

FORGING FORWARD

SURF 2-YEAR PLAN FOR 2021-2022



SURF

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PREFACE

SURF 2-YEAR PLAN FOR 2021-2022

The members of the cooperative have set sector priorities¹ for their collaboration within SURF in 2021 and 2022. The members have high ambitions. They want their researchers to work together safely both nationally and internationally, so that they can achieve an excellent performance and offer their students the flexibility they need to develop their talents. These priorities are the basis of the SURF 2-Year Plan for 2021-2022.

As a reliable service provider and purchasing partner, SURF is undoubtedly very important to its members. The desire to collaborate more closely is also growing. One reason is that it is more efficient to have Data Protection Impact Assessments and security audits carried out centrally. Another reason is that collaboration is necessary to achieve ambitions, for example by pooling resources with market players or by establishing mutual agreements to achieve more flexibility for students.

The sectors' priorities describe the ambitions in terms of content, but they are also about improving processes within the SURF organisation, working together in a smarter way and making better use of the knowledge within the cooperative. We are organising this within the new SURF organisation.

The frameworks of the 2021 and 2022 budgets apply to this 2-Year Plan. The sectors' priorities are guiding us in our choices about what we will and will not do. Most existing services and ongoing projects help us to achieve the priorities. We are continuing this. In order to optimally meet members' wishes, we will adjust current projects where necessary and start new projects. We will make space for these new activities by ending projects that do not help us to meet the priorities.

However, this will not achieve the high ambition level that the sectors have indicated in their priorities. A 2-year period is too short for this. In 2021-2022, we will primarily invest in developing a strategy together with the members about key themes that go beyond the next 2 years. Thanks to a joint strategy, we are well positioned for the Strategic Plan for 2023-2026 and we will be able to go full speed ahead as of 2023.

We look forward to the coming years, when we will have the opportunity to make the most of the ICT opportunities for education and research in close collaboration within the cooperative. Driving innovation together is our guiding motto.

Jet de Ranitz, Hans Louwhoff and Ron Augustus
Board of Directors of the SURF Cooperative

¹ SURF's members include 5 sectors: university education (WO), higher professional education (HBO), vocational education and training (MBO), university medical centres (UMCs) and research. The 'Other members' department represents several (knowledge) institutions. For the purpose of setting priorities, the research sector and other members work together as 'Research and other'.

1. OUR COMPASS

1.1. SURF Strategic Plan for 2019-2022

The compass for the SURF 2-Year Plan for 2021-2022 is the Strategic Plan for 2019-2022 *Driving Innovation*. More than 100 education and research institutions in the Netherlands collaborating within the SURF cooperative chart their course for the next 4 years in this plan. We want to offer an attractive studying and working environment for (top) talents from this country and elsewhere. We make this possible with advanced, integrated, user-friendly and world-class ICT facilities. As far as education is concerned, the objectives are 'more flexible education', 'more diverse learning materials' and 'use of educational data'. These objectives are in line with the Acceleration Plan for Educational Innovation with ICT. The research objectives are 'unlimited access' and 'driving open science'. These objectives are in line with the National Plan for Open Science.

1.2. 2019-2020

In 2019-2020, we started to realise the ambitions of the [Strategic Plan for 2019-2022](#). For example, we developed an important building block for more flexible education together with the department that issues digital edubadges. We also worked with the members and consulted the Netherlands Organisation for Scientific Research (NWO) to set up a system for establishing Digital Competence Centres for support on open and FAIR research data. Recent cyber security issues have led to the development of a Security Operations Centre with Security Incident & Event Management (SOC-SIEM).

In 2019-2020, we also invested in organisational changes within the cooperative. In 2020, the operating companies merged and we structured the SURF organisation more efficiently. In order to increase the involvement of the cooperative's members, we made new arrangements in 2019-2020, for example on how the cooperative draws up the Strategic and 2-Year Plans together with all the members.

1.3. Collaboration on the 2-Year Plan

This 2-Year Plan is the outcome of an intensive dialogue with members. Lively and substantive discussions were had within each sector and between the sectors on where the cooperative should be heading. These discussions have led to a better understanding of the desired direction in each sector and more insight into the sectors' drivers and priorities. Based on these priorities, the Board of Directors has been able to draw up an ambitious and consistent 2-Year Plan that enables institutions to work together on shared priorities and allows room for differences between the sectors.

1.4. Collaboration principles

Members want to lead the way worldwide with state-of-the-art ICT facilities and collaboration on innovation within the cooperative. This is not self-evident in a world that is evolving faster and faster. It requires sustained investment in services and innovation.

Collaboration is the cooperative's strength. Organising knowledge exchange is key, and SURF is working with members on smart solutions that will be useful for all members. This does not mean that there is no room for customisation: pioneers pave the way for new innovations.

Public values are the cooperative's starting point. Excellent market expertise is necessary to ensure that education and research can make the most of commercial services and products.



2. THE FINANCIAL FRAMEWORK

We are implementing the 2-Year Plan for 2021-2022 within the framework of the 2021 budget. The available budget will be approximately EUR 200 million per year as of 2021. About 78% of the budget (EUR 156 million) relates to SURF's services, for which strategic agreements have been made with the members. Approximately 14% of the budget (EUR 27.8 million) is earmarked for investments in the national infrastructure made by the Ministry of Education, Culture and Science via NWO. NWO allocates these funds based on work plans.

We invest about 6% of the budget (EUR 12 million) in innovation, education and research. EUR 7 million of this amount comes from the Innovation Covenant. That covenant was concluded because the Ministry of Education, Culture and Science now distributes the funds it previously made available directly to SURF to the institutions with national contributions. Universities contribute EUR 4.1 million, universities of applied sciences EUR 2 million and university medical centres EUR 0.9 million. The other funds for innovation in education and research (EUR 4.6 million) are earmarked subsidies from the Ministry of Education, Culture and Science. They concern the Acceleration Plan for Educational Innovation with ICT, the Open and Online Education scheme and the Integrated Secure Higher Education programme.

About 2% of the budget (EUR 3.8 million) is spent on organising collaboration within the cooperative. All SURF members pay a collaboration contribution.

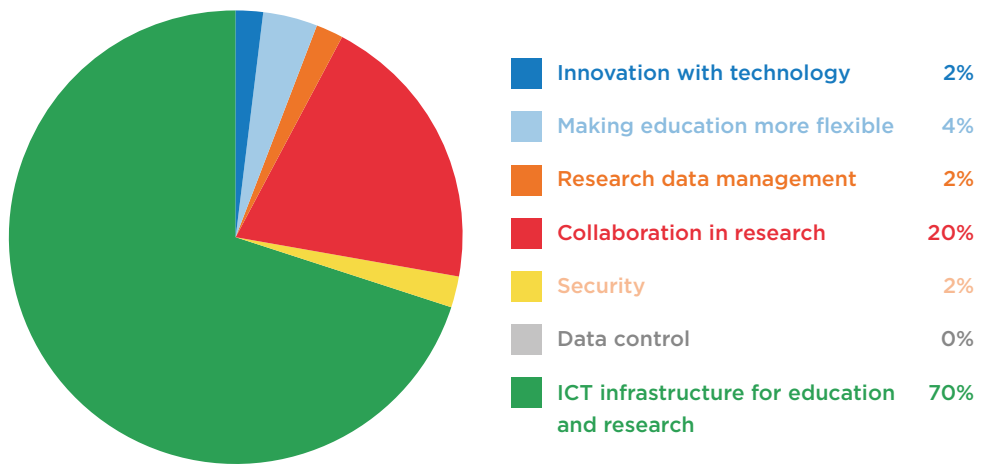
The priorities determine our direction, for which we allocate funds. There is most freedom of movement for any changes in direction in the Innovation Covenant (EUR 7 million) and the non-earmarked funds of the Ministry of Education, Culture and Science for the national infrastructure (EUR 15.9 million).



Within the framework of the 2021 budget:

- We will continue to provide the existing state-of-the-art services.
- We will continue ongoing projects that contribute to the realisation of the priorities and we will adjust and/or accelerate projects where necessary.
- We will discontinue ongoing projects that do not sufficiently contribute to the realisation of the priorities.
- We will start new innovation projects as permitted by the budget.

The budgets included in this 2-Year Plan 2021-2022 are based on the 2020 budget. In December 2020, we will present the 2021 budget to the Members' Council. This will include any changes in the budgets per theme and any changes resulting from targeted subsidies.



In 2020, most of the budget went to services and projects that are in line with the 2021 and 2022 themes of collaboration in research and ICT infrastructure for education and research. Particularly within these themes, we are working with the members to organise an appropriate range of services delivered by SURF and market players. There are no existing services and projects that are in line with the ambitions for the new theme of data control. No budget has therefore been included for this at this stage. We are working with the members on this theme to develop a vision on how they want to use data in a responsible manner. This vision is guiding activities within the themes of making education more flexible, research data management and collaboration in research.

As of 2021, we will structurally have less income and more expenditure than in 2020. This has 3 causes. The EUR 2 million subsidy for innovations in services that SURF has received from the Ministry of Economic Affairs and Climate each year since 2018 will expire in 2020. The harmonisation of the terms and conditions of employment within the SURF organisation results in additional costs of EUR 2 million each year. As of 2021, we need to reserve EUR 4.6 million annually for the development of the next network generation, SURFnet9, after the roll-out of SURFnet8. NWO and the institutions are jointly setting aside EUR 6 million for investments in a new supercomputer according to a separate agreement. We made some difficult choices and terminated or delayed certain projects to ensure a sound budget in 2021. We are working towards a structurally sound budget in close consultation with the members.

3. THE DIRECTION WE ARE TAKING IS DETERMINED BY PRIORITIES

3.1. High ambitions

Dutch education and research play an important role in the knowledge economy. SURF's members are aware of the need to continue to develop in digitalisation and innovation in order to continue to lead the way. The ambitions are high. A world-class ICT infrastructure is a priority for all sectors. At the same time, there are certain differences in emphasis, for example between the internationally oriented world of research and vocational education, which has a more regional scope.

3.2. Seven themes

We have clustered the priorities into 7 themes. The 7 themes are:

- I. Making education more flexible
- II. Research data management
- III. Collaboration in research
- IV. Data control
- V. Security
- VI. ICT infrastructure for education and research
- VII. Innovation with technology

SURF's existing services and project portfolio are a solid foundation for realising the ambitions for the themes. We will therefore continue most of the services and project portfolio. However, some changes in direction are also required. We describe which services and projects we continue to provide for each theme, and where we are changing course.

We are terminating projects that do not contribute enough to the priorities (about 15% of the total project portfolio). An overview of all the projects we are terminating is included in Appendix 2.



MAKING EDUCATION MORE FLEXIBLE

SURF’s members want to offer students the flexibility they need to develop their talents to the full. For example, they want to offer them more freedom of choice in the composition of their training programme and facilitate lifelong development. National agreements are required to organise this type of flexibility. Online education allows students to study wherever and whenever they want. The coronavirus pandemic has forced members to offer their education entirely online on an ad hoc basis. This change has revealed the need for a range of services that enables people to make didactic, functional and technical choices.

Ambition

In the Netherlands, students can study anytime, anywhere, at their own pace and in their own way. They are free to put together their educational programme with offerings from within and outside their own institution. Thanks to (inter)national agreements on standards, architecture, rules and regulations, this freedom of choice is not hampered by any administrative or logistical constraints. Students and lecturers have the tools they need for the online part of education. SURF offers (within financial possibilities) the technical solutions required to realise the joint ambitions of members of the Acceleration Plan for Educational Innovation with ICT for university education (WO) and higher professional education (HBO), and the Going Digital programme for vocational education and training (MBO).

Activities for 2021-2022

SURF will continue to provide existing services in 2021-2022 aimed at making education more flexible:

Services		
edubadges	SURFsharekit	Customised choices

We will continue several ongoing projects in 2021-2022:

Projects	Contents
Building blocks for flexible education	The development of eduID, the education catalogue, the organisation of a joint infrastructure vision for flexible education in consultation with (inter)national parties such as OCW, VSNU, VH, Studielink, DUO and SKI23, GÉANT and in close collaboration with the Acceleration Plan for Educational Innovation with ICT and the Going Digital programme
Digital learning materials	SURFedusources, a platform for sharing open educational resources

We organise and facilitate knowledge sharing and collaborations:

Knowledge sharing/collaborations
Education Days, SURFacademy, Supplier Days
Special Interest Groups for Digital Assessment, Blended Learning, Digital Learning Environment, Learning Analytics, Media & Education, Educational Logistics, Open Education
Acceleration plan, in particular for making education more flexible, towards digital (open) learning materials, secure and reliable use of study data, acceleration of educational innovation with Edtech and the joint acceleration course The Going Digital programme
Chain management consultation, Architects Council, Edustandard, Educause, EUNIS, JISC, GÉANT

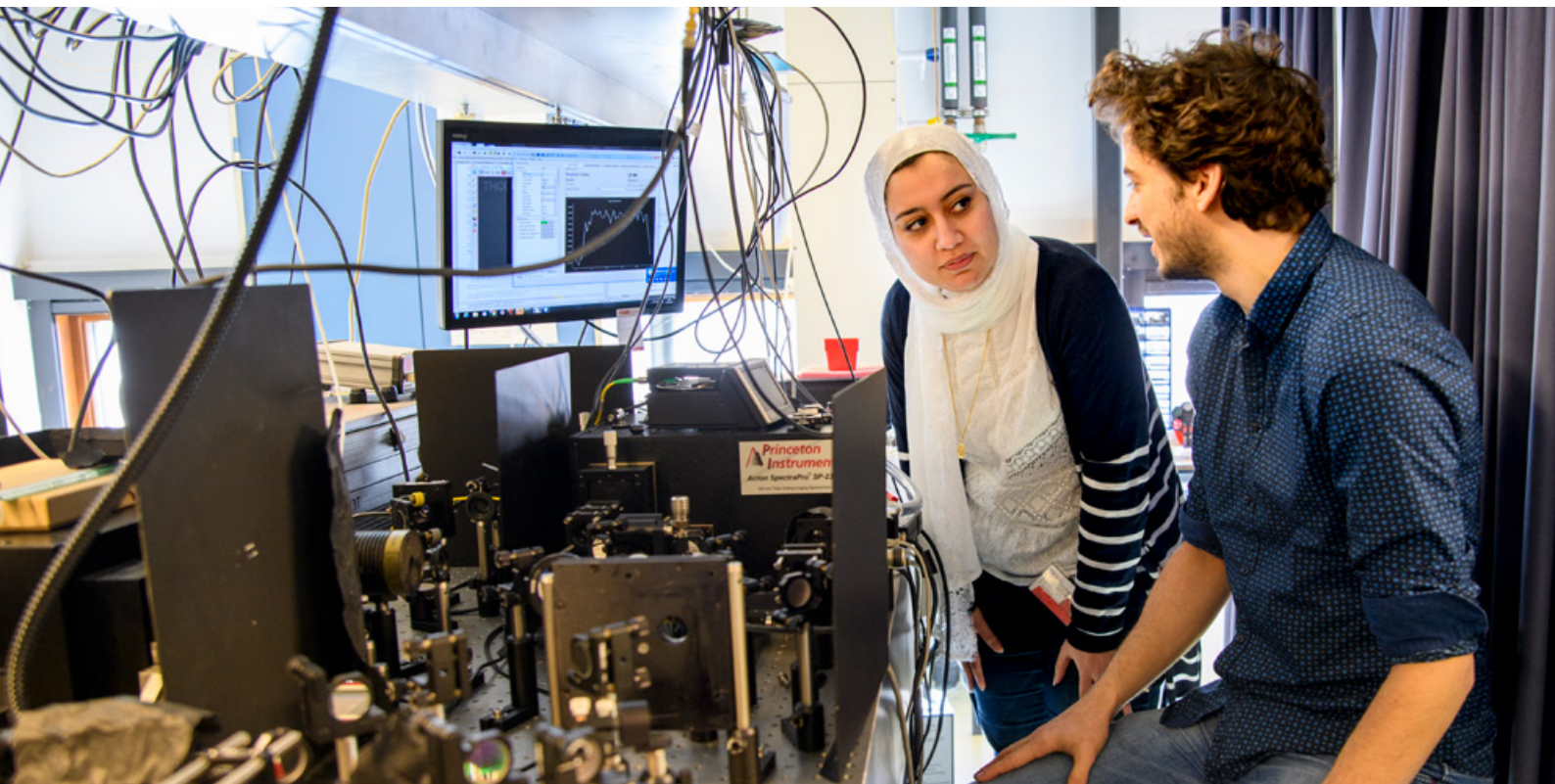
Main changes in direction

- Development of a functional and technical target architecture and standards for the infrastructure for flexible education and lifelong development based on the members' vision for flexible education (see ongoing project on building blocks for flexible education).
- Organisation of an infrastructure for using study data based on the vision for data control.
- Organisation of a vision for a suitable offering for online education and digital assessment and a strategy to realise that offering.

We will implement the changes in direction for 2021-2022 in the following new projects:

New projects	Contents	Required budget
4.1 Creation of a target architecture infrastructure for flexible education and lifelong development	Development of a functional and technical target architecture and standards for the infrastructure for flexible education and lifelong development based on a vision for flexible education (see building blocks for flexible education).	PM
4.2 Infrastructure for using study data	Organisation of the infrastructure for using study data based on the vision for data control.	PM
4.3 Tools for online education and digital assessment	Organisation of a vision for a suitable offering for online education and digital assessment and a strategy to realise that offering.	PM

Expenditure per year (based on 2020) x EUR 1,000	Total	Earmarked subsidy	Innovation covenant
Services	543		
Ongoing innovation projects	3.249		
New projects	PM		
Knowledge sharing/collaborations	5.515		
Services/projects to be discontinued	-838		638
TOTAL	8.469		



RESEARCH DATA MANAGEMENT

Research flourishes thanks to openness. There is a powerful desire to make all research data available according to FAIR principles (Findable, Accessible, Interoperable, Reusable), but this is certainly not always possible because researchers lack the facilities to do so. Institutions are responsible for organising this for their researchers. It is necessary to make mutual arrangements in this regard to ensure that research data is available to all researchers according to the FAIR principles. A federated data ecosystem for data that is shared, used and stored based on the same standards and the appropriate conditions makes this possible. Agreements on standards and conditions are necessary in order to achieve such an ecosystem.

Ambition

SURF's members have a federated data infrastructure that allows research data to be shared, used and stored securely in accordance with the FAIR principles: the data is Findable, Accessible, Interoperable and Reusable. The vision for data control is the basis of the technical, functional and organisational characteristics of the infrastructure for research data. SURF encourages the use, monitoring and appreciation of open science through training and knowledge sharing, and facilitates researchers with Persistent Identifiers. The members collaborate on the ambitions of the National Platform for Open Science within SURF. We work with the NPOS partners to organise the Dutch contribution to the federated system of the European Open Science Cloud.

Activities for 2021-2022

SURF will continue to provide existing services focusing on research data management (RDM) in 2021-2022:

Dienstverlening			
Auteursrechten.nl	Federated RDM solutions (iRODS services and developments)	Research Drive	Persistent identification services
RDM Storage scale-out	Data Archive		

We will continue several ongoing projects in 2021-2022:

Projects	Contents
Federated system for RDM knowledge and expertise	Supporting the local and thematic Digital Competence Centres
Integrated RDM facilities	National Platform for Applied Sciences, roll-out of the National RDM Ecosystem
Preconditions for open science	Development of Persistent Identifiers, project support for the National Platform for Open Science

We organise and facilitate knowledge sharing and collaborations:

Knowledge sharing/collaborations			
Knowledge Exchange	Special Interest Groups	National Coordination Point for Research Data Management (LCRDM)	EU projects targeting RDM (for example European Open Science Cloud, FAIRsFAIR, EUDAT)

Main changes in direction

- Translation of the vision for data control into a functional and technical target architecture for the research data infrastructure.
- Expansion of the components of the federated infrastructure with existing and/or future services of members, market players and/or the SURF organisation.
- Connection and/or support of various research data management initiatives, such as Digital Competence Centres, projects of the National Platform for Open Science on optimal reuse of research data.

We will implement the changes in direction for 2021-2022 in the following new projects:

New projects	Contents	Required budget
5.1. Functional and technical target architecture for federated infrastructure for research data	Organisation of a vision for research data, with existing and/or future services of members, research communities, market players and/or SURF, including the (continued) development of projects supported by the RDM steering group, such as expertise on the integrated Rule-Oriented Data System (iRODS)	PM
5.2. Organisation of parts of federated infrastructure for research data in coordination with the RDM steering group/ expert group	Components that further expand the ecosystem of data services in the Netherlands and Europe, for example the connection of the members and EOSC, and joint de-identification of privacy-sensitive data	PM
5.3. Connection and support	The combination and optimisation of existing RDM knowledge sharing initiatives. Use of the concept of the National Coordination Point for Research Data Management to achieve broader support	PM

Expenditure per year (based on 2020) x EUR 1,000	Total	Earmarked subsidy	Innovation covenant
Services	638		
Ongoing innovation projects	863		
New projects	PM		
Knowledge sharing/collaborations	2.086		
Services/projects to be discontinued	-210		196
TOTAL	3.378		



COLLABORATION IN RESEARCH

Scientific and applied research is not restricted by the boundaries of specific institutions or research groups. Researchers collaborate nationally and internationally. Research institutes, university medical centres, universities of applied sciences and universities work with each other and collaborate with industry. *Digital (or virtual) research environments* where researchers can store, edit and share data online makes such collaboration possible. Researchers have the computing power they need thanks to local, national and European computing facilities.

Ambition

The SURF members can easily and securely collaborate online in (inter)national and multidisciplinary research groups by using *digital or virtual research environments (DRE/VRE)*. A DRE/VRE is a federated infrastructure with existing and/or future services of members, research communities, market players and/or SURF. DRE/VRE give researchers access to local, national and international (European) data services and computing facilities, including public cloud services, provided that these can be provided under the right conditions. SURF supports researchers and research communities to use the available facilities (including visualisations) and organises the coordination of investments in local computing facilities.

Activities for 2021-2022

In 2021-2022, SURF will continue to provide existing services and facilities aimed at research collaboration:

Services			
HPC Cloud	SURF Research Access Management	Machine learning infrastructure and expertise	Higher professional education knowledge bank
Cartesius national supercomputer	Jupyter Notebook Hub	Large file system (dCache) storage for High Throughput Computing	
LISA National Calculation Cluster	Object store (SWIFT)	Data Archive	

We continueren in 2021-2022 een aantal al lopende projecten:

Projects	Contents
National computing and data facilities	Collaboration with local computing facilities (Tier 2), continued development of Research Drive and SURFsharekit for applied sciences
Federated collaboration	Science Collaboration Zone (as of 2021: SURF Research Access Management – SRAM), SURF Research Cloud and collaboration with Virtual Research Environments (AnDREa)
Collaboration with research communities	ODISSEI Data Facility, network specials for research, Health-RI
International infrastructure and collaboration	International-NetherLight, PRACE, HPC Europe 3

We organise and facilitate knowledge sharing and collaborations:

Knowledge sharing/collaborations	
EU projects on computing infrastructures and collaborations with communities (PRACE, EGI, CompBioMed)	Special Interest Groups

Main changes in direction

- Organisation of a vision for DRE/VRE with existing and/or future services of members, research communities, market players and/or the SURF organisation, including the (continued) development of projects supported by the RDM steering group, such as Research Drive.
- Translation of the vision into a functional and technical target architecture for virtual research environments that supports all phases of research.
- Development of a vision for optimal support of researchers in the use of research facilities and the division for roles between members, the Netherlands eScience Centre, SURF, DANS and other parties, for example by connecting local help desks.

We will implement the changes in direction for 2021-2022 in the following new projects:

New projects	Contents	Required budget
6.1 Vision for DRE/VRE	Organisation of a vision for DRE/VRE with existing and/or future services of members, research communities, market players and/or the SURF organisation, including the (continued) development of projects supported by the RDM steering group, such as Research Drive	PM
6.2 Functional and technical target architecture for DRE/VRE	Development of a standard for VREs of the members and market players in line with the agreements of (inter)national research communities and international initiatives (EOSC, EUDAT and so on)	PM
6.3 Vision for the support of researchers	Development of a vision for optimal support of researchers in the use of research facilities and the division for roles between members, the Netherlands eScience Centre, SURF, DANS and other parties	PM

Expenditure per year (based on 2020) x EUR 1,000	Total	Earmarked subsidy	Innovation covenant
Services	18.974		
Ongoing innovation projects	23.589		
New projects	PM		
Knowledge sharing/collaborations	41		
Services/projects to be discontinued	-1.867	1.785	
TOTAL	40.736		



DATA CONTROL

Educational data, study data, research data and medical data is very valuable. Commercial parties are also aware of that. They invest heavily in services that enable the use of various data. The use of these services has many benefits, but also raises questions about the legal and functional control over the data, for example. For the time being, market developments are causing a scattered playing field in which the roles of the various players are still far from clear. This requires a clear positioning of SURF's members to play an important role in this playing field and to ensure that they can use data under their own conditions.

Ambition

The SURF members have a joint vision of how they want to use the value of educational data, study data, research data and medical data in a secure, reliable and private way, also in their dealings with each other, and how they exchange knowledge and expertise in this regard.

This vision highlights the legal, ethical, technological, contractual, organisational, managerial and financial perspectives. The vision steers the organisation of professional federated data services for data storage, use, distribution and archiving. Agreements on standards and architecture steer the infrastructures that are required to use different types of data. The vision is based on the applicable laws and regulations, the implementation of the FAIR principles and the protection of public values, such as openness and democratic control. There is a clear division of roles and tasks between different parties within and outside the cooperative, such as VSNU, VH, the MBO council, NFU, NWO, OCW, DANS and the Netherlands eScience Centre. There is a certain vision of how SURF's members can best contribute their interests in a complex international playing field that involves major political and commercial interests.

Activities for 2021-2022

In 2021-2022, this theme will focus on vision building, strategy and a roadmap to steer various activities within other themes, such as research data management, making education more flexible and ICT infrastructure for education and research. An overarching vision for data makes it possible to make better use of ongoing projects that are focusing primarily

on sharing solutions, such as research data management, learning analytics or a discussion about the delivery models of learning materials. If new projects have to start based on the vision, strategy and roadmap, we will do this as part of other themes, such as research data management, making education more flexible and ICT infrastructure for education and research.

Main changes in direction

- Development of the members' joint vision for data sovereignty and the development of a strategy and roadmap for an infrastructure for the durable storage, use, distribution and archiving of different types of data, taking into account public values.
- Translation of the vision into a functional and technical target architecture for the use of data within other themes, such as research data management, making education more flexible and ICT infrastructure for education and research, and the coordination of the coherence and consistency of the various initiatives.
- Development and connection of knowledge and expertise and initiatives, such as the Architects Council, the National Platform for Open Science, the European Open Science Cloud, RDM, the Acceleration Plan for Educational Innovation with ICT, the Going Digital programme, RIO, Higher Education Chain Management Consultation, Special Interest Groups and so on.

We will implement the changes in direction for 2021-2022 in the following new projects:

New projects	Contents	Required budget
2.1 Vision for data	Organisation of the members' management-supported vision, strategy and roadmap for data sovereignty and durable storage, the use, distribution and archiving of different types of data, taking into account public values	PM
2.2 Consistent implementation	Coherent and consistent development of the vision within themes such as research data management, making education more flexible and ICT infrastructure for education and research	PM
2.3 Knowledge exchange	Development and connection of knowledge and expertise and initiatives, such as the Architects Council, the National Platform for Open Science, the European Open Science Cloud, RDM, the Acceleration Plan for Educational Innovation with ICT, the Going Digital programme, RIO, Higher Education Chain Management Consultation and Special Interest Groups	PM

Expenditure per year (based on 2020) x EUR 1,000	Total	Earmarked subsidy	Innovation covenant
Services	€ 0M		
Ongoing innovation projects	€ 0M		
New projects	€ 0M		
Knowledge sharing/collaborations	€ 0M		
Services/projects to be discontinued	- € 0M		
TOTAL	€ 0M		



SECURITY

Several recent serious security incidents have underlined the vulnerability of educational and research data. It is essential that we share knowledge and experience, and that we collaborate to identify, locate and respond to security incidents, so that we can optimise the sector’s resilience. Continuous adaptation to the information security standards is also necessary to guarantee the open nature of education and research without compromising security.

Ambition

SURF’s members are resilient to cyber-attacks and can guarantee the security of the open education and research environment within their own institution and sphere of influence. Thanks to the SURF Security Operations Centre (SOC) and the Security Incident & Event Monitoring (SIEM) service, the sector can recognise suspicious patterns in good time and the institutions can intervene promptly and adequately in case of security issues. Every 2 years, the SURF members review their security with the SURF Audit benchmark. SURF organises the OZON cyber security exercise every 2 years. SURF’s members pool their expertise on cyber security and privacy in communities such as SCIRT and SCIPR. SURF facilitates the platform for Integral Safety in Higher Education (IV-HO) in which VSNU, VH and OCW collaborate to develop a safe learning and working environment in higher education.

Activities for 2021-2022

SURF will continue to provide existing services focusing on security in 2021-2022:

Services			
SURFaudit	OZON	SURFsecureID	SURFdomains
SURFcert	EduVPN	SURFmailfilter	SURFcertificates
CyberSave Yourself			

We will continue several ongoing projects in 2021-2022:

Projects	Contents
Continued development of SURFaudit	Expansion of the SURFaudit assessment framework
Continued development of Firewall-as-a-Service	The Firewall-as-a-Service department is further developed in close consultation with the sectors
Continued development of the infrastructure for cyber security research	Continued and further development of the Thunderlab environment
Contribution to the National Cyber Security Research Agenda III (NCSRA-III)	Research agenda on security-by-design

We organise and facilitate knowledge sharing and collaborations:

Knowledge sharing/collaborations			
SURF Community for Information Security and Privacy (SCIIPR)	SURF Community of Incident Response Teams (SCIRT)	Platform for Integrated Safety in Higher Education (IV-HO)	TRANSITS training programmes for CSIRT/CERT members
SURFcert	EduVPN	SURFmailfilter	SURFcertificaten
CyberSave Yourself			

Main changes in direction

- Development of the members' joint strategic vision for cyber security that provides direction and coherence to existing and new initiatives.
- Development of new services in terms of the Security Operations Centre (SOC) and Security Incident & Event Monitoring (SIEM), which allow 24/7 monitoring of security issues.
- Initial exploration of the implementation of Data Protection Impact Assessments (DPIAs) and security audits within SURF.

We will implement the changes in direction for 2021-2022 in the following new projects:

New projects	Contents	Required budget
3.1 Vision for cyber security	Development of the members' joint strategic vision for cyber security that provides direction and coherence to existing and new initiatives	PM
3.2 SURFsoc services	Continued development of SURFcert and development of SOC/SIEM services	New services with fees
3.3 Development of DPIA services	Exploration of DPIA services	New services with fees

Expenditure per year (based on 2020) x EUR 1,000	Total	Earmarked subsidy	Innovation covenant
Services	2.835		
Ongoing innovation projects	492		
New projects	PM		
Knowledge sharing/collaborations	442		
Services/projects to be discontinued	-570	570	
TOTAL	3.199		



ICT INFRASTRUCTURE FOR EDUCATION AND RESEARCH

SURF provides members with an internationally competitive ICT infrastructure for education and research. Rapid ICT developments mean that the cooperative constantly has to consider which parts of the SURF infrastructure it will develop itself and which parts will be outsourced to the market under the members' conditions. Thanks to international collaboration with organisations such as GÉANT, PRACE, EGI and EOSC, SURF's services are in line with international infrastructures for education and research.

Ambition

SURF's members have a secure and state-of-the-art ICT infrastructure for education and research and develop a shared sourcing strategy that includes arrangements on standards and longer-term architecture principles. The conditions for the infrastructure's use are adapted to the needs of the sectors or institutions. The infrastructure allows researchers, lecturers, students and staff to work anytime, anywhere and on any device.

SURF is evolving into a management organisation for ICT facilities that makes sure that the services of ICT suppliers are delivered in an integrated manner under the members' conditions.

Activities for 2021-2022

SURF will continue to provide existing services in 2021-2022 that already form the basis of the ICT infrastructure for education and research:

Services			
SURFinternet	SURFfilesender	O365 Regie	SURFspot
SURFconext	SURFflightpaths	SURFdashboard/SAB	ICT purchasing
eduroam	SURFcumulus/CMP	SURFsupervisor	Content purchasing
eduroam Visitor Access	SURFdrive	SURFinternetpayments	Distribution of hard/software
SURFwireless			

We will continue several ongoing projects in 2021-2022:

Projects	Contents
Innovations in ICT infrastructure for education and research	Migration to SURFnet8, extension of the Cartesius National Supercomputer, continued development of various services, such as SURFconext, SURFwireless and ICT purchasing
Cloud sourcing	Development of new service models for the provision of cloud services, professional services (cloud consultancy) and expertise for business operations, education and research

We organise and facilitate knowledge sharing and collaborations:

Knowledge sharing/collaborations			
SURFacademy professionalisation, supplier days	What's Next @SURFconext	Special Interest Group Wireless Special Interest Group Networking (SIGN)	SURFdrive ambassadors

Main changes in direction

- Development of the members' joint long-term vision for a secure and state-of-the-art ICT infrastructure for education and research with architecture and sourcing principles and arrangements on standards.
- Development of SURF towards a management organisation for ICT facilities that determines the sourcing strategy and roadmap for the portfolio together with the members.
- Strengthening of SURF's purchasing power by working more closely with members to develop greater control over large market players.
- Optimisation of the lawful procurement from the range offered by the market players, making more room for sector-specific purchasing processes where necessary and further exploring how we can offer more flexibility to members in terms of when they choose to invest.
- Central organisation of knowledge about the laws and regulations, purchasing, privacy and security.

We will implement the changes in direction for 2021-2022 in the following new projects:

New projects	Contents	Required budget
1.1 Vision for infrastructure and SURF as a coordinating organisation	Development of the members' long-term vision for a secure and state-of-the-art infrastructure with architecture and sourcing principles and the protection of public values and SURF's role as a coordinating organisation	PM
1.2 Strengthening market ownership	Strengthening of purchasing power, offering more room for sector-specific purchasing processes, and optimising lawful procurement processes from the range offered by the market players	PM
1.3 Central organisation of expertise	Central organisation of knowledge about the laws and regulations, purchasing and privacy	Partial services with fees
1.4 Portal for purchasing SURF services	Development of the portal for all B2B services provided by SURF as a successor to various existing platforms, such as Mijn SURFmarket and SURFdashboard	PM

Expenditure per year (based on 2020) x EUR 1,000	Total	Earmarked subsidy	Innovation covenant
Services	137.585		
Ongoing innovation projects	5.950		
New projects	PM		
Knowledge sharing/collaborations	161		
Services/projects to be discontinued	-2.226	649	1.223
TOTAL	141.469		



INNOVATION WITH TECHNOLOGY

Technology is evolving very quickly. As a cooperative, SURF can only take full advantage of the opportunities and possibilities that new technologies offer and can only anticipate events in order to continue its world-class services, facilities and expertise if it has up-to-date knowledge of technologies, methods and applications in support of research and education. Investing in this knowledge, experimenting with new technologies in the context of education and research and scaling up new value-added technologies are therefore necessary. The cooperative does this in close collaboration with the member research groups.

Ambition

We strengthen the innovative power of both the members and the SURF organisation within the cooperative through smart collaboration and knowledge sharing. As a knowledge institution, SURF does not have an independent research task. Instead, it uses the knowledge that is developed in ICT and domain research. SURF engages in targeted collaborations with research groups and other organisational sections of members (such as libraries) in order to translate this knowledge into the requirements for the facilities and support of tomorrow and beyond. It is essential that the knowledge of innovators is made available to all members. As a cooperative, we develop insight into the impact and potential added value by experimenting with new technologies, such as augmented reality/virtual reality, serious gaming, artificial intelligence, the Internet of Things and edge computing, privacy-enhanced technologies and future computing.

Together with our members, we develop validated concepts and pilots, and we collaborate on technological innovation (IT and computer science research) and applications in research and education.

Activities for 2021-2022

We will continue several ongoing projects in 2021-2022:

Innovation themes	Contents
7.1 Future computing & data	Exascale technologies and applications, energy-efficient computing, AR/VR research and education
7.2 Quantum computing	Quantum technology for scientific applications and roadmap for SURF computing and network facilities
7.3 Machine learning & AI	Scalable deep learning
7.4 Data management	Future RDM infrastructures, trusted data sharing
7.5 Data processing & VREs	VRE support innovations, public cloud tech assessments, streaming data processing and edge computing
7.6 Network R&D	Research into network technologies

Main changes in direction

- Close coordination on the innovation agenda with the members to develop a joint strategic SURF innovation agenda.
- Strengthening of the collaboration with researchers and ICT departments of the members in terms of specific innovation that affects SURF's (future) services.
- Investigation of the possibilities of the Internet of Things, edge computing, augmented reality/virtual reality, artificial intelligence and future computing.
- Exploration of the digitalisation possibilities of laboratory facilities, for example through modelling or VR.
- Strengthening of the collaboration with relevant departments and research communities to better align the agendas.

We will implement the changes in direction for 2021-2022 in the following new projects:

Projects	Contents	Budget
7.1 Future computing & data	Federated HPC and expansion of AR/VR/serious gaming activities	SCLSI ² KBR ³
7.2 Machine learning & AI	Federated learning	SCLSI KBR
7.3 Data processing & VREs	Expansion of IoT and edge computing activities Review of VRE support innovations	SCLSI KBR
7.4 Digitalisation of labs	Exploration in consultation with members	SCLSI KBR

Expenditure per year (based on 2020) x EUR 1,000	Total	Earmarked subsidy	Innovation covenant
Services	302		
Ongoing innovation projects	3.926		
New projects	PM		
Knowledge sharing/collaborations	64		
Services/projects to be discontinued	-442	20	
TOTAL	3.850		

² Standing Committee on Large-Scale Scientific Infrastructure

³ Knowledge Base Renewal

APPENDIX 1

PROCESS FOR CREATING THE 2-YEAR PLAN FOR 2021-2022

On 9 October 2019, the Members' Council adopted new procedures for drawing up the 2-Year Plans and the Strategic Agenda within the SURF cooperative. In December 2019, the Board of SURF used these new ways of working to draw up a plan that allows SURF's 5 sectors⁴ to set their priorities. These priorities will then be used as input for the 2-Year Plan for 2021-2022. SURF drew up templates for setting these priorities and the process. It explained the plans in an interview with representatives from all 5 sectors. The Board of SURF set up a project team with a contact person for each sector. SURF has offered all sectors support in order to set their priorities. The deadline for submitting priorities was 1 June 2020.

On 12 March 2020, the COVID-19 lockdown resulted in the closure of education and research institutions. Even though members were under huge pressure to deal with this crisis, all sectors delivered their priorities before 1 June 2020.

Priorities by sector	Process description by sector
<u>Priorities of Research & other</u>	<u>Process description of Research & other</u>
<u>Priorities of university medical centres (UMCs)</u>	<u>Process description of UMCs</u>
<u>Priorities of university education (WO)</u>	<u>Process description of university education (WO)</u>
<u>Priorities of higher professional education (HBO)</u>	<u>Process description of higher professional education (HBO)</u>
<u>Priorities of vocational education and training (MBO)</u>	<u>Process description of vocational education and training (MBO)</u>
<u>SURF priorities</u>	

SURF organised 2 sessions on 22 April and 20 May to enable the sectors to discuss their priorities with each other. The 2-Year Plan project team summarised all the priorities in 7 themes. In June and July, the project team conducted online follow-up interviews with all sectors to assess whether the proposed clustering was in line with the provided priorities and to request or provide explanations where necessary.

In July and August, the project team identified the existing activities, the necessary savings for 2021-2022 and the reallocation of resources for new ambitions and the necessary changes in direction. On 1 September, the Board of Directors submitted a draft version of the 2-Year Plan to the SURF Scientific Technical Council (WTR) and the CSC chairs. Consultations with both bodies took place on 9 September. On 7 October, the draft 2-Year Plan was discussed by the Members' Council. The SURF Summit also took place on 7 October, and the 2-Year Plan was a prominent part of its programme. Reactions have been incorporated into a new version of the 2-Year Plan, which was sent to the Members' Council at the end of November. The Members' Council adopted the SURF 2-Year Plan for 2021-2022 on 9 December 2020.

⁴ Research and other is a composite sector of research institutes KNMI, KNAW, NWO, Naturalis, RIVM and ZonMw and the organisations National Archive, TNO, the Royal Library, SIVON, the University of Humanistic Studies and the Police Academy.

APPENDIX 2 OVERVIEW OF PROJECTS TO BE DISCONTINUED ON 1 JANUARY 2021

Project	Description	Reason	Net savings in EUR	Assessment of impact on members
Projects ending in 2020 that will not be continued			380.823	
Bandwidth-on-Demand	Provision of automated installation of light paths	Automation and orchestration in SURFnet8 will take over this functionality and BoD will come to an end	12.300	None
Impulse on Campus	Development of a vision for the Campus of the Future	Vision projects have been completed. Their results will give direction to the activities for 2021-2022	262.000	Limited
MBO-LAT	Insight into learning resources	Insufficient interest from institutions.	-16.000	None
Jitsi	Open source video calls	Discontinued on the advice of SPA	52.200	None
Tender for Cartesius replacement	Tender for new supercomputer	Tender completed in 2020	45.000	None
e-Studybooks	On-demand learning materials and licensed course books	Discontinued at the request of the members	80.000	Only impact at Hanze. Agreements have been made on this
QIA	H2020 project Quantum Internet Alliance	SURF participation to end at the end of 2020	-55.177	None
AV contract tool	The AV contract tool helps researchers, lecturers, staff and students draw up contracts	Discontinued on 1 January 2020 due to insufficient interest from members	500	None
Projects that are not sufficiently in line with members' priorities			835.977	
Data transfer nodes	Facilitation of high-speed data transfer using dedicated equipment and protocols	Insufficient urgency to develop and procure this service among members	100.000	The value potential lies primarily with researchers who want to transport very large data sets
XaaS	Research into new network functions to be virtualised, such as virtual routing, VPN and DNS	We will not invest in XaaS in 2021. It is important to invest in this again in the long term.	71.500	Limited in the short term, in time virtualisation techniques will also be the future in the network domain. Investments are needed to allow institutions to benefit from the flexibility, speed, scalability and reduced necessity to manage things themselves.
SURFmarket 4.0	Next generation of the Mijn SURFmarket portal (online purchasing and contract management),	In view of the financial challenges, we have chosen to put this on hold. It also takes time to first develop the plans further and to determine how we want to proceed with SURF's online integrated services portal. The strategy for this will be developed with the existing capacity	603.375	The current Mijn SURFmarket 3.0 platform will continue to run
Top sectors	Direct encouragement of business use of SURF knowledge and infrastructure	Expiry of the subsidy from the Ministry of Economic Affairs and Climate	1.922	Limited

Project	Description	Reason	Net savings in EUR	Assessment of impact on members
Enlighten your Research	Content to make research services more visible	The current EyR cycle has ended, and no new cycle will be launched in 2021	12.340	Impact is limited. The value of the concept decreases
SCxx Conference	SURF stand at SuperComputing conference	Rethink participation and impact in 2021	5.922	Less international visibility in terms of GÉANT, PRACE and so on
Enabling re-research infra-structures	Connection between the infrastructure of the research communities and the national infrastructure	Inclusion into the resources to be requested (facilities and human resources) for the national research infrastructure	32.250	Limited, connection of communities with national infrastructure can now be requested and defined in terms of scope
EUCP	EU Climate Prediction project	Other subsidy sources are used to match the EU subsidy	8.668	Project ends in 2021
Projects we are adjusting in terms of content based on the members' priorities			754.404	
Campusinfra research (network)	Research into the automated and integrated provision of LAN/WAN facilities (outsourcing of fixed network)	As yet insufficient commitment to large-scale investments	103.000	Limited. A proper tender process and structural savings on management efforts in 2021 can make room for service innovation
Threat intelligence	Development of a Security Performance Monitor that gives insight into certain trends and the relative security level of an institution	This functionality is expected to become available in 2021 with the tender of Security Incident & Event Monitoring (SIEM). It will therefore not be necessary to develop this ourselves	265,000	Small, provided that the tender is successful and adoption happens in accordance with the institutions' commitments
Exploration of Open Educational Resources	Technology review of the infrastructure for open educational resources (including AI)	For the time being, we are focusing on developing a stable service. New technologies are being explored within theme 7: Innovation with technology	81,000	More focus on service delivery and less on innovation
Scalable IoT platform for streaming data	Pilot support platform for IoT and streaming data	Expiry of the subsidy from the Ministry of Economic Affairs and Climate	6,450	Is continued within theme 7: Innovation with technology, expertise and support via the NWO's standing committee on large-scale scientific infrastructure. More focus on members' wishes
VRE community activities	Collaboration on VRE between SURF and the institutions	Inclusion into the innovation programme line for the cluster on collaboration in research	0	None
New business	Support of demand-driven service development and technology explorations	Technology review will be part of theme 7: Innovation with technology	0	Limited. Development of demand-driven services (for example NLBron and SURFworkspace) is financed with member contributions

Project	Description	Reason	Net savings in EUR	Assessment of impact on members
Research information in higher professional education (HBO)	Exploration for universities of applied sciences to register and share research information	Advisory report has been provided. Relevant stakeholders have been informed. Follow-up to be aligned with the NPPO project	5.000	Limited. Members can take desired next steps based on the provided advisory report
Data management	Data analysis of contracts	Assigned to UKBsis. SURF provides the tools	19.000	None, assigned to UKBsis
Research Cloud Innovation	Development of Research Cloud in 2020	Business Model 1.0 will be developed and presented to the SPA in 2020	166.204	The continued development of the Research Cloud will be delayed in 2021. NWO is only funding developments that are necessary for specific subsidy allocations. The focus is shifting to the connection with services provided by members and external suppliers, provided that the members are making resources available for this
Plagiarism tools	Exploration and adaptation of the SURFsharekit to include plagiarism tools	Is at the initial stage, no commitment from members yet	0	Limited, possible impact will arise if NL Source has to be realised
Projects to be continued with a lower budget			2.079.525	
SURFwireless service development	SURFwireless innovation including new functionality such as location-based services	Service development financing shift from innovation subsidy to fees	40.000	Limited. A proper tender process and structural savings on management efforts in 2021 can make room for service innovation
SURFnet8	Roll-out of the SURFnet8 network	A lower budget is required in 2021 as the project is approaching the end	450.000	Limited. Project is expected to be largely completed by 2020.
Research on Networks	Studies and PoCs with new network technology carried out in collaboration with university research groups and research institutions	We choose to reduce our investment in capital-intensive testing equipment in 2021	350.000	Small in 2021. Reduced investment will slow down the development of the network in the longer term
Automation & Orchestration	Software development for networks. This makes sure that we improve the quality and availability of the network and we significantly increase the delivery speed of new services	We are delaying the development due to the high cost of external hiring	200.000	As fewer software developers are hired, certain functionalities will become available later. Making the platform open source is also slowing down

Project	Description	Reason	Net savings in EUR	Assessment of impact on members
NFV Infra	Development of the platform for virtualised network functions	Cutting/bleeding-edge technology for which there is no concrete demand as yet	132.000	Small in 2021. Reduced investment will slow down the development of the network in the longer term
Network Dashboard	Continued development of the Network Dashboard showing the institutions all the real-time information about their purchased services	We are putting this on hold pending the development of a SURF-wide service portal	20.000	Limited, existing dashboard remains available
Flexible and personal learning and working environment	Works with institutions and suppliers to investigate what a modular learning environment could be like in practice	Makes more specific choices about the activities to be done to meet the institutions' specific wishes	165.000	Limited, also by organising education projects in a smarter, more efficient way
Identifiers	The creation of the National Roadmap for Persistent Identifiers in collaboration with various research stakeholders	The implementation phase will start in 2021 and can be implemented within SURF with the existing capacity	70.000	Limited, required expertise is available internally
SURFworkspace	Demand-driven service development for the digital workplace	Goes to services with fee income	25.000	Limited, the challenge is to develop the services within the budget
Infrastructure Services Computer	Support for research services and internal SURF operations	Review of internal projects	100.000	Limited, efficiency is organised in the new organisational structure
Daphne development	Platform for several research-related services	Platform has been completed. No external development capacity needed anymore	132.525	Limited
National Research Support Centre	Development of service portal for research services of members' research communities	Is a service with fee income as of 2021	50.000	Limited
RDM Expertise	Centre of expertise for RDM facilities (and cooperation with the DCCs)	Activities are organised and staffed differently within the new SURF organisation	50.000	Limited, more efficient use of resources by using internal SURF expertise
Impulse Research	Activities and vision paths for the impulse survey	Activities are organised and staffed differently within the new SURF organisation	180.000	Limited, activities will be carried out elsewhere within the new SURF organisation with less external hiring
SURF Research Access Management (SRAM)	Development of the SRAM department	Is a service with fee income as of 2021, which means less development budget is necessary	115.000	None
DDoS mitigation	Necessary expansion of anti-DDoS facilities	Capacity of current anti-DDoS facilities is not sufficient for SURFnet 8 bandwidth	-50.000	None
Total of projects to be discontinued			1.971.204	
Total of projects with a reduced budget			2.029.525	
Total savings			4.000.729	

COLOPHON

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Vrije Stijl, Utrecht

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SURF/Studio Koelewijn Brüggerwirth

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Driving innovation together

Universities, universities of applied sciences, senior secondary vocational education (MBO) institutions, research institutions and university medical centres collaborate within SURF on ICT facilities and innovations, thus enabling improved and more flexible education and research. We do this by providing the best possible digital services, by encouraging sharing and exchange of knowledge and, most of all, by constantly innovating! This way, we are contributing to a strong and sustainable knowledge economy in the Netherlands.

SURF