also introduced, with publications being stored in the JUSTUS service. Preparation for Finland's national research data warehouse were launched.

Information Management Services

Funet, Finland's national research and education network, had its bandwidth upgraded to 100 Gbit/s throughout the network. Next generation technologies were tested by implementing record-breaking 400 Gbit/s network connections at a NORDUnet conference in Helsinki. (NORDUnet is an international collaboration between research networks in the Nordic countries.) The construction of a new Funet connection from Sodankylä to Finnmark in the far north of Norway improved the reliability of data connections, and also the scope for Nordic research collaboration and research carried out north of the Arctic Circle.

The Funet2020 planning project was launched to prepare for Funet bandwidth upgrades in 2018–2022. The project conducted an extensive analysis of our customers' needs and identified alternative ways of implementing the future range of services required and their technical solutions. Funet added to its range of services with Funet Etuubi, a joint Nordic video management system that can be used for a variety of purposes, such as storing and sharing lectures. It can be easily integrated into the most commonly used higher-education learning environments.

The Ministry of Finance's JulkICTLab service ended in summer 2016, and the service was transferred to the Government ICT Centre Valtori's test and development environment for digital services in public administration. CSC will continue to implement the service in cooperation with Valtori. CSC also renewed its agreement to provide Valtori with VIRTU, an identification service for public administration.

We further improved our services for identification and access rights management by, for example, developing a stronger identification solution for the Haka trust network. This will be piloted during spring 2017. The MPASS identification solution for elementary education was piloted at schools in twelve municipalities, with the aim of officially introducing the service towards the end of 2017. CSC also supplied the Population Register Centre with a mobile verification solution for Suomi.fi e-Identification until November 2016.

Finances

Due to the tougher economic situation in our operating environment, we only expected slight economic growth for the financial year. However, our expectations for the financial year were fulfilled and we achieved our financial objectives. In 2016, CSC's net sales totaled EUR 36,825,236.69 (EUR 35,675,122.76), representing growth of 3.2 per cent on the previous year. Growth was achieved through both the acquisition of new customers and expanding our existing customer relationships.

The result for the period fell on the previous year, reflecting the tougher financial situation. However, efficiency measures for the financial year had a favorable impact on cost accrual, and our result was in line with expectations. The result after financial items was EUR 253,183.73 (EUR 438,981.69), with profit for the financial year totaling EUR 196,401.71 (EUR 350,283.31). Our R&D expenses for 2016 were equivalent to about 9.8 per cent (9.3 per cent) of net sales.

Employees

CSC had 289 employees at the end of 2016. Ninety-two per cent had a permanent employment contract. The average length of service was 8.9 years and personnel turnover stood at a moderate level in relation to the industry average.

Twice a year, personnel attend performance and development discussions in which their achievements during the previous period are evaluated and new targets are set for the following period. Managerial and leadership tasks are fixed-term. All managerial positions were open to applications in autumn 2016, and our new organization started up on 1 January 2017.

Occupational healthcare statistics indicate that well-being has improved at CSC. An average of 2.4 visits per employee were made to the occupational healthcare center in 2016, which was slightly less than in the previous year.

At the turn of the year, we revised both our guidelines on working hours and the way we monitor working hours. The goal was to give our specialists extensive responsibility and discretion with regard to planning and carrying out their own work. In autumn 2016, CSC negotiated a local agreement to extend working hours by 24 hours. This was based on a competitiveness agreement signed after labor market negotiations.

We are developing and planning our working environment to meet modern working habits and our personnel's expectations. In 2015 and 2016, we built two multifunctional spaces for about 90 people. Feedback from these initial experiments will be used to design future working spaces.

Key indicators for the financial year

Key indicators	2016	2015	2014	2013
Operating profit	0.7%	1.0%	0.7%	0.7%
Return on equity	8.0%	16.1%	8.9%	6.3%
Return on investment	10.7%	20.7%	11.7%	11.9%
Quick ratio	2.0	2.5	2.4	2.8
Current ratio	0.9	0.8	0.8	0.8
Equity ratio	27.9%	28.2%	25.1%	26.4%
Relative indebtedness	17.9%	16.8%	18.3%	16.4%

Key personnel indicators

Key indicators	2012	2013	2014	2015	2016
No. of personnel	251	254	266	285	289
Permanent	90%	93%	93%	92%	92%
Fixed-term	10%	7%	7%	8%	8%
Men	74%	74%	75%	74%	73%
Women	26%	26%	25%	26%	27%

Age distribution	2012	2013	2014	2015	2016
Under 30	7%	4%	6%	6%	6%
30-39	47%	44%	43%	41%	36%
40-49	30%	36%	34%	34%	36%
Over 50	16%	16%	18%	19%	22%
Average age	40	41	41	41	42

Education	2012	2013	2014	2015	2016
Elementary and vocational	-	19%	18%	18%	17%
University of applied science	-	14%	13%	14%	13%
University	-	48%	50%	49%	51%
Post-graduate	-	19%	19%	19%	19%

The environment

CSC is a pioneer in the sustainable development of ICT services and is committed to promoting sustainable development targets in all of its operations. We seek to minimize the environmental loading caused by our activities.

Business flights and the electricity consumed by data centers account for the largest share of CSC's environmental loading. CSC's data center in Kajaani is one of the most energy efficient in the world.

In its material procurements, CSC adheres to Hansel framework agreements that take environmental perspectives into account. CSC's procurement policy also instructs employees to examine environmental factors at all stages, from planning to use and decommissioning.

In 2015, CSC performed the corporate energy review required from major companies at four-year intervals under the Energy Efficiency Act.

Risks and uncertainty factors

CSC's annual risk management program covers strategic, operative and accident risks, and assigns responsibilities for risk management tasks both to management and service production.

The main strategic risk factors in 2016 were legislative amendments and uncertainty in the general economic situation. Although the financing decision on the renewal of computing infrastructure was postponed due to the challenging financial situation, risks were

mitigated by, for example, developing cloud services and sharing international high-performance computing resources. The new Public Procurement Act will significantly restrict our opportunities to make external sales. We will mitigate the financial risks arising from this by, for example, seeking growth within our in-house framework. The key operative risks related to service availability and cyber security.

No significant risks were fully realized in 2016.

In spring 2017, an external audit of CSC's security and associated risk management was performed in conjunction with the renewal of our ISO/IEC 27001 certificate.

Outlook for the future

Growth of about 5 per cent is expected in CSC's operations during 2017. Although the complexity of our operating environment and our new ownership arrangements require good change management skills, they also provide fertile ground for renewal and growth.

In 2017, the most important area for development in services for research will be developing Finland's national computing and data management environment in line with customer needs. Thanks to the digitalization of research, an increasing number of new fields are now harnessing CSC's services. We will be paying particular attention to clarifying our service offering and improving service usability. Customer process automation will continue, and we will improve our customer service by being better prepared to identify and predict our customers' needs.

We are continuing to develop our digital preservation services. Use of the National Digital Library's DP service is being expanded, particularly in the archive sector, and 3–4 new cultural memory organizations are expected to join.

The Funet2020 project will continue preparing for backbone network upgrades in 2018–2022.

CSC will continue to develop information services to meet administrative requirements and the needs of its shareholders. These services include a statistics service and reporting portal for study management, and the Municipal Finance Information Service for the State Treasury. CSC will also be supporting the development of shared architecture for education and research, and promoting its application.

The Board of Directors' proposal for the distribution of profit

The Board proposes that no dividend be paid and the company's profit for 2016 (EUR 196,401.71) be transferred to retained earnings.

CSC – IT Center for Science Ltd
Board of Directors

Appendix 3 Financial Statements 1 Jan 2016–31 Dec 2016 and the Auditor's Report

INCOME STATEMENT

	1 Jan–31 Dec 2016	1 Jan–31 Dec 2015
EUR		
Net sales	36,825,236.69	35,675,122.76
Other operating income	2,890,878.65	2,555,494.76
Personnel expenses	19,823,419.47	19,248,339.78
Depreciation	715,205.45	712,003.97
Other operating expenses	18,926,895.05	17,903,063.60
Operating profit/loss	250,595.37	367,210.17
Financial income and expenses	2,588.36	71,771.52
Profit before extraordinary items	253,183.73	438,981.69
Direct taxes	-56,782.02	-88,698.38
Profit/loss for the financial year	**196,401.71**	**350,283.31**

BALANCE SHEET

Assets	31 Dec 2016	31 Dec 2015
EUR		
Non-current assets		
Intangible assets	11,910.00	12,513.68
Tangible assets	4,315,504.75	4,706,824.21
Investments	255,522.82	255,522.82
	4,582,937.57	4,974,860.71
Current assets		
Current receivables	5,206,236.86	6,235,866.19
Financial securities	4,164,517.30	988,941.05
Cash and cash equivalents	3,522,682.27	7,563,469.38
	12,893,436.43	14,788,276.62
	17,476 374.00	**19,763,137.33**

Liabilities	31 Dec 2016	31 Dec 2015
EUR		
Shareholders' equity		
Share capital	1,000,000.00	1,000,000.00
Unrestricted invested shareholders' equity	200,000.00	200,000.00
Retained earnings	1,153,256.00	802,972.69
Profit/loss for the financial year	196,401.71	350,283.31
Total shareholders' equity	2,549,657.71	2,353,256.00
Liabilities		
Current liabilities	14,926,716.29	17,409,881.33
	17,476,374.00	**19,763,137.33**

CASH FLOW STATEMENT

	2016	2015
EUR		
Cash flow from operating activities		
Cash flow from sales	33,999,530.71	36,650,292.19
Operating expenses	-34,487,265.60	-33,037,362.60
Cash flow from operating activities before financial items and taxes	-487,734.89	3,612,929.59
Interest and other financial expenses incurred from operating activities	2,588.36	71,756.56
Interest received from operating activities	0.00	14.96
Direct taxes paid	-56,782.02	-88,698.38
Cash flow from operating activities	-541,928.55	3,596,002.73
Cash flow from investments		
Investments in tangible and intangible assets	-323,282.31	-92,629.85
Cash flow from investments	-323,282.31	-92,629.85
Change in liquid assets	-865,210.86	3,503,372.88
Liquid assets at beginning of year	8,552,410.43	5,049,037.55
Liquid assets at year-end	**7,687,199.57**	**8,552,410.43**

NOTES TO THE FINANCIAL STATEMENTS
31 Dec 2016

Accounting policies

Non-current assets and planned depreciation
Fixed assets have been capitalised at the direct acquisition cost. Planned depreciation has been calculated on the basis of the economic life of the fixed asset items. Planned depreciation has been presented in the Financial Statements of 31 December 2016 as follows.

Machinery and equipment: 25 per cent of the expenditure residue from the date of acquisition (inclusive).

Other long-term expenses are depreciated on a straight-linebasis over a period of ten years.

Pensions
Pension cover is provided by an insurance company. The Managing Director's pension benefits are no different to those enjoyed by other personnel.

Financial assets
Financial assets are valued at their acquisition cost or market value, whichever is lower.

Notes to the Cash Flow Statement

EUR		
Net sales	**2016**	**2015**
Net sales in Finland	36,825,236.69	35,675,122.76
Other operating income	**2016**	**2015**
Research grants from the EU, TEKES and Academy of Finland	2,890,878.65	2,555,494,76
Notes on Personnel	**2016**	**2015**
Number of people employed during the financial year		
Number of employees on 31 Dec	289	285
Average number of employees	286	281
Personnel expenses	**2016**	**2015**
Wages and salaries	16,025,876.96	15,535,420.10
Pension expenses	2,813,025.01	2,869,171.81
Other statutory personnel expenses	984,517.50	843,747.87
Total	19,823,419.47	19,248,339.78
Management salaries and remuneration	**2016**	**2015**
Board of Directors and Managing Director	266,607.05	269,048.91
Auditor's fees	**2016**	**2015**
Audits	12,563.10	6,748.00
Other statements	4,030.43	6,581.15
	16,593.53	13,329.15
Other operating expenses	**2016**	**2015**
IT expenses, equipment and software maintenance	8,302,046.34	7,488,480.79
Other expenses	10,624,848.71	10,414,582.81
	18,926,895.05	17,903,063.60
Financial income and expenses	**2016**	**2015**
Other interest and financial income from others	12,000.03	83,335.35
Interest and financial expenses to others	-9,411.67	-11,563.83
Total interest and financial expenses	2,588.36	71,771.52
Tax itemisation	**2016**	**2015**
Income tax on operations	-56,782.02	-88,698.38
Change in deferred tax assets	0.00	0.00
Total	-56,782.02	-88,698.38

Notes to the Balance Sheet

Non-current assets	**Intangible assets**	**Tangible assets**	
	Intangible rights	**Machinery and equipment**	**Total**
Acquisition cost, 1 Jan	96,120.57	8,000,890.23	8,097,010.80
Increases	0.00	323,282.31	323,282.31
Acquisition cost, 31 Dec	96,120.57	8,324,172.54	8,420,293.11
Accumulated depreciation, 1 Jan	83,606.89	3,294,066.02	3,377,672.91
Depreciation for the financial year	603.68	714,601.77	715,205.45
Accumulated depreciation, 31 Dec	84,210.57	4,008,667.79	4,092,878.36
Book value, 31 Dec	12,513.68	4,706,824.21	4,719,337.89
Book value, 31 Dec	11,910.00	4,315,504.75	4,327,414.75

Holdings in other companies		**2016**	**2015**
Shareholdings			
Otaverkko Oy	EUR	holding, %/no.	holding, %/no.
Acquisition cost, 1 Jan	2,522.82	5.3 / 75	5.3 / 75
Acquisition cost, 31 Dec	2,522.82	5.3 / 75	5.3 / 75
Book value, 31 Dec	2,522.82	5.3 / 75	5.3 / 75
Digile Oy/ ICT SHOK		holding, %/no.	holding, %/no.
Acquisition cost, 1 Jan	10,000.00	0.9 / 100	0.9 / 100
Acquisition cost, 31 Dec	10,000.00	0.9 / 100	0.9 / 100
Book value, 31 Dec	10,000.00	0.9 / 100	0.9 / 100
SalWe Oy/ T&H SHOK		holding, %/no.	holding, %/no.
Acquisition cost, 1 Jan	10,000.00	0.9 / 100	0.9 / 100
Acquisition cost, 31 Dec	10,000.00	0.9 / 100	0.9 / 100
Book value, 31 Dec	10,000.00	0.9 / 100	0.9 / 100
NORDUnet A/S		holding, %/no.	holding, %/no.
Acquisition cost, 1 Jan	233,000.00	17.9 / 2,000	17.9 / 2,000
Acquisition cost, 31 Dec	233,000.00	17.9 / 2,000	17.9 / 2,000
Book value, 31 Dec	233,000.00	17.9 / 2,000	17.9 / 2,000

Financial securities	
Danske Invest Neutral K and Yhteisökorko K	
Book value	4,164,517.30
Market price	4,339,401.72
Difference	174,884.42

Current receivables	**2016**	**2015**
Accounts receivable	2,976,923.17	2,680,527.94
Prepayments and accrued income	2,229,313.69	3,555,338.25
Total	5,206,236.86	6,235,866.19

Shareholders' equity	2016	2015
Share capital, 1 Jan	1,000,000.00	1,000,000.00
Share capital, 31 Dec	1,000,000.00	1,000,000.00
Unrestricted invested shareholders' equity, 1 Jan	200,000.00	200,000.00
Unrestricted invested shareholders' equity, 31 Dec	200,000.00	200,000.00
Retained earnings, 1 Jan	1,153,256.00	802,972.69
Transfer to share capital		
Retained earnings, 31 Dec	1,153,256.00	802,972.69
Profit/loss for the financial year	196,401.71	350,283.31
Total shareholders' equity	2,549,657.71	2,353,256.00

Distributable funds, 31 Dec	**2016**	**2015**
Retained earnings	1,153,256.00	802,972.69
Profit for the financial year	196,401.71	350,283.31
Unrestricted invested shareholders' equity	200,000.00	200,000.00
Total	1,549,657.71	1,353,256.00

Breakdown of share capital by type of share

	2016	**2015**
	shares	shares
Shareholders have 1 vote per share	10,000	10,000

Current liabilities	**2016**	**2015**
Advance payments received	8,341,153.02	11,421,575.40
Accounts payable	1,024,191.06	915,426.61
Other short-term debts	1,409,100.41	868,584.27
Accruals and deferred income	4,152,271.80	4,204,295.05
	14,926,716.29	17,409,881.33
Liabilities		
Leasing liabilities		
To be paid the following financial year	977,474.71	917,908.32
To be paid the coming financial year	1,631,926.16	1,569,645.07
Rent liabilities		
To be paid the following financial year	2,676,679.74	2,746,063.92
To be paid the coming financial year	6,066,388.59	11,389,799.13

Financial Statements and Report of the Board of Directors, Signatures

Espoo, 30 March 2017

Mirjami Laitinen	Anu Harkki	Pentti Heikkinen
Heikki Mannila	Matti Manninen	Jouko Paaso
Kaija Pöysti	Kimmo Koski	

Auditor's report
An auditor's report was issued today.

Espoo, 6 April 2017
PricewaterhouseCoopers Oy
Authorised Public Accountants

Leena Puumala
Authorised Public Accountant

List of accounting books for the financial year 1 Jan 2016–31 Dec 2016

Cash book
Journal
General ledger
Lists of accounts receivable
Lists of accounts payable
Sales invoices
Purchase invoices
Memoranda
Payroll summaries
Payroll receipts
Payment receipts
VAT receipts

List of receipts

Purchase invoices	VL
Purchase orders	OM
Bank statements, payment receipts	KA
Accounting receipts	KP
Sales invoices	ML
Sales orders	MM
Memoranda	MU
Payroll receipts	PL
Travel invoices	TR
Appendices	LT

Storage methods

General journal and ledger entries and receipts are electronically archived on CSC's own servers.

Auditor's report

To the Annual General Meeting of CSC - IT Center for Science Ltd.

Audit of Financial Statements

Opinion

In our opinion, the financial statements and the report of the Board of Directors give a true and fair view of the parent enterprise's or group's financial position and performance in accordance with the laws and regulations governing the preparation of financial statements and reports of the Board of Directors in Finland.

Object of the audit

We have audited the financial statements of CSC – IT Center for Science Ltd. (Business ID: 0920632-0) for the financial year 1 January 2016 – 31 December 2016. The financial statements comprise the balance sheet, income statement, cash flow statement, and notes to the financial statements.

Basis for the opinion

We conducted our audit in accordance with good auditing practices in Finland. Our responsibilities under good auditing practice are further described under Auditor's responsibilities in the audit of financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Impartiality

We are independent of the enterprise in accordance with the ethical requirements that are applicable in Finland and relevant to our audit, and we have fulfilled our other ethical responsibilities in accordance with these requirements.

Responsibilities of the Board of Directors and Managing Director relating to the financial statements

The Board of Directors and Managing Director are responsible for the preparation of the financial statements and reports of the Board of Directors, which give a true and fair account in accordance with the laws and regulations governing the preparation of financial statements in Finland and comply with statutory requirements.

The Board of Directors and Managing Director are also responsible for such internal control as they deem necessary to enable the preparation of financial statements free from material misstatement, whether due to fraud or error. In preparing the financial statements, the Board of Directors and Managing Director are responsible for assessing the parent enterprise's or group's ability to continue as a going concern, disclosing, as applicable, matters relating to the going concern and using the going concern basis of accounting. The financial statements are prepared using the going concern basis of accounting unless there is an intention to liquidate the parent enterprise or the group or cease operations, or there is no realistic alternative but to do so.

Auditor's responsibilities in the audit of financial statements

Our objectives are to obtain reasonable assurance on whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with good auditing practice will always detect a material misstatement when it exists. Misstatements may arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

As part of an audit in accordance with good auditing practice, we exercise professional judgment and maintain professional skepticism throughout the audit. In addition:

- We identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- We obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the parent enterprise's or group's internal control.

- We evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

- We arrive at conclusions on the appropriateness of the Board of Directors' and the Managing Director's use of the going concern basis of accounting and, based on the audit evidence obtained, on whether a material uncertainty exists related to events or conditions that may cast significant doubt on the ability of the parent enterprise or the group to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the parent enterprise or the group to cease to continue as a going concern.

- We evaluate the overall presentation, structure, and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in such a manner that the financial statements give a true and fair view.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Other reporting requirements

Other information

The Board of Directors and Managing Director are responsible for other information. The other information comprises information included in the Board of Directors Report.

Our opinion on the financial statements does not cover other information.

In connection with our audit of the financial statements, it is our responsibility to read the other information included in the Board of Directors' report and, in doing so, consider whether such other information is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. Our responsibility also includes considering whether the Board of Directors' report has been prepared in accordance with the applicable laws and regulations.

In our opinion, the information in the Board of Directors' report is consistent with the information in the financial statements and the report has been prepared in accordance with the applicable laws and regulations.

If, based on the work we have performed, we conclude that there is a material misstatement in the information included in the Board of Directors' report, we are required to report that fact. We have nothing to report in this regard.

Helsinki 6.4.2017
PricewaterhouseCoopers Oy
Authorised Public Accountants

Leena Puumala Authorised Public Accountant

Appendix 4 The members of the 2016 Board of Directors and Management Group, with details of their external interests

CSC's Board of Directors

MIRJAMI LAITINEN (b. 1948)
Master of Administrative Sciences; Chair of CSC's Board of Directors since 2015.

In 2016–2017, Laitinen is chairing the preparatory team for the creation of a National Supervisory Authority. She has previously worked as a senior adviser for the Finnish Innovation Fund (Sitra), and for the Finnish Tax Administration both as Director General and in various positions as a senior inspector.

Key concurrent positions of trust:
Chair of Finnish Customs' Advisory Board (2015–2017); Member of the Government Programme's Digital Agenda and Public-sector ICT Development Committee (Digitalisaatio 2020, DigiNYT)

ANU HARKKI (b. 1951)
Professor Emerita, Senior Advisor; CSC Board Member since 2014.

Harkki's previous positions include Director, Business Solutions at the Natural Resources Institute Finland, Research Director at MTT Agrifood Research Finland, Program Director at Sitra, Managing Director of Life-science-man Ltd, and Research Director at Noviant Ltd. She has also worked for Cultor Food Science in New York, in several positions for Cultor Oyj, and as a research specialist for the Technical Research Centre of Finland (VTT).

Key concurrent positions of trust: -

PENTTI HEIKKINEN (b. 1960)
MSc. (Econ.), Stanford Executive Program; CSC Board Member since 2012.

Heikkinen is Chair of the Board of Solidabis Oy and CEO of Gateway Technolabs Finland Oy. He has been President & CEO of TietoEnator, and has also worked for TietoEnator and its predecessor Tieto in several managerial positions. Before that, he worked as a director at VTKK Government Systems Ltd and CapGemini Finland.

Key concurrent positions of trust:
Board Member of Tecnotree Oyj; Chair of the Board of Solidabis Oy.

HEIKKI MANNILA (b. 1960)
PhD. (Computer Science); CSC Board Member since 2015.

Mannila is President of the Academy of Finland. He has previously been an academy professor and Vice Principal of Academic Affairs at Aalto University, and a professor at both the University of Helsinki and Helsinki University of Technology. He has also worked in industrial research in the USA, and been a visiting professor at the Technical University of Vienna and a visiting researcher at the Max Planck Institute for Informatics in Saarbrücken.

Key concurrent positions of trust: -

MATTI MANNINEN (b. 1950)
DSc. (Tech.); CSC Board Member since 2016.

Manninen is a professor and Rector of the University of Jyväskylä. He has previously been an associate professor at the University of Jyväskylä and docent at Helsinki University of Technology. He has also worked in several positions as an assistant, researcher and associate professor at the Helsinki University of Technology, University of Helsinki, Academy of Finland, and Technical Research Centre of Finland (VTT). His research career has also included work at universities in the USA, Switzerland, and Denmark.

Key concurrent positions of trust:
Board Member of Universities Finland UNIFI

KAIJA PÖYSTI (b. 1959)
MSc. (Tech.); CSC Board Member since 2015.

Pöysti is a CEO and serial entrepreneur with over 35 years of experience as an entrepreneur, board member and consultant on operating in high-growth, internationalizing companies.

Key concurrent positions of trust:
Board Member of Sets Oy

JOUKO PAASO (b. 1956)
DSc. (Tech.), eMBA; CSC Board Member since 2016.

Paaso is Rector and CEO of Oulu University of Applied Sciences. He has previously been Rector of Vaasa University of Applied Sciences. At the University of Oulu, he was Director of the Raahe Campus, held a fixed-term professorship in the Faculty of Information Technology and Electrical Engineering, and was Director of the Pehr Brahe Software Laboratory. He has also worked as a visiting researcher at the Fraunhofer Institute in Germany, a senior lecturer in computer science at the Raahe Institute of Computer Engineering, a researcher at the Technical Research Centre of Finland (VTT), and a software developer for LM Ericsson.

Key concurrent positions of trust:
Board Member of Nuorten Ystävät -palvelut Oy; Member of the Oulu Innovation Alliance's strategic steering group; Member of the Nordea Advisory Board.

The Board of Directors was appointed at the Annual General Meeting held on 15 May 2016, with the exception of Manninen and Paaso, who were chosen at an Extraordinary General Meeting held on 12 August 2016. CSC's Managing Director, **Kimmo Koski**, is Secretary to the Board of Directors.

CSC's Management Group

KIMMO KOSKI (b. 1964)
DSc. (Tech.); Managing Director of CSC since 2004.

Koski has previously worked in managerial and directorial positions at Nokia, and in managerial and specialist positions at CSC. He has also worked at the European Organization for Nuclear Research (CERN) in Switzerland.

Key concurrent positions of trust:
Coordinator of the European Data Infrastructure (EUDAT); Member of the Open Science and Research Initiative's Strategy Group

TIINA KUPILA-RANTALA (b. 1963)
PhD, MBA; Vice Managing Director since 2011.

Kupila-Rantala joined CSC in 1996. In 2001, she was Project Manager for Nokia Networks. Before joining CSC, she worked as a research assistant in the University of Helsinki's Department of Physics and as a systems analyst for Nokia Telecommunications.

Key concurrent positions of trust: -

JANNE KANNER (b. 1973)
M.A.; Director, Information Management Services; in CSC's service since 1999.

Kanner has previously worked at the University of Jyväskylä and in a part-time position at Vapo Oy.

Key concurrent positions of trust:
Board Member of NORDUnet A/S

MINNA LAPPALAINEN (b. 1967)
M.Sc. (Econ.); Director, Marketing and Communications; in CSC's service since June 2014.

Lappalainen has previously worked in managerial and directorial positions at Taaleritehdas, Vattenfall, PlusTV and A-lehdet. She has also held managerial and specialist positions at Sanoma Magazines and TietoEnator.

Key concurrent positions of trust: -

PEKKA LEHTOVUORI (b. 1973)
PhD; Director, Services for Research; in CSC's service since 2001.

Lehtovuori has previously worked as a senior scientist at FBD Ltd and a researcher at the University of Jyväskylä.

Key concurrent positions of trust:
Chair of the Board of the Nordic e-Infrastructure Collaboration (NeIC); expert member of the Computational Science Forum; vice representative for Finland on the European Grid Initiative (EGI) Council; ELIXIR Finland's Deputy Head of Node.

KLAUS LINDBERG (b. 1958)
MSc. (Tech.); Director, Customer and Service Integration; in CSC's service since 1989.

Lindberg has previously worked as a research assistant at the Helsinki University of Technology.

Key concurrent positions of trust:
Board Member of Otaverkko Oy

TOMASZ MALKIEWICZ (b. 1980)
PhD; Senior Application Specialist;
personnel representative. Has worked for CSC in project manager and specialist positions since 2011.

Malkiewicz has previously worked as a researcher at LPSC in Grenoble, France and at the University of Jyväskylä.

Key concurrent positions of trust: -

ANTTI MÄKI (b. 1978)
MSc. (Social Sciences); Director, Interoperability Services for Education and Research; in CSC's service since 2010.

Mäki has previously worked in project manager and specialist positions at the University of Helsinki.

Key concurrent positions of trust:
Steering Group Member for the Joint Admission System for Higher Education project; Chair of the project group for the development of an e-service and decision-making system to support the steering of Finnish vocational education.

KIMMO NIITTUAHO (b. 1966)
M.Sc. (Econ.); Financial Director; in CSC's service since 2003.

Niittuaho has previously worked in financial management positions for a number of companies, including Pirelli Oy, LM Ericsson and AKB Services.

Key concurrent positions of trust:
Board Member of Toppi Oy

JARI RAJALA (b. 1971)
MA (Education); in CSC's service since 1997.

Key concurrent positions of trust: -

TERO TUONONEN (b. 1971)
M.A.; Director, ICT Platforms; in CSC's service since 2006.

Tuononen has previously worked in IT specialist and managerial positions at Nokia.

Key concurrent positions of trust: -

PEKKA UUSITALO (b. 1964)
MSc. (Tech.); Director, Partnerships; in CSC's service since November 2015.

Uusitalo has previously worked in managerial and directorial positions at Juniper Networks, Cisco Systems and Hewlett-Packard.

Key concurrent positions of trust: -

PER ÖSTER (b. 1959)
PhD; Director, Research Infrastructures; in CSC's service since 2007.

Öster has previously worked in managerial and directorial positions at the KTH Royal Institute of Technology in Stockholm, in consultant and specialist positions at Volvo Data AB, and as a researcher at the Chalmers University of Technology and University of Gothenburg.

Key concurrent positions of trust:
Member of the Swedish Research Council's (Vetenskapsrådet) Infrastructure for e-Science Evaluation Panel; Vice-Chair of the FIN-CLARIN consortium; Board Member of ELIXIR (European Life Science Infrastructure for Biological Information); Member of the Knowledge Exchange network's steering group.

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