3 ROLES 1 SURF

Strategy 2022 – 2027

services

innovation

association

SURF

CONTENTS

MANAGEMENT SUMMARY

Developments in education and research

We see a large number of developments that present challenges for Dutch education and research. A selection of current developments: as far as the market and technology are concerned, the digital transition is offering opportunities, the platformisation of services by market players is affecting supply and demand and the topics of digital sovereignty, sustainability and cybersecurity require more attention. If we look at politics and society, we see more and more focus on areas such as privacy, public values and the responsible sharing of data. We also see that education needs to become more flexible in order to offer students more freedom of choice. In terms of research, the way we handle data is changing, and the importance of the FAIR principles is increasingly recognised.

Challenges and ongoing needs

We need to respond to these developments. Based on this, we see the following challenges for education and research:

- Good and efficient collaboration with each other and with (international) relevant parties
- The continued autonomy of the sector at a time when big tech is gaining influence
- The protection of our infrastructure, (research) data, and personal data against (cyber) threats
- A quicker and more efficient response to developments

As an IT cooperative, SURF is ideally positioned to take on this challenge.

We also keep an eye on the ongoing needs of SURF's members; they are affiliated with SURF because the SURF organisation provides reliable and efficient services, drives IT innovation, and organises knowledge sharing. The SURF organisation continues to work on improvements in terms of those basic needs.

SURF's roles

SURF has traditionally had 3 roles. These are embedded in the legal form of a cooperative, which is an association with a business organisation. To be even more successful in the future, we will act as a cooperative in an even more conscious way:

1. SURF as an **association** in which members work together across the boundaries of their sector/campus and together with the SURF organisation, to develop, combine and share knowledge about the optimal use of IT in education and research,
2. SURF as a **service provider**, in which the SURF organisation provides a reliable, state-of-the-art range of services that has been created in consultation with the members and
3. As an **innovation workspace**, where we create an environment in which members can collaborate on complex innovation issues with each other and with the SURF organisation in an optimal way. We choose to tackle these issues with an **ecosystem approach** that brings together various parties, agreements, and technologies to achieve a solution.

Collaboration in ecosystems

New forms of collaboration are needed to ensure that content and technology reinforce each other. Collaboration is needed on a national and international level. SURF has a role to play to promote this collaboration. We opt for an integrated approach in which **people** (institutions, experts, suppliers and so on), **agreements** (protocols, standards) and **technology** (service and innovation) come together in a structured way to reach a solution. That is the ecosystem approach. SURF's role in such an ecosystem can be that of a coordinator, an initiator or a supplier of knowledge or technology, and may change at different stages of the ecosystem's development.

Innovation zones and ambitions

The innovation workspace strategy focuses on 9 **priorities** in the sector: 4 for the education domain, 4 for the research domain and for now 1 cross-domain innovation zone. We are going to move these priorities forward in the ecosystem approach. Each of these priorities has an **ambition**. The achievement of this ambition is supported by projects in **roadmaps** that can take several years. The roadmaps and KPIs are developed together with the members. Public values, architecture and other building blocks from the association innovation and service providing are reflected in every priority.

Transcending domain

Innovation zone	Ambition
State-of-the-art (cyber)security	SURF ensures that the sector is resilient so that everybody in Dutch education and research can work openly and securely without any worries.

Education domain

Innovation zone	Ambition
Enable flexible education	Dutch education has a basic infrastructure that makes it easy to exchange educational information.
Encourage digital educational resources	SURF offers Dutch higher education a coherent portfolio of services for digital educational resources. SURF's members are in charge of the pricing and the access and usage conditions for licensed digital educational resources from publishers.
Use study data responsibly	By 2027, Dutch education will get opportunities to use data for and in education in a transparent and responsible way. We have also made the use of data for innovation and quality improvement even more accessible.
Provide online education and digital assessment	Students can take part in high-quality education and assessments at any time and in any location. Lecturers who provide this education are supported by the appropriate educational applications and a flexible digital learning environment.

Research domain

Innovation zone	Ambition
Handle data responsibly	Researchers can make both sensitive and non-sensitive data available according to the FAIR principles and reuse it in the most optimal way.
Use infrastructures in the best possible way	All researchers are free to focus on their research without any worries and make effective use of the available facilities in the digital infrastructure. Within SURF, we are building a stronger connection between the national and international infrastructures.
Build skills and capacity	The competencies researchers need to digitalise research are supported by a shared curriculum via the collaboration between Digital Competence Centres and research schools.
Reinforce open science	The research community can shape the handling of research information in a responsible way and has the power to share, find and evaluate publicly funded research.

Culture and core values

The transition to 1SURF and the future prospect outlined by the SURF strategy mean that the SURF organisation needs to develop. The SURF organisation originated from 3 operating companies (SURFmarket, SURFsara and SURFnet) and the SURF office. This brought different cultural aspects, processes and competencies together. Our desired development and SURF's DNA come together in our core values: passion, reliability and openness.

Funding model review

Members' increased demand to provide IT solutions to challenges in education and research has to result in appropriate staffing at the SURF organisation. The Board and Members' Council have therefore agreed that the funding model will be reviewed and aligned with the strategy. We will do this in a transparent way in close consultation with the members.

FOREWORD

This document describes the strategy of the SURF cooperative for 2022 to 2027. A strategy of this kind does not come out of the blue. We have talked to members and other stakeholders, and we have listened carefully to the members' needs and wishes. This involved the Members' Council, the CSCs, the Scientific Technical Council, and the Supervisory Board. The SURF organisation has also provided a lot of input, with lessons from the past and ambitions for the future. We have tested and developed ideas together in webinars, meetings with managers and team leaders and the Works Council.

It is clear that digitalisation is fundamentally affecting our society. In 2020 and 2021, the changes caused by the covid-19 pandemic have been very rapid. We have seen that digitalisation offers great opportunities for education and research. At the same time, it has put a magnifying glass on the less pleasant sides, for example when it comes to safety, autonomy and equality of opportunity. To keep the quality of education and research in the Netherlands as high as it is, and to remain relevant on the world stage, we must provide an adequate response to both the opportunities and threats. To do so, we need to introduce new products and services, but also maintain and further develop the existing IT infrastructure of SURF and its members.

In the fifty years that SURF and its legal predecessors have existed, we have moreover shown that we can do this especially well by working together. SURF is a cooperative and we are a cooperative for good reason: SURF combines the knowledge of the members and employees of SURF. We learn from each other, develop together, and take a stand together when necessary. You may go faster alone, but together we will get further.

We are therefore proud of the SURF community. We truly appreciate the great sense of engagement we see in members and colleagues of the SURF organisation. As the new Board, we are impressed by the great commitment that our people – members and employees alike – are showing to tackle the challenges of education and research with IT together. It means that we can look to the future with confidence.

Jet de Ranitz
Hans Louwhoff
Ron Augustus

1

INTRODUCTION

1.1 Why a new strategy?

We have analysed the developments in the world around us. If we look at them, we see that a lot is changing - socially, technologically and economically, and therefore also in education and research. This means that a lot is changing for our cooperative as well. A new strategy is therefore necessary to ensure that, in the years ahead, SURF continues to focus on the subjects that are crucial for Dutch education and research. A new strategy will also ensure that we do so in a way that really helps to take those issues forward.

This new strategy also requires strong commitment on the part of SURF members: commitment to take on more jointly, to purchase new SURF services jointly, and to participate actively in SURF projects.

1.2 What is and what is not included in this strategy?

Based on the developments that we see and on the basis of SURF's mission and vision, we describe the roles that SURF will (continue to) play in the years ahead for Dutch education and research.

We show where our priorities lie, in addition to providing reliable services: what are the most important (innovation) themes that we focus on and what are our ambitions in this respect? Finally, we discuss the impact of the strategy on governance, culture, our core values and risk management.

What you will not find in this strategy is how we will implement it in concrete terms. We will do this when making the roadmaps for the innovation zones. Given the complexity of and the required commitment to the innovation zones, it is essential that the members not only provide input during the creation of the roadmaps, but are also closely involved and can develop ownership during the implementation. This is based on the idea that the results from the innovation zones must ultimately be implemented within the institutions.

1.3 For whom is this strategy document?

In brief, this document is aimed at all SURF members; it is particularly relevant for administrators of SURF members, CSCs, and IT managers of member institutions. For the SURF organisation, this document provides direction for policy and implementation.

Good to know if you are going to read this document

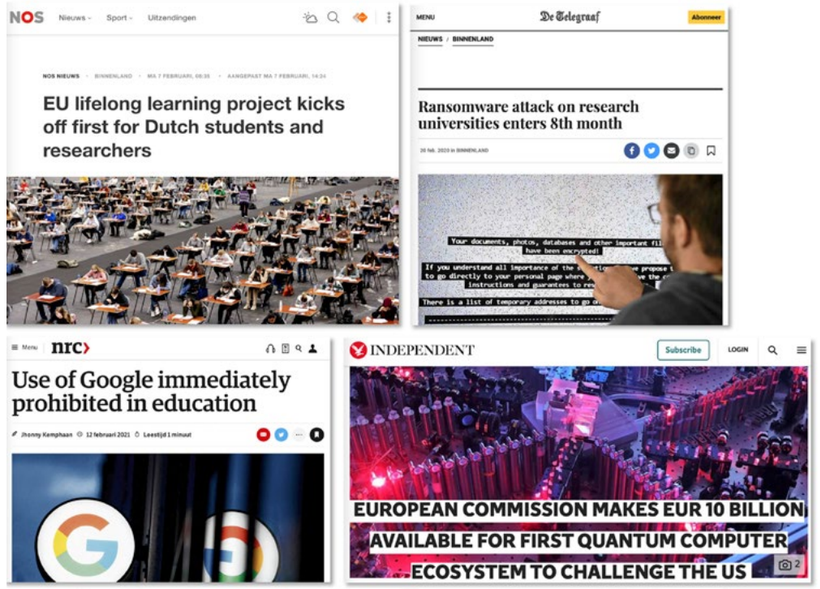
When we say 'SURF' in this document, we mean SURF cooperative: that is, the Members and the SURF organisation together. After all, we all make up SURF. When we refer to the implementing organisation SURF bv, we say 'SURF organisation'.

2

EDUCATION AND RESEARCH **A WORLD IN MOTION**

2.1 Introduction

Imagine the following headlines:
- Ransomware attack on research universities enters 8th month
- Use of Google immediately prohibited in education
- EU lifelong learning project kicks off first for Dutch students and researchers
- European Commission makes EUR 10 billion available for first quantum computer ecosystem to challenge the US



These events could become reality over the next 6 years. They show us what digital changes are coming our way. These changes cannot be seen independently from how the digital transformation of education and research is shaped. What challenges is the SURF cooperative facing as a result of all these developments? What new needs will emerge from this, for example in terms of the collaboration within the cooperative? And which needs will remain the same: what do SURF members expect the SURF organisation to keep doing?

2.2 Developments

2.2.1 Market and technology

Technology evolves much faster than organisations do. It is therefore important to continuously monitor the technological developments, and to determine how they impact the education and research sector. This allows us to seize the opportunities offered by technology, and to avoid or minimise any potential adverse consequences.

We see 6 developments in the market and technology that will have a major impact on education and research – and therefore on SURF – and that we must therefore keep a close eye on.

1

The **digital transition** offers more and more opportunities, for example, new ways of research and education, more opportunities to collaborate nationally and internationally across institutions and disciplines, location-independent working, and the optimisation of business operations. This is also associated with risks and threats, such as the legal and ethical aspects, threats to public values like accessibility and autonomy, and an increasing shortage of qualified IT staff. Artificial intelligence and the availability and (re)use of data are key elements of the digital transition. They will therefore have a major impact on future education, research and business operations in the sector.

2

The **platformisation of services**, innovation and knowledge by market players is reorganising supply and demand. This creates new dependencies and relationships between users, institutions and suppliers. We need to make sure that these platforms and suppliers continue to match the ambitions of the education and research institutions, their students and their employees (and not the other way around).

3

Digital sovereignty: how do we maintain control and ownership of education and research now that they are being increasingly digitalised? How do institutions and users stay in control of the underlying digital infrastructure and data? To answer these questions, we need to organise the control of digital systems and data very well, and we also need to look at related issues such as privacy, intellectual property, accessibility, and the dependence on (commercial) suppliers.

4

Sustainability is a major challenge for education and research. When it comes to IT, the focus is on CO2-neutral operation and circular procurement. We need a new approach in terms of energy and material management, for example, in view of hardware chips shortages. Structural and disruptive changes are necessary in those areas. Sustainability also drives innovation.

5

Cyber threats pose an ever-increasing risk to almost all education and research processes. This is partly due to the fact that our sector is becoming more dependent on IT. We therefore need to pay a lot of attention to this and deal with the related issues across the sector.

6

Technologies with a potentially disruptive effect are being developed at a rapid pace, including by SURF members. They include quantum computing and the incorporation of artificial intelligence into existing and new applications. We don't know yet whether every technology can offer any added value for education and research or how it can or should be applied.

2.2.2 Politics and society

We are doing more and more digitally, which brings new challenges. How do we protect the rule of law, democracy, prosperity, and the capacity to innovate? We see a number of developments in this regard.

The government, and certainly education and research, is focusing more and more on **protecting the privacy of users** and other **public values**. We see that a small number of large tech companies are becoming more and more powerful with possibly diverging views on data privacy. Collecting and selling personal data is the livelihood of some of them. The increasing use of AI is another reason to pay attention to data privacy: AI offers opportunities, but also comes with certain risks, in terms of data privacy, built-in bias, transparency and autonomy.

The government is also focusing on **data sharing**. This has economic importance: companies can innovate faster with good access to data that results in research. The government also wants to make sure that publicly funded research benefits society as a whole based on the model of open science and principles such as FAIR (Findable, Accessible, Interoperable, Reusable). Professionals need access to the latest scientific insights, for example.

Political discussions about data and infrastructure also focus more and more on **sovereignty**. The changing geopolitical relationships make us wonder whether we are becoming too dependent on non-European products, services, and infrastructures.

2.2.3 Education and research

Developments across the industry

We see new and complex forms of collaboration emerging in education and research. Not only within the sector, but also between the public and private sectors. Citizen science is emerging, with volunteers or non-professional scientists participating in research.

Digitalisation is increasingly seen as a given, which we must use to the best advantage in education and research. We see that SURF members feel the need to change the way digitalisation is designed, in line with the developments we have outlined above. This affects areas such as security, enterprise technical architecture, public values, and sustainability.

Developments in education

Education needs to become more flexible. This is due to 2 important developments:

- The labour market is changing rapidly, which means that employees need to continue to develop through training and in other ways. Even after their formal studies are over. The type of education required for lifelong learning should better reflect the experience of workers and their other living conditions. This requires **more flexibility in education** both in terms of the type of modules on offer and how they are provided.

- Formal educational institutions also want to offer more **freedom of choice**. It must become easier – both within institutions and across institutions – for students to choose their own path in line with their ambitions and possibilities. Some may want to be challenged more, while others may need some extra support. Institutions want to offer more **customisation** as part of a coherent programme that focuses on knowledge building as well as personal development and socialisation. Students are growing up in a digital world and expect nothing less.

Digital developments offer major opportunities for improving education and student support, for example learning analytics. At the same time, the pandemic that started in 2020 has shown us that digitalisation alone might be insufficient: to ensure good education, wouldn't we need to strike a balance between digital resources and 'live' components, a blend that is based on a clear vision?

As the education market strives towards being more digital and flexible, it becomes more attractive to commercial parties. For example, in 2020 publishers and tech companies worldwide invested $5.6 billion in digital educational tools, artificial intelligence for personalised learning and advanced educational resources. We are seeing the emergence of **platformisation** here too: providers are developing their own platforms for education.

These are positive developments as such, as they help accelerate digital transformation in education. However, the rise of commercial parties is also associated with a certain risk: because they are gaining an increasingly strong position in education, our **digital sovereignty** may be at stake. We must therefore make sure that the rise of these parties does not jeopardise our independence.

The digital transformation is also an **international development**. It takes place in all countries: commercial parties and SURF members are all active internationally. This means that the relevant legislation must be regulated internationally. Students are also mobile: Dutch students study abroad and foreign students come here. More flexibility and lifelong development must therefore be facilitated on a European and even global level. This is why we need to work together globally to set up standards and infrastructures for cross-border student mobility, international curricula and internationally recognised qualifications and certificates.

Developments in research
The digitalisation of research continues in all scientific fields. The biggest challenge in this respect is **how we deal with data**: we need to securely find, process, share and store data at multiple locations in the world subject to agreements that represent the public values of the research sector.

Publications, research data and other research products (including their processing) are also of interest to commercial parties. This also includes the data about the science industry which lies at the heart of quality assurance and policy. It is in the research sector's interest to ensure the independence of research. **Data sovereignty** is an important element in this regard. To this end, a soft infrastructure system can be used to set up the right preconditions and technology can be used to enforce control over the data and intellectual property.

Knowledge and expertise are scarce goods. **Research supporters and data stewards** are increasingly recognised as an essential and independent part of the scientific process. In order to maximise the return on the knowledge that is available in the sector, collaboration in terms of knowledge sharing, training and knowledge innovation will have to be further developed in the coming years.

The costs of IT facilities and related expertise are eating up more and more of SURF's members' research budget. As far as infrastructure is concerned, federated collaboration can ensure effective and efficient use of local, national and European digital infrastructures for research and discipline-specific partnerships within those infrastructures. National and international collaboration in that regard will keep the costs acceptable and will make sure that the FAIR principles are applied. This makes it possible to **scale up researchers' applications**. The challenge for the coming years will be to ensure the accessibility towards researchers as much as possible (on a technical and procedural level).

2.3 Challenges for education and research

The previous sections discuss a large number of developments that are affecting Dutch education and research, and therefore also SURF. Some keywords are digital transformation, public values, sovereignty and cybersecurity. As an IT cooperative for education and research, SURF is ideally positioned to take on this challenge. We see the following challenges.

2.3.1 Good and efficient collaboration

Our organisation has the form of a cooperative with a specific purpose in mind. Collaboration at many levels is at the heart of SURF. It is about working with each other within the same sector and across sectors. With the SURF organisation and various other stakeholders at home and abroad. In small and large coalitions depending on the subject. It is also about collaboration of the SURF organisation with nationally and internationally relevant parties on behalf of its members. The aim is to assure a strong infrastructure, to innovate with IT, to achieve purchasing power, to develop knowledge, to share and to join efforts. Working together makes it possible to combine scarce human and other resources and to be connected in a secure and open way internationally.

> **If we successfully meet this challenge, we will achieve greater harmonisation in services, procurement and knowledge development.**

2.3.2 Remain autonomous as a sector

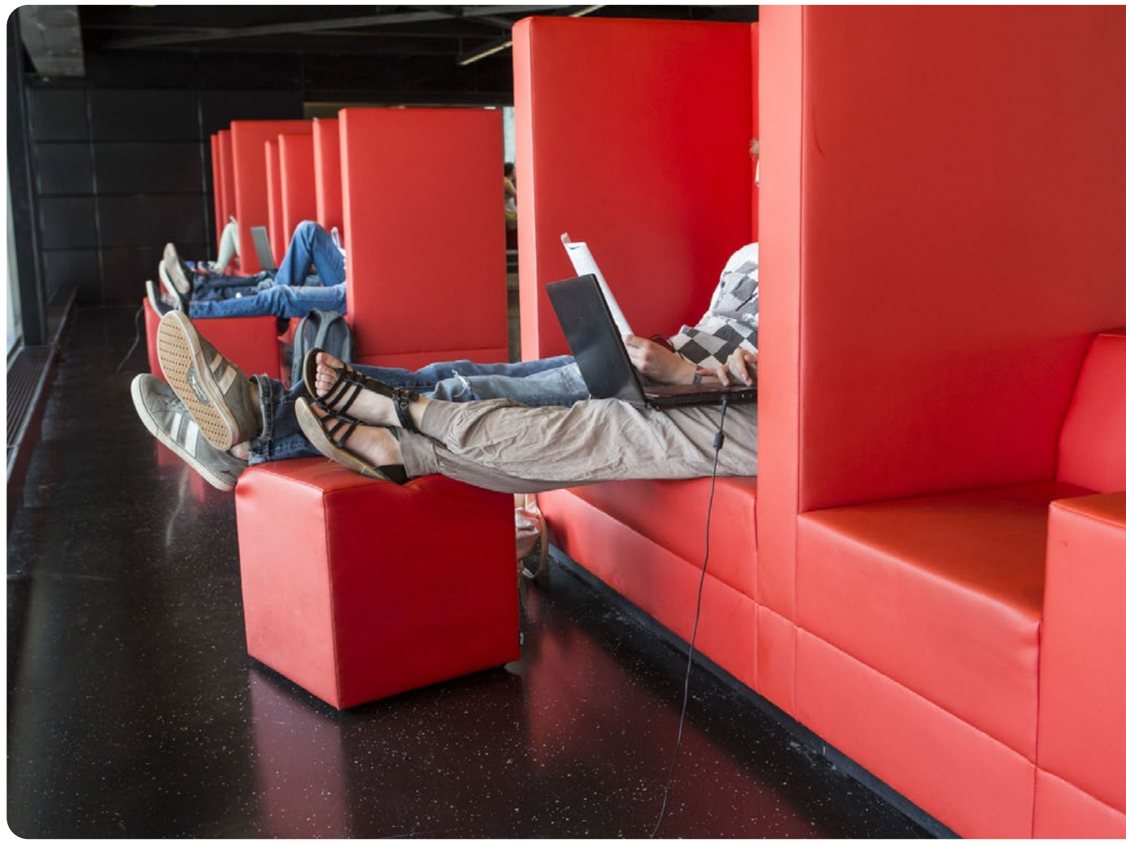
The big tech commercial giants are gaining power, and also want to have an impact on education and research in order to increase their own turnover. The challenge is to stay in control. That is why proper agreements must be concluded with suppliers, for example in terms of privacy and data protection. This requires firm negotiations in order to agree on a good price and the right terms of delivery. Exit strategies and a data sourcing strategy can also be considered.

> If we successfully meet this challenge, we will provide more direction to SURF members.

2.3.3 Protect against threats

It is extremely important to protect areas such as infrastructure and personal and other data. The security of education and research requires an integrated approach that focuses on the online and offline campus. This is about technical protection, but also about promoting awareness and perspective of action (including incident response and crisis management). Cyber threats such as hacking, ransomware and phishing are no longer exceptions. More and more attention is also paid to other threats that are affecting societal security, privacy and knowledge security.

> If we successfully meet this challenge, we will achieve greater security for students, researchers, teachers, and other employees in education and research.



2.3.4 Respond to developments more quickly and more efficiently

The developments around us keep moving faster and are more and more complex. Our current planning offers insufficient flexibility to respond to developments. To ensure we can come up with the right solutions, our cooperative needs to become more agile to respond to current events and build coalitions between members and supply chain partners in a different way.

This imposes certain demands on our decision-making process and our way of making timely adjustments. A new way of working is also necessary to look at the future in a more effective way (futuring), so that we can respond faster and more effectively to developments.

> If we successfully meet this challenge, we will achieve more innovation for Dutch education and research.

2.4 Permanent needs of members

Members are affiliated with SURF because the SURF organisation provides reliable and efficient services and members have adapted their own IT organisation to those services. Members expect continuity and state-of-the-art quality from the SURF organisation: the services continue to be developed further so that members can offer their employees and students an affordable IT environment that is perceived as reliable and competitive.

2.4.1 Services
SURF's members obviously still need good IT services. This is and remains SURF's core activity (see Annex 2 for an overview of the services provided by the SURF organisation). The SURF organisation will continue to provide a distinctive, high-quality service portfolio, but will do so in a more cohesive way and with more coordination. There needs to be cohesion between the services of the SURF organisation itself, but also between SURF's services and the members' services. The services offered by the SURF organisation must be more aligned with the institutions' processes. We will increasingly be working under a technical architecture model to help achieve this.

2.4.2 Innovation
Innovation is a key requirement for a collaborative IT organisation such as SURF. The SURF organisation continues to drive IT innovation, and continues to do so together with the members. We will focus even more on this in the coming years. We will explore, experiment, validate and develop together to keep SURF's knowledge position up to date, and the members and organisation will build knowledge in a cooperative context together.

This will ensure that as a sector, we are state of the art or we even lead the way in developments in areas such as more educational flexibility, data protection and the application of machine learning in research and education. It will also tell us what needs to be done to prepare our sector for the use of quantum technology, for example. The creation of a new innovation department and the introduction of a Chief Innovation Officer (CINO) on the Board of the new SURF organisation provides structure and focus, although our capacity for innovation is driven by all SURF employees in all departments.

2.4.3 Knowledge sharing and expertise
SURF has a great deal of knowledge and expertise. Much of this knowledge lies with the members, and they want to share this knowledge with each other. The SURF organisation also employs a lot of specialised staff. Experts from the members and from the SURF organisation work together and meet each other in the association in order to come up with new ideas and insights in a wide range of areas.

The SURF organisation develops, combines and shares knowledge of members and its own people, for example in publications, with online FAQ web services and through special meetings. Members of expert communities meet each other at SURF. These are very varied groups, from IT directors, CISOs and libraries, to researchers, lecturers, data protection officers, safety coordinators and ICTOs. Directors also value the cross-sector IT exchange for education and research in events at home and abroad. The aim is to inspire each other, to learn from each other and to avoid having to reinvent the wheel by themselves.
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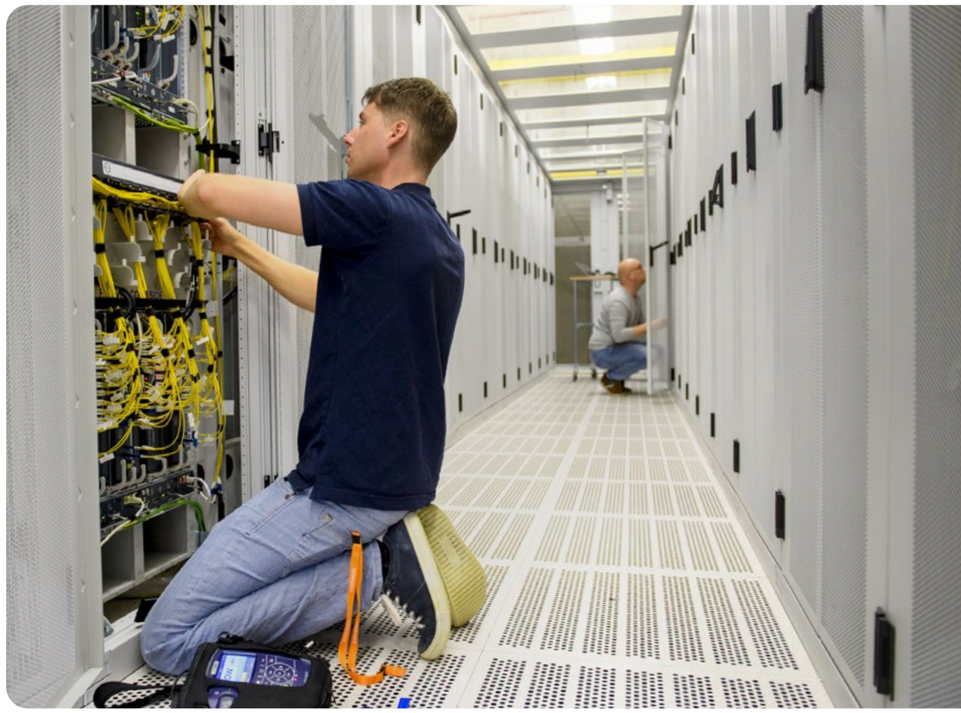


3

WORKING TOGETHER

3.1 Introduction

This chapter describes what SURF as a cooperative stands for (our mission) and what we are working towards (our vision). It then shows how we are going to shape that mission and vision. We do this by defining 3 roles for SURF and by showing how we work together in those roles. We discuss how the SURF organisation collaborates with its members and how its members collaborate with each other within SURF.

3.2 SURF mission and vision

Mission:
SURF enables reliable and innovative IT facilities that allow Dutch education and research to excel.

Vision:
SURF shapes the development of the ecosystems in which the members and their stakeholders collaborate, innovate and share knowledge based on shared values and agreements. SURF forges strong coalitions for procurement and service development. SURF provides infrastructure, services and expertise that are essential for the sovereignty and international standards of education and research.

3.3 New forms of collaboration

We need a proactive attitude to realise our mission. Our people see opportunities and are eager to commit to them. Larger digital innovations can only succeed if they are embedded in an unambiguously agreed sector-wide policy on the content ambitions of education, research and the associated organisation of institutions. This vision will have to come from the umbrella organisations and members. This requires new forms of collaboration to ensure that content and technology reinforce each other. This means that SURF and other organisations where members meet (such as umbrella organisations, steering groups and consultations with the government and companies) will also have to strengthen each other more explicitly. SURF will make every effort to achieve this.

3.4 What SURF is and what it is not

Given the complex stakeholder field in which SURF and its members move, it helps to say what we are not. As a cooperative, SURF is not a policymaker. SURF is not a research or educational institution. SURF does not outsource primary business systems. SURF is not an industry association. SURF does not compete with market players. SURF is not profit-oriented. SURF does not make agreements with the government on behalf of the members and cannot bind members. SURF is not the IT department of the member institution.

We can, however, give advice on technology and IT and its use in the hope that everyone will benefit from this. We can help members implement those solutions. When we act on behalf of members, we do so because those members have explicitly asked us to do so. We have always been strong in providing reliable IT services and networks, but we are now focusing much more specifically on building integrated facilities that better meet the complexity of IT management and the use of IT in education and research. This fundamentally changes the primary process of our members. We need all players in the domain for this and thanks to its central position, SURF enables us to bring together the right people, agreements and technologies. This allows us to stay one step ahead of developments and make them our own.

3.5 Funding model review

Members' increased demand to provide IT solutions to challenges in education and research has to result in appropriate staffing at the SURF organisation. Although our people are always willing to go the extra mile, we cannot require this from them on a structural level. This applies to national tasks and to the assurance of the necessary international relationships. It goes without saying that we want to be transparent about pricing and the costs of our activities and services. The Board and Members' Council have therefore agreed that the funding model will be reviewed and aligned with the strategy. We won't be able to do this overnight and there will always be limitations in terms of resources. We will take the time to implement this change in close consultation with the members.

3.6 SURF has 3 roles

3.6.1 Introduction
SURF traditionally has 3 roles. These are embedded in the legal form of a cooperative, which is an association with a business organisation. To be even more successful in the future, we will act as a cooperative in an even more conscious way:

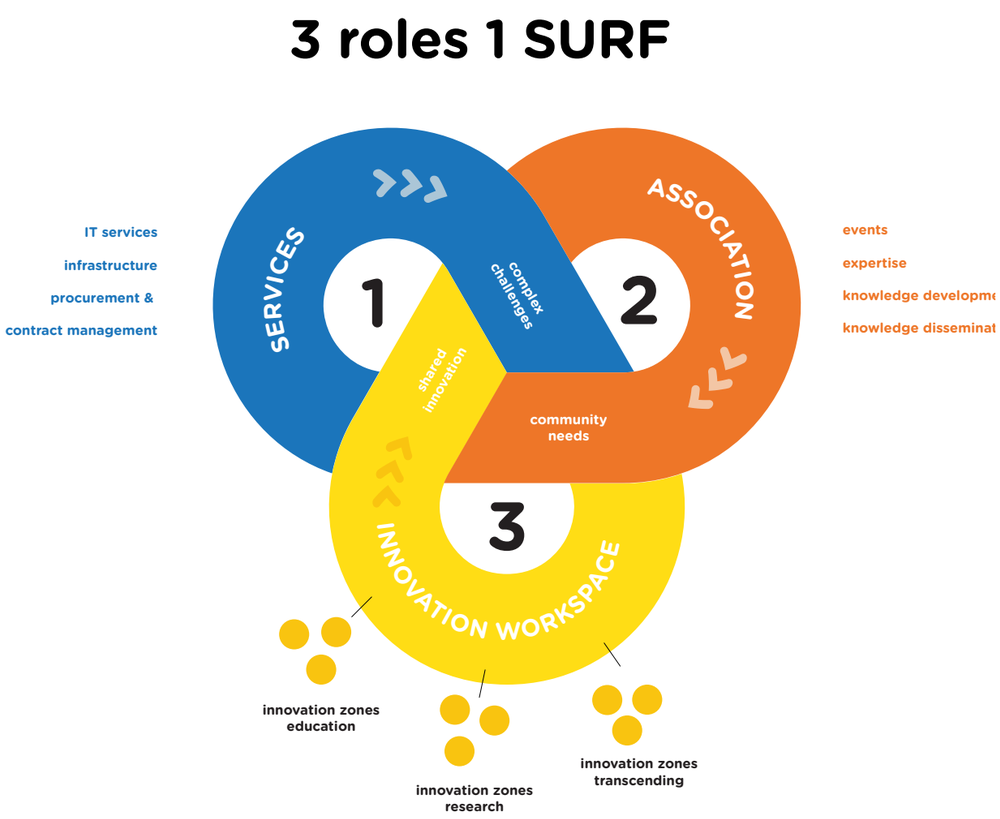
1. SURF as an **association** in which members work together across the boundaries of their sector/campus and together with the SURF organisation, to develop, combine and share knowledge about the optimal use of IT in education and research,
2. SURF as a **service provider**, in which the SURF organisation provides a reliable, state-of-the-art range of services that has been created in consultation with the members and
3. SURF as an **innovation workspace**, in which we create an environment where members can optimally collaborate on complex innovation issues with each other and with the SURF organisation.

We create more clarity by making the members' own perspectives more specific. This allows us to promote collaboration, respond to developments and needs in a better way, strengthen our existing role as a service provider and make our decision-making process more predictable and transparent.

3.6.2 Cohesion between roles
Most of SURF's activities will take place within our roles of an association and as service provider. Think of the further development of services; that remains a priority for SURF. In doing so, the SURF organisation is responding to the wishes of the SURF members to have a place to meet and exchange ideas about IT developments and about offering high-quality IT services for education and research.

Much exchange and cross-fertilisation takes place between the roles. For example, the innovation zones in the innovation workspace can make use of the activities in the association and the services. In an innovation zone, a service or knowledge development from the other roles can be applied.

At the same time, the innovation workspace contributes to the roles of service provider and association. For example, complex adjustments in services can be developed in the innovation workspace. And if the innovation workspace produces a successful innovation, it can be given a place within SURF as a service or as an association activity.



In order to make the best use of this cohesion, the harmonisation of the SURF organisation (1SURF), which was set in motion as a result of the merger in 2020, is a condition that remains a priority for 2021-2022.

3.6.3 SURF as an association: bringing members together and spending time together

What does this role entail?
At SURF you always learn something new: SURF is a welcoming, open meeting place for directors and experts for IT-related developments. This allows us to spend time together: through our communities, we develop and share knowledge, we discuss the joint demand for IT services and we combine the demand for solutions. Experts from the SURF-organisation and members develop insights into the best technology application in their field and advise their own directors and the collective on this. Of course, this is also a place where members can put new topics on the agenda, gain knowledge and form an opinion on IT-related topics.

SURF is there for its members. The SURF organisation enables them to offer the best education and research. This means that the SURF organisation is primarily there for experts (including researchers who use specialised services) who work for members and their directors. Only SURFspot is open to all employees and students. The SURF organisation enables members to make arrangements within their own institution, with each other and with the stakeholders and authorities. If any binding collective agreements are concluded, members will do so via their industry association (umbrella organisation). The SURF organisation will not do this unless members and their industry group(s) explicitly request it.

What are our ambitions for 2022-2027?
SURF is proud of what it does as a cooperative and we also like to meet each other. We organise all kinds of events, such as training courses, webinars and inspiration sessions. SURF is a home base for its members: we can meet each other there, there are plenty of opportunities for professional and hybrid meetings where knowledge can be shared and combined.

Directors, experts, lecturers, researchers and colleagues at the SURF organisation always learn new things from each other, either during meetings or at the coffee machine: SURF inspires.

The SURF organisation continues to consult with its members about their international ambitions. We do not necessarily want to lead the way internationally, but we do want to keep an eye on developments together with the members and take action where necessary and desirable, for example by participating in international collaborations.

3.6.4 SURF as a service provider: offering state-of-the-art services in a cohesive context

What does this role entail?
The SURF organisation organises everything centrally, as a cooperative. This includes facilities that allow us to achieve economies of scale (network, supercomputer, security) and the pooling of scarce expertise. We combine our demand and we have a strong position with regard to any commercial parties who provide the services we purchase.

For this role, the SURF organisation explicitly involves the expertise and efforts of its members. We also provide services together. Take, for example, SURFcert, a team consisting of security experts from both the SURF organisation and the institutions. Another example is drawing up conditions for tenders, in which buyers from the institutions are involved.

As a service provider, we also make use of the results achieved in the innovation workspace: successful innovations achieved there can be incorporated into SURF's portfolio of services.

What are our ambitions for 2022-2027?
In terms of service delivery, the SURF organisation wants to remain a reliable and predictable partner for SURF's members. The cooperative's character is reflected in the way we develop services together with our members. This increases the impact of the cooperative and creates a coherent service portfolio.

Collaboration within a SURF framework gives members an IT infrastructure for education and research that is internationally competitive. Rapid developments in IT require us to constantly reconsider which parts of the infrastructure we need to develop ourselves as a cooperative and which parts should be supplied by the market subject to our joint conditions. We also make it possible to combine both. The SURF organisation is an agile and customer-oriented partner that encourages members to join forces.

SURF members gain a secure, reliable and state-of-art infrastructure for education and research. We develop a shared sourcing strategy and the associated agreements with regard to standards and longer-term architecture principles.

The conditions for the infrastructure's use are adapted to the needs of the sectors or the institutions within those sectors. The SURF organisation has a management role: it ensures that the IT services of the SURF-organisation and the suppliers are integrated and delivered in a coherent way. This involves organising the entire IT supply chain. The focus is on continuous improvement and the constant assurance of quality, continuity, security and privacy. We offer transparent pricing that strikes a balance between capacity and further development.

Where purchasing is concerned, the SURF organisation continues to play an important role for its members. Demand aggregation is efficient and a good way of safeguarding public values, particularly in situations where institutions exceed the procurement threshold. We also continue to play a role in drawing up model contracts, carrying out DPIAs, and so on. Here too, we are firmly committed to defending public values such as autonomy and privacy.

Internationally, SURF continues to seek connection with international infrastructures. SURF's members benefit from an international infrastructure that is progressive, open and transparent. European partnerships such as Knowledge Exchange and organisations like GÉANT, PRACE, EGI, EUDAT and EuroHPC help realise those ambitions in the field of education, research and infrastructure. In addition, we will continue to invest in the use of international standards.

3.6.5 SURF as an innovation workspace: innovating together

What does this role entail?
In the innovation workspace, members collaborate with each other and with the SURF organisation to increase the quality of education and research with IT innovations. To this end, we collaborate to develop the technical infrastructure and the knowledge about the application and its standardisation. In the innovation workspace, we bring together the supply and demand of knowledge and expertise, financial resources and administrative commitment. We collaborate on explorations and solutions, for example, through pilots, and we offer promising initiatives opportunities to establish themselves so that the members can use them to develop their organisation, education and research with IT. SURF makes it possible to start in small coalitions of the willing and to scale things up when they succeed so that ultimately all members can benefit.

We will make choices in the innovation process more transparent. Complex issues require an integrated approach. We want to develop ecosystems in which we look at and tackle issues, stakeholders, service delivery and innovation projects together. Because there is more cohesion: institutions are connected and services are linked.

Complex issues almost always have an international component, and in the innovation workspace we are aware of that. We always formulate our international ambitions in consultation with SURF members, but in any case we will focus on supporting international consortia and we will look within innovation zones to see what international coalitions we can form.

Innovation zones and ambitions
Within the innovation workspace, we have set a number of priorities for education, research and transcending These are complex issues that we will work on together (the SURF organisation and the members, and the members amongst themselves) in order to find a solution. We have formulated an ambition for each priority. These are described in chapter 4.

Zooming in on the innovation workspace

A workspace in which SURF and its members, and the members themselves, can work together on complex challenges and opportunities for innovation, working on shared ambitions within various ecosystems.

Ecosystems, which involve a complex interplay of people, agreements, and technology, require an integrated and structured approach to working together on the ambitions of members and stakeholders.

The innovation workspace is not isolated from the association or SURF's role as service provider. Both roles can be part of the various ecosystems within the education domain, research domain and cross education and research domain.

These priorities are based on SURF's current 2-Year Plan and on interviews with many people from the institutions, including directors, researchers, lecturers and IT supporters.

Each innovation zone makes use of activities and competencies within SURF's other roles: services, and association. For example, services can contribute to an innovation zone, but so can events and communities within the association. In the innovation workspace, we also centralise competencies that contribute to the innovation zones. Think, for example, of early, technology-driven innovation that can have a major impact later on.

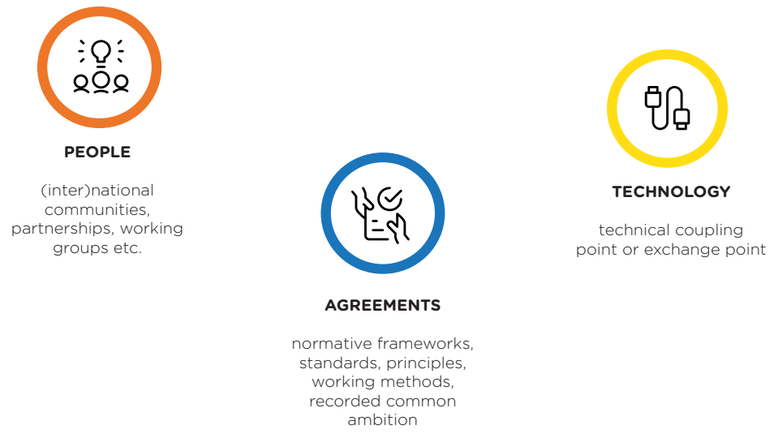
Roadmaps
The roadmaps describe how we will jointly achieve the associated ambition for the priorities. In the roadmaps, we determine what people (chain partners), arrangements (systems), technology and other items we need to achieve the desired result. So we also describe there what competencies and commitment we want to ask from the members. After all, they play an important role in achieving the ambitions in the innovation zones. The SURF organisation nont only works for its members but also with them.

A roadmap also includes the schedule for achieving the ambition, the milestones, the deliverables and the roles all participating parties are to play. SURF plays at least a connective role in every roadmap. The roles of the participating parties (including those of the SURF organisation) may vary according to priority and may change as the roadmap progresses.

The roadmaps do not have to start at the same time, and their duration may vary. This means that we are no longer confined by the fixed 2-Year Plans we used until now. A roadmap is not even tied to the period of this strategy.

The ecosystem approach: a process for complex issues
The innovation zones that we have identified are, without exception, complex issues. They are issues that we as SURF cannot resolve alone, as we have so far often done when developing a service, for example. We need to collaborate with other parties and we need their commitment to achieve an appealing result. That is why we have opted for the ecosystem approach in order to take a structured approach to these innovation zones.

In an ecosystem approach several parties come together to create a solution to a complex problem in the sector. Such complex problems include the improvement of (cyber)security. Or the realisation of flexible education. Or enabling open science as a standard in research. SURF can't do this on its own. National and international collaborations are often required. We go for an integrated approach in which **people** (institutions, suppliers, etc.), **agreements** (protocols, standards) and **technology** (service and innovation) come together in a structured way to reach a solution. That is the ecosystem approach. SURF's role in such an ecosystem can be that of a coordinator, an initiator or a supplier of knowledge or technology, and may change at different stages of the ecosystem's development.



How do we collaborate in the innovation workspace?
In the innovation workspace, members take certain steps with each other and with the SURF organisation and we reduce any uncertainties in terms of technical feasibility, scalability, usability, customer value, costs, fitness for purpose, etc. The SURF organisation clearly has a different role than the institutions. For example, it does not have an independent research task as knowledge institutions do. Instead, it works closely with the institutions based on its own knowledge position and it uses the institutions' knowledge as much as possible. Various colleagues from the institutions are regularly active as the SURF organisation tries to contribute to the mutual coordination. When binding agreements need to be concluded with the government, the relevant external bodies, such as the industry associations, are involved as well, as SURF itself does not fulfil this role.

The approach and dynamics of the collaboration between institutions and the SURF organisation depend on the priority, the associated roadmaps and the innovation phase. In the early innovation phase, the institutions mainly have a role to play in putting items on the agenda, offering inspiration, contributing and participating in or attending experiments, proofs-of-concept and pilots. In later phases about service development and scale-up, they have a specific role in the decision-making, execution and implementation. The SURF-organisation will make the status and progress of all activities clear to all members from the early innovation phase to the service development phase. This includes members who are not participating directly in the activities.

We already have building blocks for the ecosystem approach
Within SURF, we already have building blocks that can become part of the ecosystems within the innovation zones. Those building blocks often come from the services and the SURF association. We will make the building blocks more coherent within the innovation zones. Here are a few examples:

Cybersecurity approach
In the SCIRT community of the Incident Response Teams, institutions actively exchange information with each other and with the SURF organisation about domains or addresses from which malicious traffic is being sent. There are agreements to exchange the information on a confidential basis. There are also information security standards that can help to overcome threats. These are regularly scanned and measured.

NPOS
The National Open Science Programme (NPOS) brings together parties who promote open science at a national level in the Netherlands. The NPOS supports and coordinates things within an ecosystem of various stakeholders. The initiation and execution of the open science activities lie with the various parties involved. SURF is the coordinator and supports the Steering Committee and Advisory Board to develop and implement the activities.

Information Security Standards Framework
The institutions drew up a common Information Security Standards Framework within SCIPR, the SURF community for Information Security and Privacy. This standards framework also includes a testing framework. Every 2 years, the institutions can conduct benchmarking (or have it conducted on their behalf) as part of SURFaudit.

HPC facilities
We have linked SURF's data and computing facilities to on-campus facilities at the institutions in a smart way. This has meant that institutions can, in principle, use their own facilities, but they can also seamlessly include those of SURF when they need more capacity.

Acceleration Plan for Educational Innovation with ICT
The purpose of the Acceleration Plan is to make better use of the opportunities offered by the digital transformation for higher education. This is not done with a separate project or service provided by the SURF organisation. We do it by asking institution teams with experts to determine what is required for different topics. Together the teams arrive at the necessary innovations, and SURF links these with the services we already have (under development). The Acceleration Plan is for higher education. SURF is the coordinator and a member of the Steering Committee which manages the programme and also includes VSNU, VH, ISO and LSVb. Thanks to SURF, senior secondary vocational education (MBO) institutions can also benefit from the technology developed.

eduroam
Institutions need to trust each other to make sure that students at host institutions can use eduroam. This is possible because the participating institutions, which are organised in the international eduroam community, make clear agreements with regard to the provision of the services (the eduroam policy service definition). The global infrastructure of connected RADIUS servers makes it technically possible for students to use secure and trusted Wi-Fi anywhere.

Making education more flexible
SURF develops services that make education more flexible, such as edubadges, eduID and the OOAPI gateway. Because more flexible education goes beyond the scope of the institutions, agreements and standards play a major role. SURF is not the only party to offer facilities. DUO and Studielink also do this. That is why we coordinate with the other supply chain partners and stakeholders on which standards we use and how the various facilities fit together. This enables institutions to achieve their ambitions in order to make education more flexible.

SURFconext
Students and employees can use SURFconext to log into online services from institutions and other suppliers using a federated identity. This means that they only need their institutional account. Federated login is only possible if there is a level of trust between the participating institutions and suppliers. This requires standardisation agreements (for example SAML, OpenID Connect and attribute names) and agreements on the proper use of SURFconext: the SURFconext policy. These agreements are concluded together with the international and SURFconext communities, in which the institutions are united. SURFconext's technical infrastructure also ensures that institutions and services can easily use a federated login.

4

INNOVATION ZONES AND AMBITIONS

4.1 Introduction

SURF has defined 9 sectoral priorities that it will be working on in the coming years. Four innovation zones for the education domain, four innovation zones for the research domain, and, for the time being, one innovation zone for the transcending domain. The innovation zones are defined in consultation with the members and approved by the SURF Members' Council.

Each priority is ambitious, will take several years to achieve, will involve multiple parties in order to reach a solution, will require national and sometimes international coordination, will use new technologies and will be based on new sectoral agreements or standards.

In short, each priority requires an ecosystem approach. An ambition is indicated for each priority. Roadmaps are defined to achieve the objectives of the priorities. The composition and final implementation of these roadmaps along with the milestones and deliverables will be determined together with the members in due course. Based on this, the SURF organisation will set up projects and activities that it will submit annually to the Supervisory Board and Members' Council for approval with an annual plan and budget. Some initial thoughts are provided in the following paragraphs.

Innovation zones may be added during the 2022-2027 strategy period if there is a need for them. In that case, they will be proposed by the Executive Board of the SURF organisation, in consultation with the members, and approved by SURF's Members' Council.

4.2 Transcending innovation zones

4.2.1 State-of-the-art (cyber)security
One priority will be at the heart of the transcending domain in the coming years: state-of-the-art (cyber)security.

Ambition:
SURF ensures that the sector is resilient so that everybody in Dutch education and research can work openly and securely without any worries. Cybercriminals use the latest technologies, which the SURF organisation analyses together with its members and uses to defend against attacks. As a network service provider, the SURF organisation has the ability to detect and mitigate attacks at an early stage. We do this by developing a fully-fledged SURFsoc (security operations centre) and by further automating information sharing and monitoring, for example.

SURF also helps institutions to protect themselves and to develop to higher maturity levels, with NBA maturity level 3 being the members' ambition. A risk-based approach is essential for this. We set up a security expertise centre so that we can develop and share knowledge together. SURF also provides awareness-raising and training programmes. The ambition is to make the best people in security want to work in our target group.

The sector can only be secure with national and international collaboration. We achieve sovereignty and knowledge security in national and international collaboration with important parties such as GÉANT and NCSC. Compliance with (new) standards, guidelines and legislation is very important in this regard.

The sector pursues an integrated security policy that sees cybersecurity in conjunction with other security issues that often use the same approach and digital expressions, such as social security and behavior of concern. The promotion of knowledge security also requires attention and collaboration.

The roadmaps for the state-of-the art (cyber)security priority include expanding security services such as SURFsoc and network services, setting up a centre of expertise to gather knowledge and taking members to NBA maturity level 3, expanding their participation in national and international consortia and tackling wider digital integrated security issues.

4.2.2 Other innovation zones

As far as the transcending domain is concerned, the SURF organisation expects to set a number of other priorities together with the members, for which we will jointly determine the ambition level. This will include topics that affect both education and research and can generate cross-pollination between the domains in terms of sourcing, sustainability, artificial intelligence and data management.

4.3 Education innovation zones

The 4 sectoral priorities for the education domain are derived from the Acceleration Plan for Higher Education and the Tackling Digitalisation programme for secondary vocational education. A long-term ambition will be set for this. Several pilots are currently underway for these topics. Over the next few years, we will be shaping the basic infrastructure and architecture to make and keep Dutch education innovative and distinctive. For education, too, an ecosystem approach is required to achieve the set priorities and ambitions, with collaboration agreements being concluded at the sector level by the umbrella organisations and SURF playing a coordinating role for the digital realisation.

4.3.1 Enable flexible and efficiently arranged education

Ambition:
By 2027, Dutch education will have a basic infrastructure that makes it easy to exchange educational information. Because research universities, universities of applied sciences and senior secondary vocational education (MBO) institutions record their educational data according to the same standards, they can shape their curriculum's flexibility and easily facilitate student mobility. The components of the basic infrastructure and consequently the roadmaps consist of agreements about standards (OOAPI or 'open education application programming interface') and architecture, and the development of information exchange services such as an OOAPI gateway, an eduID for student identification and the creation of an infrastructure for microcredentials.

4.3.2 Encourage digital educational resources

Ambition:
By 2027, education (WO, HBO, MBO) in the Netherlands will have, via SURF, a coherent portfolio of services for digital educational resources. This allows our lecturers and students to put together and use an optimal mix of (open and licensed) digital educational resources in one place. SURF's members are in charge of the pricing and the access and usage conditions for licensed digital educational resources from publishers. Professional communities are encouraged and supported as they create collections of open educational resources. The service portfolio and roadmaps for this priority include edusources, CopyRIGHT, the joint procurement of digital educational resources and the creation of a national support desk. A connection is made with relevant parts of open access in research.

4.3.3 Use study data responsibly

Ambition:
By 2027, Dutch education will get opportunities to use data for and in education in a transparent and responsible way. Students, lecturers, companies and supply chain partners get more confidence in the use of data and data technology by weighing them against the public values we have agreed with each other. We have also made the use of data for innovation and quality improvement even more accessible. We do this by organising an autonomous and flexible digital infrastructure for the storage, exchange and analysis of study data, and by generally using open standards. Institutions, students and lecturers also have access to and control over their data. They can share their data with people, organisations and applications subject to their own conditions.

The possible roadmaps for this priority include setting up an autonomous public infrastructure for privacy-sensitive data, developing the public value frameworks for education, monitoring and assessing commercially available tools, influencing (EU) legislation, collaborating internationally for knowledge sharing, encouraging open-source developments and involving teaching and learning centres, special interest groups and lecturer and student communities.

4.3.4 Provide online education and digital assessment

Ambition:
When choosing a form of education, the needs of the student must always be the main focus. Online education is one of the forms that can be, and increasingly will be, appropriate. The ambition is therefore that, by the end of 2027, students will be able to follow high-quality education and take tests independent of time and place. Teachers are supported in providing time- and location-independent education by appropriate educational applications and a flexible digital learning environment that meets current and future needs. The shared preconditions are organised in a SURF context. The aim of this is to remove any obstacles that higher education institutions are currently experiencing when trying to use online education and digital assessment properly under the right conditions. The cooperative organises knowledge sharing on these subjects. We are also working on procurement strategies that allow the secure use of innovative services such as start-ups and scale-ups. Experiences gained during the COVID-19 period are shared so that the best practices become clear. The SURF organisation and the members can ensure that institutions retain their freedom of choice and that more digital alternatives become available.

The possible roadmaps for this priority include identifying and assessing available tooling based on public values, facilitating knowledge sharing, setting up an integrated learning environment, defining standards for digital assessment and setting up joint exam repositories.

4.4 Research innovation zones

We also set ambitious targets for the innovation zones in the research domain, which can only be achieved through collaboration between the parties, coordination of the architectural standards and the use of new technology. The ecosystem approach is necessary here too. It is important that we make it easier for researchers to do their jobs and we must pay attention to and support researchers who have been using large-scale infrastructures for many years, as well as researchers with less experience.

4.4.1 Handling data responsibly

Ambition:
By 2027, researchers will be able to share and reuse both sensitive and non-sensitive data according to the FAIR principles in an optimal way. They will easily stay in complete control of their data and the conditions for third parties to access it. They are supported by expertise and services that meet the required standards and policy agreements. Consequently, this priority concerns the implementation of the FAIR principles in the research landscape and data sovereignty and researchers' control of data. This also includes the responsible use of data for AI.

This priority concerns data from research, not data about research. Roadmaps for this priority are the further and broader implementation of the FAIR principles, implementation of the HOSA architecture for research, expansion of the existing central infrastructures such as SURF Research Cloud and SURF Research Access Management (SRAM) and research into the setting up of joint data exchanges. Collaboration with research communities is essential here, as they all have their own specific needs and data from research is never a 'one size fits all' exercise. SURF will also work closely with partners such as DANS to make the service delivery as transparent as possible for researchers.

4.4.2 Making the most of infrastructures

Ambition:
By 2027, all researchers will be free to focus on their research without any worries and make effective use of the available facilities and expertise in the digital infrastructure. In the context of SURF, we are improving the connection between local, national, and international infrastructures, and focus on increasing the efficiency and performance of applications, for example through the use of AI. We are also supporting the knowledge sharing and innovation that are necessary in this regard.

We set up experimental environments, in which we work with researchers to optimise the latest technologies, such as AI and quantum, or state-of-the-art infrastructures for research applications. This enables researchers to push the boundaries of their research. Knowledge sharing takes place together with the domain expertise of research communities and Digital Competence Centres (DCCs).

Through structural collaboration with discipline-specific initiatives, we make sure that the services and expertise in infrastructures continue to meet the future needs of research. In doing so, we make optimal use of the investments made by institutions and the investments in the national digital infrastructure. One part of this is that we jointly manage investments at the institutional level and at the national and international levels. This ensures that we make the best possible use of the limited public resources in order to support leading international research.

The roadmaps for this priority include facilitating the federation of research facilities (technically or procedurally supported), updating and developing the Dutch national research infrastructure at the European level, monitoring the sovereignty in that infrastructure, strengthening collaboration on new research technologies together with members, joining and coordinating initiatives that can structurally strengthen the Dutch sovereign and secure research landscape, cooperating with international parties, participating in large-scale research projects in HPC and network capacity and facilitating the arrangements for managing the funding of an optimal national infrastructure.

4.4.3 Build skills and capacity

Ambition:
The competencies researchers need for the digital transformation of research are supported by a shared curriculum through collaboration between DCCs and research schools. By 2027, the institutionally organised support and the collaboration links that are established for each specific discipline will be linked to each other. In a SURF context, we coordinate the collaboration at a national level. We set up experimental environments in which we work with researchers to optimise the latest technologies – such as artificial intelligence and quantum computing – on state-of-the-art infrastructures for research applications. This allows researchers to push the boundaries of their research. Knowledge sharing will also take place here together with the domain expertise of the research communities and DCCs.

The possible roadmaps for this priority are organising training courses and programmes for researchers, setting up federated first and second line support together with the DCCs.

4.4.4 Strengthen open science

Ambition:
The research community can responsibly shape the use of research information and is in charge of sharing, finding and evaluating publicly funded research (digital sovereignty). SURF members are collaborating on conditions that are respected by the market. We are strengthening the innovative power in open access. Libraries, financiers and research groups are working together in a SURF context to realise innovations in the process of open access publishing, such as alternative publication platforms. This priority concerns data about research, not data from research.

The possible roadmaps for this priority are establishing the sectoral conditions when working with commercial parties, coordinating the preconditions and setting up an Open Knowledge Base (OKB), working together in NPOS and EOSC contexts, encouraging open research through NPPO in higher professional education and directing own innovations in open science separately from the commercial parties.

5

INTERNAL SURF ORGANISATION

5.1 Introduction

The strategy is based on maintaining and developing SURF's strong existing services and innovations and is also aimed at accelerating the development of large-scale sector-wide digital initiatives in ecosystems. This means that collaboration, transparency and knowledge sharing become even more important. The governance of progress made in terms of activities and the transparent reporting of activities is also becoming more important. The foundation for this is laid in 2021 by harmonising procedures, internal basic systems, target groups and the rates and contracts in the SURF organisation. In addition to the need for harmonisation, the achievement of the ambitions also has consequences for the organisation, culture and behavior of the SURF organisation.

5.2 The cooperative

SURF has been the collaborative IT organisation for education and research institutions in the Netherlands for 50 years. Research universities, universities of applied sciences, senior secondary vocational education (MBO) institutions, university medical centres and research institutions are working on IT facilities and innovation within a SURF context.

They are the members of SURF and the joint owners of the SURF cooperative. A cooperative is an association with a business organisation. The members join forces in the association. Since 31 December 2020, SURF has had one company that emerged from the merger of the former operating companies: SURF bv. SURF bv – or the SURF organisation – is entrusted with the execution of the services and activities.

Collaboration is at the heart of SURF. The SURF organisation facilitates this collaboration, for example by managing and facilitating communities, combining demand for services, sharing knowledge and enabling knowledge exchange.

In the 50 years that SURF has existed, we have achieved many wonderful successes for Dutch education and research. Examples include the super-fast and reliable network, the supercomputer in Amsterdam, the advantageous purchasing contracts we have concluded with major suppliers such as Microsoft and Adobe, and the expert communities in which all kinds of teachers, scientists and other professional colleagues meet and keep each other sharp.

5.3 Governance

SURF's governance was completely reviewed during the merger. The Members' Council approved new articles of association and regulations in 2020. The governance code has also been adapted to the new organisation and to the amended code of the National Cooperative Council (of which SURF is a member). The Members' Council approved the new code in 2021. The new governance documents are publicly available online. This means that the frameworks and principles for collaboration and for this strategy are clear and transparent to everyone.

5.4 Culture

The transition to 1SURF and the future prospects outlined in the SURF strategy require the development of the SURF organisation. The SURF organisation originated from 3 operating companies (SURFsara, SURFnet, SURFmarket) and the SURF office. This brought different cultural aspects, processes and competencies together.

Our organisation clearly shares qualities such as expertise, autonomy, (social) engagement, curiosity, helpfulness and creativity. To ensure that 1SURF functions properly, we can learn to trust each other even more and to let go of the old structures and processes.

To achieve the new SURF strategy, we need to develop more environmental awareness, base our work more on an integrated approach and be more aware of the different roles that SURF plays. As an innovation workspace, SURF requires different employee competencies and behavior than it does as a service provider or as an association. It is also important to develop even more of a learning culture: SURF offers the scope to develop and learn from mistakes and successes.

5.5 Core values

Our desired development and SURF's DNA as it developed over many years in the rich tradition of our operating companies come together in the following core values.

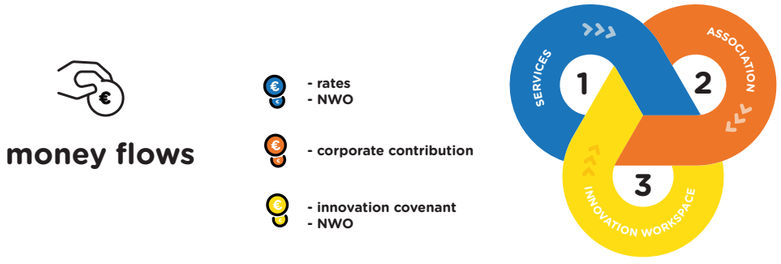
Passion
SURF organisation employees are strong, smart and very much involved in SURF's mission. They are curious, creative, versatile and ambitious. They shape innovation and see the extraordinary questions from education and research as special challenges. They enjoy their work, show personal leadership and want to excel in what they do. SURF members can expect expertise, involvement and inventiveness from the SURF organisation. Together, we work on reliable and innovative IT facilities every day to allow Dutch education and research to excel.

Reliability
SURF employees are transparent, honest and predictable. We deliver quality, work in a structured way, rely on each other's expertise, deliver on their agreements, and treat each other with respect. The SURF organisation is also open and transparent towards its members, is a reliable partner that delivers quality and is accountable in a structured way. The SURF organisation works with and for the SURF members and is committed to safeguarding public values and thereby contributing to reliable education and research.

Openness
SURF organisation employees believe in the power of collaboration, are closely connected to the SURF members and with each other, and are involved in society. They think from the outside in, are customer-oriented and welcoming, and want to help each other and inspire each other. They talk to each other and learn from each other. Everything the SURF organisation does is to serve its members and their stakeholders. It tries to find collaboration and connection in everything. This is reflected in the ecosystem approach, for example. The SURF organisation is keen to continue to inspire its members. At SURF, you always learn something new.

5.6 Budget

SURF is not-for-profit and not-for-loss. This starting point means realising a balanced budget with sound business operations. The nature and scope of the members' ambitions have an impact on the required budget.



Based on this strategy, the budget is generally set so that the members and the SURF organisation can draw up a stable multi-year budget (with a rolling forecast). This budget must have sufficient scope for the appropriate fulfilment of SURF's various roles. Every year, the Members' Council sets the budget for the following year and also sets the priorities together with the members where necessary. This makes it possible to make minor adjustments if the current situation so requires. Additional funding from external sources is obtained where possible and appropriate, for example in European projects and from public authorities. The financial model is evaluated once each planning period. The first evaluation takes place after the current strategy is determined.

Progress is monitored based on the defined planning and control cycle. The Supervisory Board monitors this. Decision-making and reporting take place in accordance with the established governance.

5.7 Riscmanagement

Risk is the effect of uncertainty on the achievement of objectives. Risk management consists of coordinated activities to steer and manage an organisation in terms of risks. This contributes to the realisation and protection of value.
Risk management improves performance, drives innovation and supports the realisation of goals. The core of the approach is to improve and to adopt a positive attitude. This goes hand in hand with quality assurance. In order to generate value, we need to manage and take risks consciously. We talk to each other to strike the right balance. In the next step of the strategy process, we also map out the strategic risks. We link these risks to the strategic pillars, and we assess them on:

- Their impact on the achievement of the objective
- The probability of them happening

Based on this, we arrive at a limited set of strategic risks that we can actively monitor according to the Three Lines Model.

5.8 Mid-term review of the strategy

We set the strategy for a period of 6 years. This brings continuity to how we shape our content priorities. However, 6 years is a long time if we consider the speed of the developments in the SURF context. That is why after 3 years, we conduct a mid-term review to determine whether we are still doing the right things in the right way.

The mid-term review looks back: which successes have we achieved, what haven't we succeeded in yet, and what needs more attention? But it also looks ahead: is the chosen strategy still the right one in all respects, what adjustments do we need to make and where do we need to recalibrate and adapt our processes?

By the way, we do not have to wait until the mid-term review to make adjustments to the strategy. There is also an annual review by the Members' Council and the Supervisory Moard.

We use an independent committee for the mid-term review. We decide on the composition and mandate of this committee in an evaluation protocol at the start of the strategy period. The result of this review is included in the planning and control cycle and is therefore shared with the Members' Council.

At the end of the strategy period, a self-evaluation is carried out in the run-up to the new strategy period.

5.9 Critical performance indicators (KPIs)

We make performance visible at the level of SURF's roles and ambitions with critical performance indicators (KPIs). We specifically establish these to know where we are, where we are going and whether we are on the right track.

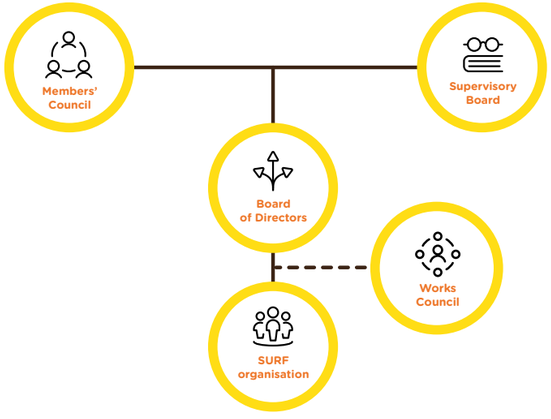
Many performance indicators are conceivable in organisations, but you use critical performance indicators to determine where your focus lies. Our goal is to create a dashboard of around 10 strategic KPIs that can be used for management purposes. Some of them will be single KPIs and others will be combined KPIs, the results of which are composed of several underlying indicators.

Underlying indicators are metrics that we collect for each service/activity or a cluster of services/activities that provide insight into the progress of a department or service. Managers, team leaders and department heads use these indicators to monitor the work. These service indicators are also used to give members a better insight into the services they purchase from us via a dashboard.

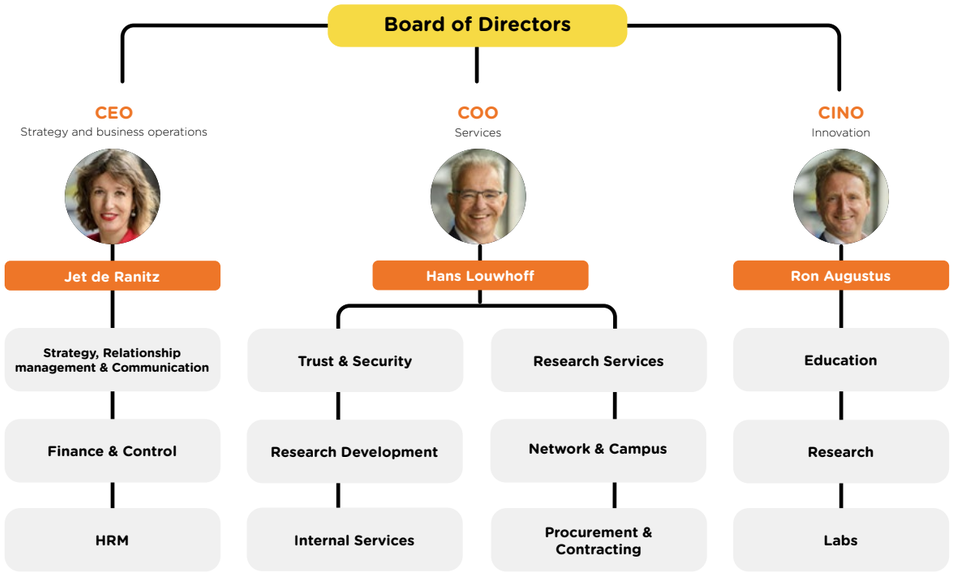
We are drawing up strategic KPIs for all of SURF's roles: service provision, association and innovation workspace. These KPIs will follow.

ANNEX 1 ORGANISATION CHARTS

SURF cooperative governance



Structure of the SURF organisation



ANNEX 2 OVERVIEW SURF SERVICES

Network connectivity
- SURFinternet
- Secondary location accessibility
- SURFlichtpaden
- eduroam
- eduroam Visitor Access
- SURFinternetpinnen
- SURFdomeinen
- SURFfirewall
- SURFwireless
- SURFopzichter
- SURF Network Dashboard

Security, trust & identity
- Cybersave Yourself
- SURFconext
- SURFcert
- SURF Research Access Management
- SURFaudit
- OZON Cyber Crisis Exercise
- SURFmailfilter
- SURFcertificaten
- eduVPN
- SURFsecureID
- SURFsoc

Data services
- SURFfilesender
- SURFdrive
- edubadges
- SURFsharekit
- Research Drive
- Object Store
- Large filesystem storage
- Data Archive
- Data Persistent Identifier
- iRODS Hosting
- RDM Storage Scale-out
- SURF Data Repository

Digital platforms
- SURFdashboard
- Auteursrechten.nl
- HBO Kennisbank
- edusources
- SURFspot customised functionality
- Kies Op Maat
- SURF Research Cloud

Agreements with market parties
- Purchasing IT
- Purchasing content
- Hardware and software distribution

Compute services
- National supercomputer Snellius
- Lisa Compute Cluster
- High-performance data processing
- MS4
- Custom Cloud Solutions
- Jupyter Notebook Hub

IaaS
- SURFcumulus
- HPC Cloud

Expertise, advice and training
- Consultancy
- SURFacademy
- Visualisation and Collaboratorium
- Management of Office 365

SURF cooperative

Driving innovation together

In SURF, educational and research institutions work together on IT facilities and innovation in order to make full use of the opportunities offered by digitisation. Together, we make better and more flexible education and research possible.

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