2017
Annual Report

SIDN

Your world. Our domain.

2017
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Foreword

It's impact that matters

The new corporate governance code emphasises the importance of long-term value creation. But how do you quantify an organisation's value creation? Value is ambiguous. Non-profit organisations strive to make a difference, but to what extent do their activities actually support their stated goals? How can they measure the impact of their work?

Delivering added value

For quite some years, we've been trying to do more than merely administer the .nl zone. We initiate, promote and support a wide variety of community activities, we develop valuable knowledge and insight, and we make additional services available to our registrars and registrants. Our aim is to deliver added value in three fields: digital identity, digital usability and digital security. The most eye-catching manifestation of that strategy in 2017 was the acquisition of Connectis.

Impact in three fields

Our activities are not chosen arbitrarily. We have a mission: connecting people and organisations to promote safe and convenient digital living. That mission is based on the conviction that a free, open, accessible and secure internet contributes to a better world for everyone. In line with that mission and vision, we've identified three fields where we can and should have an impact: economic growth, internet security and stability, and digital inclusion.

Economic growth

In terms of economic growth, our impact derives mainly from the benefit that our services bring to businesses and their customers. We ensure that .nl domain names can be reached by internet users everywhere, and that they are quick and easy to register, competitively priced, reliable and stable.

Meanwhile, SIDN Labs undertakes research that contributes to innovation and reinforces the status of the Netherlands. And Connectis provides log-in solutions for convenient, secure and reliable on-line business. We also promote economic growth indirectly through SIDN Fund. The Fund gives a helping hand to community start-ups and makes it easier for innovators to bring new ideas on line.

Internet security and stability

Our contribution to the security and stability of the internet takes many forms. First, there is all the work that we do to make .nl one of the securest country-code domains in the world. And our direct involvement in fighting abuse. We also encourage the adoption of internet standards, such as DNSSEC, IPv6, DKIM, DMARK, and SPF, especially with the Registrar Scorecard, our incentive scheme for registrars. Then we are active in global forums concerned with internet technology, governance and security. And we share our knowledge, disseminate information and support applied research. Finally, we develop new products and services, such as a smart solution for securing IoT devices.

Digital inclusion

Digital inclusion is closely linked to building an internet that is open to all. A free and accessible internet where everyone has the same opportunities. Therefore, with inclusion in mind, we support initiatives that promote digital literacy. Support is provided directly and through SIDN Fund.

We occupy a unique position

SIDN is not a commercial enterprise. We are professional and businesslike, but with a view to maximising the value we create for the community and the economy. We occupy a unique position: we have a responsibility to all Dutch internet users, and we take that responsibility very seriously. We therefore believe that we have an obligation

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to our stakeholders to monitor the contribution that our activities make to our stated aims. To find out whether we actually have our desired impact.

Measuring our impact

In 2017, we clarified how we intend to achieve our desired impact in each target field. That resulted in a detailed Impact Map, which we shared with various stakeholders for comment. Starting in 2018, we will be measuring our impact, to see whether it matches our ambitions. The findings will guide future decision-making on the allocation of time, effort and resources. Any activity that doesn't contribute to economic growth, the security and stability of the internet, or digital inclusion will be recalibrated or ended. Conversely, activities that have substantial impact will be prioritised.

It's all about what we actually achieve

This annual report presents a picture of our operations in 2017. We believe that, through our work, we make an important contribution to the success of the internet in the Netherlands. And many people agree. However, belief is not enough. It's important that we can demonstrate the effect we have, and that we are willing and able to change if the effect isn't what we want. At the end of the day, it's all about what we actually achieve. It's impact that matters. And we don't intend to lose sight of that.

Roelof Meijer,
CEO SIDN

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02

.nl

The .nl domain continues to grow

A favourable economic climate and rapid e-commerce growth were reflected in the performance of .nl. Year-on-year growth was better than expected. And satisfaction amongst registrars and other customers remained high.

Development of the .nl domain

Many top-level domains have experienced declining growth or even contraction in recent years. Especially in relatively saturated markets. The .nl zone bucked that trend in 2017, growing faster than it has for a while (see fig. 1). The number of cancellations was unexpectedly low, while the rate of new registrations increased, particularly towards the end of the year. Net growth was 109,706, or 1.9 per cent,

and the year ended with 5,794,040 registered .nl domain names. The thriving e-commerce sector seems to have been the main driver of growth, with the majority of new registrations being for business use.

Increasing market share

Also up was .nl's share (see fig. 2) of the Dutch market, due mainly to contraction in other top-level domains. The new gTLDs suffered most, with the total number of registered domain names dropping from about 210,000 at the end of 2016 to 180,000 a year later. Some legacy TLDs, including .org, contracted as well.
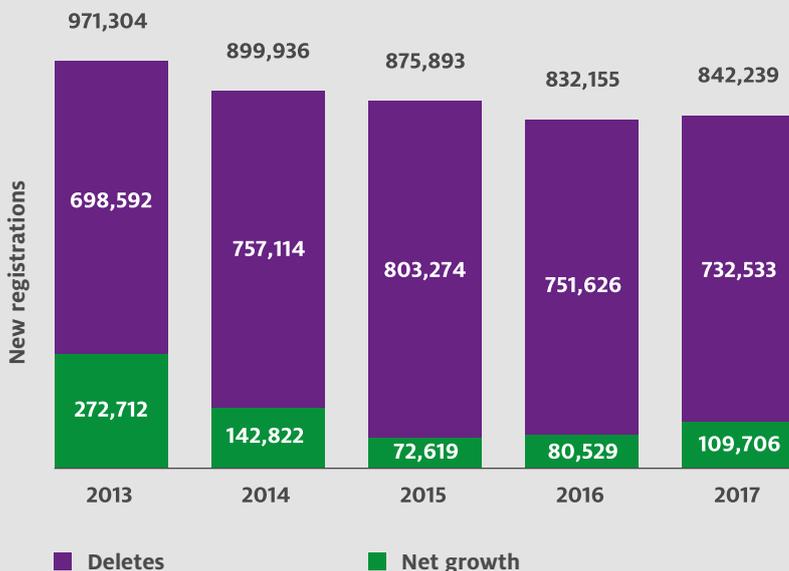
Fig. 1 | Development of the .nl domain

	2013	2014	2015	2016	2017
Total	971,304	899,936	875,893	832,155	842,239
Deletes	698,592	757,114	803,274	751,626	732,533
Net growth	272,712	142,822	72,619	80,529	109,706

■ Deletes   ■ Net growth

Fig. 2 | Share of Dutch market in 2017

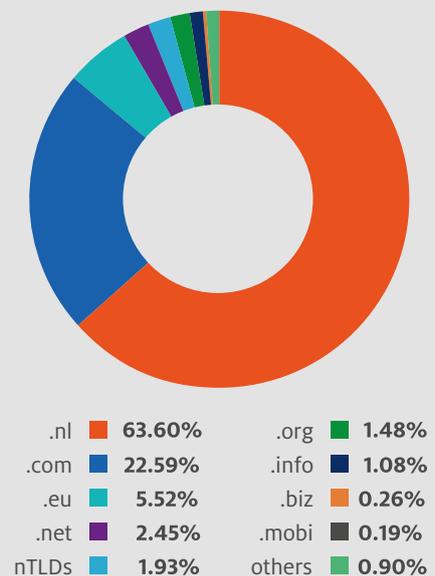|			
.nl	63.60%	.org	1.48%
.com	22.59%	.info	1.08%
.eu	5.52%	.biz	0.26%
.net	2.45%	.mobi	0.19%
nTLDs	1.93%	others	0.90%

More use of IPv6

Around the world, IPv6 is on the up. And, although the trend was a slow-starter in the Netherlands, the number of IPv6-enabled .nl domain names increased substantially in 2017. To boost IPv6 use in the Netherlands, we added an IPv6 bonus to the Registrar Scorecard (RSC), a scheme that incentivises registrars to contribute to the quality of the .nl zone. That helped push up the number of IPv6-enabled .nl domain names from about 700,000 to nearly 1.6 million. The new protocol is now supported by 27 per cent of all .nl domain names, well above the 20 per cent target we set ourselves (see fig. 3).

New domain names go live sooner

We increased the frequency of updates to the .nl zone file, from once an hour to once every half hour. As a result, new domain names now go live sooner and changes to existing registrations are effective sooner. More frequent updates was one of the things that registrars had told us they wanted.

Availability remains high

We realised a further increase in the availability of our systems in 2017. We cut the number of maintenance operations requiring service downtime, and completed all the maintenance that did require downtime within the predefined windows. In March, however, there was a brief interruption to the availability of our network infrastructure, due to an extreme traffic peak. That had a marked effect on the availability of our registration system. The traffic peak was mitigated by following our established procedures, minimising the impact on services. Our DNS systems, which form the bedrock of our services, were again 100 per cent available in 2017.

Shorter response times

We extended our DNS anycast infrastructure with a third DNS anycast network. The extra capacity cut DNS query response times for users in various parts of the world. Meaning that .nl domain names now work faster in the relevant regions.

We extended our DNS anycast infrastructure with a third DNS anycast network.

Marketing activities

We sought to build closer commercial ties with our registrars in 2017. For example, we worked together on the funnel linked to the Whois utility on our website. The funnel directs people who are thinking of registering domain names to suitable registrars. And, if the first domain name they try for is taken, alternatives are suggested. Since the system went live, thousands of leads have been generated for registrars and traffic on our website has improved. We also teamed up with the registrars to run a successful marketing campaign linked to the Day of the Domain Name (1 June). Another focus was making better use of our data. For example, we looked at developing models capable of predicting cancellations to support pre-emptive action by registrars. With a view to engaging with our target groups, content marketing activities were developed

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Fig. 3 | Growth in the number of IPv6-enabled domains in 2017

IPv6-enabled .nl domains — IPv6-enabled as percentage of total
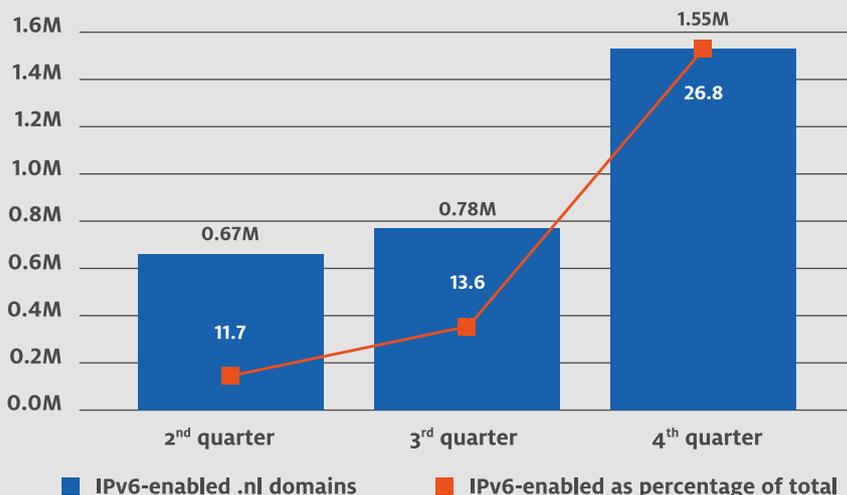
and we had a presence at various trade shows
and gatherings, such as the Webshop Trade Days.
A lot of interest was generated amongst
entrepreneurs.

Developments in the registrar community

.nl domain names are marketed through a large and diverse community of registrars. There is a longstanding concentration trend, with registrar numbers falling gradually year on year. In 2017, the number dropped from 1,372 to 1,303.

6.1	7.5	7.6	7.6	7.8	7.9	7.7	8.1	8.0
2009	2010	2011	2012	2013	2014	2015	2016	2017
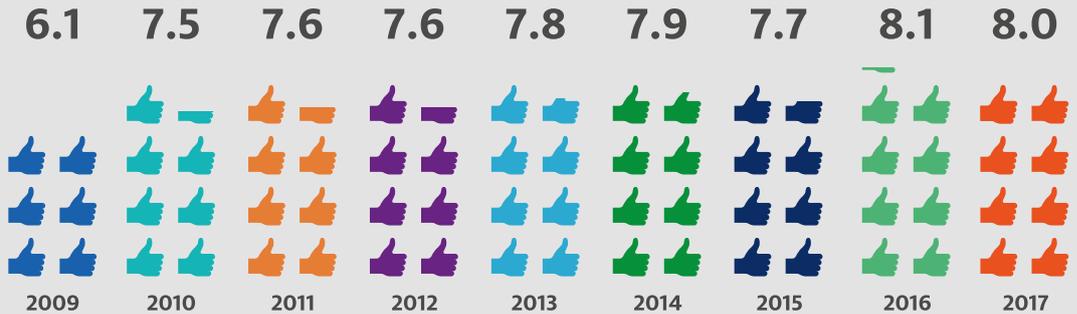
Registrar satisfaction

We run an annual survey of satisfaction amongst our registrars. In 2017, respondents gave our services a mark of 8 out of 10. The main contributors to the high level of satisfaction were the availability of our systems and the quality of our service. Consideration for the different needs of registrars of different sizes was highlighted as an issue we needed to address. The community expressed a mixed response to our diversification into new activities, including the acquisition of Connectis. And registrars would very much like to see (near) real-time updates to the zone file. Many also indicated a wish for legal advice and support in connection with developments such as implementation of the General Data Protection Regulation.

Webinars

We ran a number of webinars, sharing our expertise with registrars on topics ranging from IPv6 to potential applications for our big data platform ENTRADA.

Cooperation with the Registrars' Association

Registrars form one of our primary stakeholder groups. In their relations with us, they are represented by the Registrars' Association (RA). We fund the RA and enjoy a constructive working relationship with the association. In 2017, our cooperation agreement with the RA was extended for a further three years. And the organisation continued to provide us with a steady flow of useful ideas, suggestions and advice. We benefited particularly from their input on these key topics:
- Design of a sales funnel for sidn.nl, which refers would-be registrants to suitable registrars
- Development of a new eID proposition for possible marketing through registrars
- Definition of a new policy on the Registrar Whois, to take account of the GDPR
- Further development of the Registrar Scorecard

Registrar Scorecard

The Registrar Scorecard incentivises registrars to invest in the value of the .nl domain. The scheme contributes to the quality of registration data and the active use of .nl, discourages cancellations and promotes investment in security. As well as financial incentives (totalling € 1.3 million in 2017), participating registrars are given bespoke reports. The scheme now has 325 members, amongst whom satisfaction levels are high. Participants tell us that the RSC reports make a positive contribution to their service quality levels.

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Dispute resolution system for .nl domain names

In 2017, seventy-three cases were referred to the WIPO Arbitration and Mediation Center under the Dispute Resolution Regulations for .nl Domain Names. Thirty-six of those cases were resolved by WIPO, and one is still under consideration. The other cases were closed, e.g. because the complaint was withdrawn, or because the two sides reached an amicable agreement. In ten cases, successful mediation by SIDN led to the dispute being settled early. Our mediators handled a total of eighteen cases.

Notice-and-take-down procedure

We have a notice-and-take-down procedure, setting out what has to be done if someone contacts us to complain that a website's content is clearly against the law. In the last resort, we can disable a domain name. We received twenty notice-and-take-down requests in 2017. One of those requests led to us disabling the domain name in question. In the other cases, either someone with more control over the offending content intervened or we decided that the content was not clearly criminal or unlawful.

Complaints and Appeals Board

The Complaints and Appeals Board for .nl Domain Names (C&AB) is an independent body, to which .nl registrars and registrants can appeal against certain decisions made by SIDN. The C&AB also considers complaints about domain name registrations that are believed to be inconsistent with public order or decency. No such complaints or appeals were received in 2017.

Outlook

ICT

We expect to make major identity and access management enhancements to our Domain Registration System. Our intention is to implement single sign-on technology. We're also working on a new update method to enable (near) real-time updates to the .nl zone file.

Information for registrars

Our registrars will soon have to bring their activities into line with some far-reaching new legislation, including the General Data Protection Regulation. We are committed to making support available, so that registrars can prepare for the changes ahead. For example, we are working with the Registrars' Association and ICTRecht to provide a Legal Help Desk.

Campaigns

We aim to further increase the brand preference for .nl amongst registrants (69 per cent at the end of 2017) by running targeted campaigns. Entrepreneurs will be the primary target group. In particular, we'll be looking to enhance the .nl brand experience and help people find suitable .nl domain names.

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Services

Faster progress towards new propositions

We reduced our time-to-market by adopting new, agile working methods and further development work was done on various propositions. The acquisition of Connectis had a major impact on the organisation. Together with our new colleagues, we invested time and energy in laying the foundations for further growth. In doing so, our goal was to create a basis for energising the market for secure log-in solutions and reusable digital identities.

Agile working

A new, more agile approach to proposition development was adopted with the aim of cutting lead times. Three target proposition development fields were defined: digital identities, digital security and digital usability. For the moment, the first two have priority.

Connectis

At the start of 2017, we acquired a majority stake in Connectis, one of the country's biggest suppliers of secure log-in solutions. Connectis processes millions of log-in transactions a year and is a leading player in the Dutch eID sector, with a client portfolio that includes various blue-chip companies. The acquisition immediately made us a major force on the digital identities market, in line with our ambition of further increasing our added value and contributing to the convenience and security of digital living for people and organisations. The acquisition of Connectis was also a major step in our diversification strategy, which is ultimately intended to make us less dependent on .nl. In 2017, we worked hard with Connectis on the next phase of

the company's development. It was a year of investment for us, backed up by consistent expert input from various people at SIDN. Connectis's general and commercial strategies were refined, the product portfolio was streamlined, and links were forged with a major partner. A number of new clients were also recruited.

Simplerinvoicing

Simplerinvoicing is a trust framework that enables the fully electronic exchange of invoices between different ERP and bookkeeping packages. Since 2014, we have managed the system for the Simplerinvoicing Foundation. The number of participating admin software providers increased to thirty-four in 2017. And we made it possible for our own suppliers to invoice us – and our clients to receive invoices from us – using Simplerinvoicing.

.nl Garant

Our .nl Garant concept – whose name means '.nl Guaranteed' – was intended to let consumers check out the reliability of webshops. Affiliated webshops would be able to offer extra security by taking out an optional purchase guarantee. However, a thorough testing programme ultimately persuaded us that the proposition lacked sufficient market potential. We therefore decided against proceeding with development.

Domain Name Surveillance Service

The number of users of our Domain Name Surveillance Service (DBS) increased in 2017. Importantly, several brand agencies started using the service, tripling the number of DBS-protected brands. DBS is a monitoring service that alerts users whenever domain names are registered that closely resemble their own domain names or brand names. It enables

companies to act swiftly in the event of typosquatting, phishing or trademark abuse. Two forms of the service are available: a web application aimed at the corporate market, called DBS Web, and DBS Feed for smaller enterprises. Both are marketed through .nl registrars. With DBS Feed, registrars can use automated systems to obtain notifications from the DBS, then pass them on to their clients, enriched with the registrar's own data and service information where appropriate.

Registry services

We provide registry services for three top-level domains: .amsterdam, .politie and .aw. Our experience with the .nl domain and an excellent track record in security and uptime make us very well suited to the role of registry service provider. For both .amsterdam and .aw, the availability of domain name resolving (DNS) services was 100 per cent in 2017. While most new TLDs experienced contraction last year, the number of .amsterdam registrations rose to 28,000. In 2017, we supported .amsterdam with the protection of privacy-sensitive information in the Whois. Bolstering privacy wasn't straightforward, because, while the changes were in line with the EU's new General Data Protection Regulation (GDPR), they were against ICANN's rules. Fortunately, ICANN accepted that European TLDs had little choice but to comply with the GDPR.

New propositions

In 2017, we started the development of several new propositions.

CA/RA

SSL is an encryption protocol for securing internet communication, e.g. when a shopper makes a purchase from a webshop. The system relies on certificates issued by certification authorities (CAs). Last year, we looked at the possibility of acting as a CA, with Connectis in the role of registration authority (RA). The thinking was that it would then be easier for registrars to offer SSL certificates to their customers. However, we decided against taking the idea forward, because there wasn't enough demand or support from registrars.

Security and Privacy for In-home Networks (SPIN)

The modern home has an increasing number of internet-connected devices. However, many 'smart' devices are far from clever when it comes to security and privacy. We therefore started developing a system that would give users more control over the security and behaviour of their Internet of Things devices. We are now gauging the scope for making the system the basis for a broad proposition.

Marketing eIDs through registrars

In close consultation with a Registrars' Association focus group, we investigated the possibility of offering eHerkenning media to the Dutch business community through our registrar network. A surge in demand is expected following the Dutch government's decision to make eHerkenning mandatory for the public sector's suppliers. The suggestion is therefore that registrars could act as resellers for Connectis's eHerkenning media.

Connectis is ready for the European eIDAS system.

Brand Protection Service

The Brand Protection Service is a proposition aimed at brand owners whose products are offered by fake webshops. It is based on the DNS EMAP system developed by SIDN Labs. The commercial potential of a new service based on the detection of abuse at brand level is currently under investigation.

Outlook

Propositions based on the SPIN open-source software, the marketing of eIDs through registrars and the Brand Protection Service will all be developed further in 2018. Our new, agile approach means that the lead time for new propositions is now significantly shorter. Our aim is to successfully launch at least two new propositions in 2018.

Connectis

In 2018, we will focus on generating synergy between SIDN and Connectis and looking at ways of helping Connectis energise the market for digital identities. Connectis is ready for the European eIDAS system, which will soon enable all EU citizens to log in using their national e-ID in any member state. Connectis can handle all the European e-IDs currently in use and is helping EU member states and both local and national governments in the Netherlands to connect to eIDAS.

Simplerinvoicing

Simplerinvoicing has developed into a professional organisation that is well-equipped to perform its role. Our role can therefore be scaled down in 2018.

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Internet security

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Further security enhancements for .nl

The .nl domain continues to be one of the most secure domains on the internet. Considerable effort was invested in maintaining and enhancing that status. Community adoption of DNSSEC validation was disappointing, however. We therefore worked hard to raise the profile of that issue.

Internal ICT systems

Our ICT Department completed several major projects in 2017, including migration from Java7 to Java8. We also upgraded our technical infrastructure. Storage, switches and routers were replaced and we started using more virtual clusters. That increased redundancy, boosting the resilience of our systems.

Extension of DNS anycast infrastructure

In response to the findings of a study by SIDN Labs, we extended our DNS anycast infrastructure by adding a third DNS anycast cloud, operated by the Canadian registry CIRA. The move has made the infrastructure more robust and is helping to increase availability and cut DNS query response times.

Abuse204.nl

Abuse204.nl ('abuse to zero for .nl') is a programme that we run in partnership with registrars and hosting service providers. Its aim is to tackle phishing and malware in the .nl zone. Abuse204.nl automatically alerts registrars and hosting service providers to suspected abuse on their networks, enabling them to intervene promptly. In roughly 70 per cent of cases, the harmful content is removed within twenty-four hours. Occasionally, however, a phishing site is still active several days after detection. We therefore delete the domain name from the zone file if action hasn't been taken after

114 hours. Since Abuse204.nl was set up, the average 'up time' of phishing sites and malware distribution sites has been cut from 144 hours to fifteen hours.

DNSSEC validation rates disappointing

As the internet's signposting system, the DNS has a number of vulnerabilities. DNSSEC is an extension designed to put things right by adding an extra layer of security. People visiting sites with DNSSEC-enabled domain names are better protected against misdirection to fraudulent IP addresses. DNSSEC also provides a basis for new applications, such as securer e-mail and the sharing of cryptographic keys to protect internet communication. We are therefore strong advocates of swift DNSSEC adoption. We encourage use of the protocol by providing information, training and implementation support, as well as by lobbying, promoting 'portfolio signing' and making financial incentives available via the Registrar Scorecard. Partly as a result of those efforts, about 46 per cent of registered .nl domain names were DNSSEC-enabled by the start of 2017. During the year, the figure rose slightly to 49 per cent. By the close, 2,854,827 .nl domain names had digital signatures.

In 2017, we also did our second survey of DNSSEC use. Using the DNSSEC Portfolio Checker developed by SIDN Labs, we checked over 7,000 .nl domain names. We looked at four economic sectors: financial services, the public sector, internet and telecoms, and general commerce. These were the main conclusions:

- The percentage of DNSSEC-signed .nl domain names continues to increase, although more slowly than before.
- DNSSEC has gone from being a technology-driven cost item to an enabler for important security applications.

- Government bodies are the top adopters, with 59 per cent of their domain names now signed.
- Financial services was the weakest of the four sectors we looked at. That is surprising, given that phishing is a serious problem for banks, and DNSSEC protects against phishing.
- Only a small proportion of mobile telecom firms, access providers, service providers and others responsible for the data transmission backbone have signed their domain names.
- Validation levels are disappointing: the country's two biggest access providers don't perform DNSSEC validation for their customers.

The country's two biggest access providers don't perform DNSSEC validation for their customers.

Abuse contact data in the Whois
The registration data recorded for each domain name has been extended to include an e-mail address and phone number for reporting abuse to the registrar. So it's now easier for internet users to get something done about issues they come across.

Renewal of ISO27001 certificate
ISO27001 is a quality standard for information security. Certification is evidence of a high level of information availability, continuity, confidentiality and integrity. In 2011, we became the first registry in the world to achieve ISO27001 certification. Last year, our certificate was renewed for the seventh time. We were also pleased to share our experience with the Slovenian registry Register.si, helping them to achieve certification as well. The collaboration was recognised by a CENTR award.

Veiliginternetten.nl
In 2017, veiliginternetten.nl launched a campaign to make internet users aware how much information about themselves they are sharing. Veiliginternetten.nl gives practical tips on making yourself less vulnerable to on-line tracking. We've been actively involved with veiliginternetten.nl for some years, and we support the website financially.

Alert Online and Holland Strikes Back
We are a partner in Alert Online, a programme that the government and the business and academic communities run to boost cybersecurity awareness in the Netherlands. In 2017, Alert Online asked people to become 'cybersecurity heroes'.
The activities were centred around European Cyber Security Month in October. At Holland Strikes Back, an event hosted on 3 October by Digital Infrastructure Netherlands to tie in with Alert Online, we presented our SPIN project, which aims to make the Internet of Things more secure.

Outlook

ICT
The EU's new General Data Protection Regulation (GDPR) has significant implications for the way we share information with our registrars. We are therefore adapting our systems in line with the new rules. Our ICT systems are designed to meet strict and highly specific security requirements.
As a result, our needs can't easily be met by the standard packages offered by many suppliers.
In 2018, we will therefore bring the management of our office systems back in house after a period of outsourcing. Also on the agenda is the addition of a fourth DNS anycast network to our infrastructure. Our ICT Department will be working even more closely with SIDN Labs and the RA focus group. And, of course, we will continue investing to make our systems even faster and even more efficient and secure.

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SIDN Labs

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Value for research community and for operational management of .nl

With our work on the DNS, we cemented our place amongst the world's leading internet research centres in 2017. We also successfully established a new line of research: IoT security. While continuing to deliver outstanding value to the research community, we further increased the operational value of our projects for the management of .nl, the DNS and the wider internet.
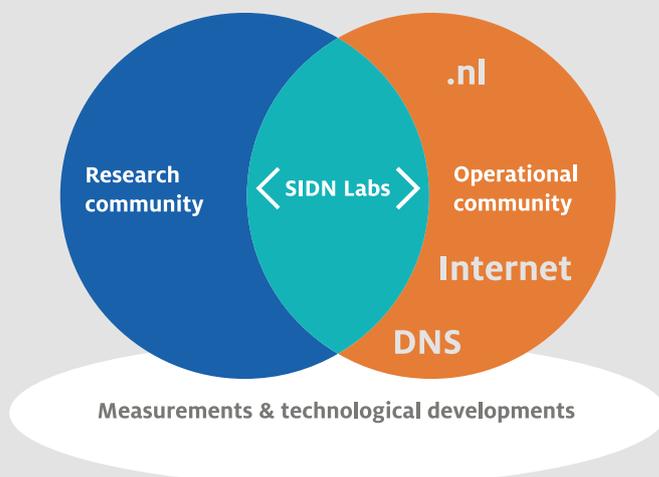
DNS EMAP: a new measurement tool

We developed the DNS-EMAP (DNS Ecosystem Mapper), a new tool that automatically looks up and checks all the domain names in a zone.

It can establish whether they have security certificates and are IPv6-enabled, for example. The system was designed to have the least possible impact on the servers running the domains. The development of DNS EMAP means we can now map the DNS ecosystem of a zone file with a single tool. As a result, it's easier to perform large-scale internet measurements. We deployed the new tool for the SADAG study undertaken for ICANN. We also used it to check the IPv6 support status of all .nl domain names for the Registrar Scorecard, and to help our Support Department colleagues to identify fake webshops. DNS EMAP supplements our existing research tools: ENTRADA (for passive DNS measurements), OpenINTEL (for active DNS measurements) and third-party systems such as RIPE ATLAS (for probing from ISP networks).

SADAG: research into the abuse of domain names in new gTLDs

Last year saw the conclusion of SADAG (Statistical Analysis of DNS Abuse in gTLDs): a study of spam, malware and phishing in new generic top-level domains (gTLDs). The project was commissioned by ICANN and undertaken in partnership with Delft University of Technology. It involved analysing large volumes of historical data, including zone files, Whois records and blacklists. Our DNS EMAP tool was also used to perform scans. ICANN is using the SADAG findings to evaluate the New gTLD Programme and frame recommendations on tackling domain name-related abuse.

Research community · SIDN Labs · Operational community · .nl · Internet · DNS

Measurements & technological developments

Resolver research

For the second year running, we had a paper accepted for the Internet Measurement Conference: a prestigious event for academic and industrial researchers, which last year was held in London. In the paper, we explained how DNS resolvers select authoritative name servers in practice. The central conclusion was that resolvers visit all the name servers for a top-level domain. Consequently, it is ultimately unicast name servers that determine the maximum round-trip time for clients that are distant from the authoritatives, even if the clients are close to the domain's anycast nodes. Our operations team has already made good use of the findings, deciding to phase out the unicast nodes for .nl and switch entirely to anycast.We carried out the study in partnership with researchers from the University of Southern California and the University of Twente.

Protection against insecure smart devices

All sorts of new services and applications are now within reach, thanks to the Internet of Things. However, insecure smart devices represent a risk. If hijacked and used for malicious purposes, they can have a serious negative impact on the availability of the internet, as in 2016's DDoS attack on DNS operator Dyn. End users can also be put at risk. What's more, the potential impact is growing all the time, as more IoT devices come on line and their role in our lives increases. In 2017, we therefore began developing SPIN (Security and Privacy for In-home Networks). SPIN protects the internet by automatically blocking IoT devices in home networks if they send or receive abnormal traffic. And that prevents them being used for DDoS attacks. SPIN also protects end users by letting them control what IoT devices on their home networks can do: what services they connect to, for example. We see SPIN-like systems as vital for sustainably harnessing the potential of the IoT while retaining trust in the internet. Our SPIN software is open source, and the first version was made available in March. Presentations were also made to various conferences, including the ONE Conference, IETF99, Holland Strikes Back and the ECP Annual Congress, generating a lot of positive feedback.

Outlook

In 2018, we will continue to focus on projects that contribute both to academic research and to the operational management of .nl, the DNS and the wider internet. Examples include a study into the way that resolvers deal with caching and an analysis of intelligent tools that help DNS operators with the siting of anycast-nodes. Both projects are collaborations with NLnet Labs and the University of Twente. A start will also be made on a study looking at how the internet of the future might be designed.

SPIN protects the internet by automatically blocking IoT devices in home networks if they send or receive abnormal traffic.

SPIN

We plan to modify the SPIN architecture to make it more flexible. We'll also be lecturing on SPIN-like systems at the University of Twente and working within the IETF to promote the standardisation of new protocols required by SPIN-like systems. A SPIN pilot is also on the cards, maybe on a university campus.

DNS-EMAP

We intend to use DNS-EMAP in tandem with our other data analysis tools to enhance the detection of abuse in the .nl zone. We'll also be setting up a pilot in partnership with another ccTLD registry to explore the scope for and potential of sharing information about domain name abuse. With a view to helping other researchers, we're looking to make the DNS-EMAP software available under a university licence. We may even go fully open source.

06

Expertise

Disseminating and sharing knowledge

Down the years, we have acquired a wealth of knowledge and experience, which we believe in sharing. We therefore ran activities aimed at getting youngsters interested in ICT and programming, we did research and we distributed information about e-commerce and other topics.

Generating enthusiasm for ICT

For the future of the Netherlands and health of the Dutch economy, it's important that more youngsters choose a career in ICT. We therefore sponsored Code Week (7 to 22 October), when activities were organised throughout the country to introduce youngsters to programming. And we helped with the development of 'www.wat?', a children's book that explains what's what in the internet world. Copies were given away as prizes during the Week van de Mediawijsheid ('Week of Media Wisdom'; 17 to 24 November). Support was also provided for the making of a TV programme called 'When I grow up'. Each episode profiles a young person and their dream job. The programme makers point out the importance of information technology in each of the professions. Because, no matter what line of work you choose, digital skills are going to be important.

Learning to program

In partnership with Connectis and Delft University of Technology, we started a project where programming lessons were offered to primary schools in Rotterdam. As well as boosting the youngsters' future job prospects, teaching coding skills can help to address the demand for programmers. Out of the two-hun-

dred-plus primary schools in Rotterdam, forty took up the offer. About nine hundred youngsters in years 6 to 8 benefitted from the sessions. In addition, a teaching package called the Bendoo Arduino Box was made available to 2,700 primary schools. With the materials in the pack, learning the basics of technology and programming is a fun, interactive experience.

SIDN Connect

SIDN Connect is a new event that replaces our annual Contact Day. Whereas the Contact Days were exclusively for registrars, SIDN Connect is designed for sharing knowledge and inspiration with a wider group of clients and stakeholders. Held at the KNVB Campus – a new venue for us – the first edition was a big success. The highlights were reprised in an attractive magazine, which was widely distributed.

'SIDN Analyses'.

'SIDN Analyses' is a series of video documentaries for people involved in e-commerce. Popular webshops are profiled as a way of looking at the technology behind domain names, explaining some of the jargon and introducing entrepreneurs to services such as our Domain Name Surveillance Service.

Research into the use of domain names

In connection with the Day of the Domain Name, we commissioned a survey of entrepreneurs and would-be entrepreneurs to gather information about the use of domain names. Of the entrepreneurs, 49 per cent said that a substantial part of their income was linked to their websites. And .nl was the preferred extension for 59 per cent of people with business plans.

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SIDN

At the centre of the (digital) community

Good progress was made with the integration of SIDN and Connectis. We also introduced agile working and welcomed new personnel to various departments. In addition, we were very active in the Dutch and international internet communities.

Internal

Workforce and sickness absence

In 2017, thirteen vacancies were filled and twelve staff members left the organisation. By the close of the year, our workforce numbered ninety-eight (eighty-seven FTEs). Of those, 34 per cent were women and 66 per cent men. We ended the year with three vacancies. Sickness absence was 4.6 per cent.

Agile working

We introduced agile working with the aim of increasing our ability to adapt to changing circumstances and cutting our time to market. The new approach brought considerable progress, especially in the ICT Department. As a result, productivity was up. Agile working was also very well received by the staff.

Development and training

We want to attract the best professionals and enable them to perform to their full potential. With those aims in mind, we provide an inspiring working environment and ample opportunity for personal development. A sum equal to 7 per cent of the wage bill is allocated to training and development. In addition to team bonding, the emphasis in 2017 was increasingly on personal development training. Staff took part in numerous scrum sessions as well.

Personnel satisfaction

A personnel satisfaction survey was carried out in 2017. The overall satisfaction level was 7.5 out of 10, which is above the benchmark. A particularly high level of personnel engagement was recorded: 8 out of 10.

Personal sponsorship budgets

We aim to be a good employer. We encourage personal development, provide an inspiring working environment, devote attention to balancing work and home life, and offer a wide generous compensation and benefits package. One element of that package is a personal sponsorship budget: a sum is made available to every member of staff each year, to support a good cause of their choice. So, for example, money was given to help build a Skills Centre and provide laptops for disadvantaged people in Kenya. And the person who chose that project even went out to Kenya to lend a hand with the construction work.

Staff Council

The Staff Council was kept fully informed about developments at Connectis. The Council was also asked to approve a new whistle-blowers' charter. As usual, the Staff Council was informed about SIDN's annual plan and budget for the year ahead. In September, the Staff Council met SIDN's Supervisory Board.

Connectis

Connectis is making the transition from start-up to scale-up. In support of that process, we assisted with further professionalisation. We aligned Connectis's planning and control cycle with our own and introduced a number of HRM tools. In October, Connectis's founder Martijn Kaag stepped aside as CEO, with SIDN's own Chief Executive Roelof Meijer temporarily taking over the helm.

Contributions to organisations and conferences

We play an active role in various important international forums. In 2017, we again participated in numerous national and international meetings, helping to organise several of them.

ICANN
ICANN meetings took place in Copenhagen (11-16 March), Johannesburg (26-29 June) and Abu Dhabi (28 October-3 November). Stakeholders from all around the world gathered to address policy issues, particularly concerning the Domain Name System. At the Copenhagen meeting, SIDN Labs Manager Cristian Hesselman was appointed to ICANN's Security and Stability Advisory Committee (SSAC). The SSAC advises the ICANN community on the operational security, stability, resilience and interoperability of the internet's naming and numbering systems. The Abu Dhabi meeting was dominated by the conflict between European privacy legislation and ICANN's Whois rules for gTLDs. A publicly accessible Whois containing a variety of personal data, as required by ICANN, contravenes European law. We arranged for the translation and distribution of a letter from the Dutch Data Protection Authority to the registry for .frl, Friesland's domain, which had considerable influence on the debate. ICANN is now urgently seeking a solution that recognises the importance of a public Whois while also complying with current and upcoming European law (GDPR).

IETF
We attended the IETF meetings in Chicago (26-31 March), Prague (16-21 July) and Singapore (11-17 November). We contributed actively to various working groups by providing Internet Drafts and making presentations.

RIPE
We have been working with RIPE for many years. In 2017, we attended both RIPE meetings, in Budapest (8-12 May) and Dubai (22-26 October). One of our people sat on the RIPE Programme Committee at each meeting. Several members of the SIDN Labs team also took part in the RIPE NCC DNS Measurements Hackathon in Amsterdam on 20 April. The prototype they built in the space of twenty-four hours earned an honourable mention.

CENTR
We are active members of CENTR, the organisation for European ccTLDs. CENTR organises various meetings, at which members exchange experiences and discuss developments. One recurrent topic in 2017 was the role that registries should play in tackling illegal website content. We find it very useful to exchange ideas on the subject. We therefore seek to have a presence at CENTR meetings whenever possible and often make presentations. In addition, our Security Officer chairs CENTR's Security Workgroup, while our Legal & Policy Manager chairs the Legal and Regulatory Workgroup.
Finally, CENTR organises an annual Registrar Day, which we invite .nl registrars to attend with us.

Internet Governance Forum (IGF) and NL IGF
The annual IGF, an international debate regarding the future and governance of the internet, was held in Geneva from 18 to 21 December. With more than fifty participants and major input to the various sessions and workshops, the Netherlands was well represented.
Ahead of the IGF we worked with the Ministry of Economic Affairs and ECP to organise the NL IGF Event (10 October). NL IGF provides a national platform for the exchange of knowledge and experience and for debating internet-related issues. The conclusions also serve as Dutch input for the global IGF. One question that we took a keen interest in at both meetings was human rights on the internet.

ECP Annual Congress
We were once again pleased to support the ECP Annual Congress, held on 16 November. The event explored topics such as cloud computing, big data, blockchain, privacy and cybersecurity. We shared our knowledge in sessions led by SIDN Fund and SIDN Labs. The event gave some of the project teams assisted by SIDN Fund the opportunity to showcase their work as well.

One Conference 2017
Enterprises, governments and academics from all over world met in The Hague on 16 and 17 May to share cybersecurity knowledge and experiences. For SIDN Labs, the gathering was an opportunity to present its SPIN system to a global audience.

Internet Security Platform
The Internet Security Platform is a joint public-private initiative intended to promote internet security. We have been active participants for many years.

Partnerships and sponsorship

We work with and/or contribute to organisations, projects and campaigns that promote digital skills, mitigate the internet's negative side-effects or drive internet-related innovation.

Alert Online

Alert Online is an annual campaign run by the government, together with the business and academic communities. Its aim is to boost cybersecurity awareness in the Netherlands, and it reaches out to people of all ages and all walks of life who use the internet.

Bendoo Box

The Bendoo Box is a complete teaching package designed to get youngsters interested in learning to program. We supported its development and often organise activities in partnership with its makers.

Bits of Freedom

Bits of Freedom defends freedom and privacy on the internet. Freedom and privacy are fundamental rights, and essential for development, technological innovation and the rule of law. Bits of Freedom fights for an internet that is open for everyone, where private communication remains private.

Code Week

During the annual Code Week, we introduce primary and secondary teachers and pupils to the world of programming.

We have commissioned and funded a substantial portion of NLnet Labs' work.

DINL

Stichting Digitale Infrastructuur Nederland is dedicated to helping the Netherlands remain a leading digital infrastructure hub. DINL represents the companies and organisations that supply the facilities on which the digital economy is based – data centres, hosting service providers, internet service providers and others. We were one of the foundation's first members.

ECP

ECP is a neutral platform, through which the business community, the government and NGOs work together to promote the use of ICT in Dutch society. We are one of ECP's partners and a long-time sponsor of ECP's annual congress. We also participate in many ECP activities, including the website veiliginternetten.nl.

ISOC

The Internet Society has 44,000 members in 170 different countries. It is the parent organisation for various international bodies, including the IETF, IAB and IRTF. In the Netherlands, ISOC.nl has about a thousand members from the internet industry, business and government.

Reporting Hotline for Internet Child Pornography

We are longstanding sponsors of the Reporting Hotline for Internet Child Pornography, which seeks to frustrate the distribution of child pornography on line.

We have commissioned and funded a substantial portion of NLnet Labs' work.

NLnet Labs

We continued our collaboration with NLnet Labs, an R&D institute with a strong international reputation. With its open-source software and open standards, NLnet Labs makes a major contribution to the security and operational stability of the DNS. We have commissioned and funded a substantial portion of NLnet Labs' work since 2012. Cristian Hesselman, Manager of SIDN Labs, chairs the NLnet Labs Board.

Summer School on Internet Governance

The Summer School on Internet Governance organises an extensive introductory programme on internet governance for students, academics, officials and businesspeople. We sponsor the annual European Summer School on Internet Governance and its South American equivalent.

SIDN Fund

SIDN Fund was established in 2014, with starting capital and ongoing support from us. The Fund gives financial assistance to projects that contribute to the economic and social value of the internet. By doing so, it contributes directly to the realisation of our objectives.

In 2017, SIDN Fund held two grant application rounds for innovative internet projects. The theme of the first round was 'blockchain for good'. Following careful consideration by the Advisory Panel, grants were awarded to a total of forty-four action projects and three research projects. In April, the Fund linked up with Google, Brinkhof Advocaten and Greenhost to organise the Internet Thesis Awards.

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Outlook

SIDN Fund
SIDN Fund began in 2014 with a Director and an independent Board of Governors. Has SIDN Fund had the impact we intended? In 2018, we will evaluate the Fund's activities and make any necessary changes.

HRM
We intend to press ahead with the rollout of agile working this year. Various HR tools, including our performance appraisal system, are likely to need modification. In response to labour market shortages, we will offer more internships, ally ourselves more closely with relevant training programmes and devote more attention to labour market communication.

ICT
We will be upgrading our office systems in the year ahead, which will involve moving certain functionality to the cloud.

Some of the projects supported by SIDN Fund

A fair system for music royalties
The music industry is known for its complicated and bureaucratic structure: artists sometimes have to wait months for royalty payments. IBT music is developing a blockchain application, which artists can use to set up smart contracts that serve as the basis for payouts.

Internet of Coins
Internet of Coins is a decentralised exchange platform for digital currencies. An easy-to-use digital wallet will make it possible for anyone to upload and/or download currencies and tokens, and to exchange them.

Burst Your Bubble
A large part of what you see on line is influenced by algorithms, which means not everybody gets to see the same news. This project involves development of a game designed to increase awareness of the selective information phenomenon.

The Patient Box
The Patient Box is intended to give patients real control over their data. This innovative device for the storage and retrieval of patient-generated data is located at the GP's surgery and covered by medical confidentiality rules. Patient and doctor can view the data and decide for themselves who to share it with.

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Report of the Supervisory Board

SIDN is developing well

SIDN is doing well. The number of registered .nl domain names continues to increase and .nl's market share is growing. The organisation's finances are also healthy. SIDN can therefore invest in the .nl domain and new propositions, while also continuing to support SIDN Fund. A survey of satisfaction amongst .nl registrars found that SIDN's services are generally considered to be very good. For a true business-to-business operation such as SIDN, that is extremely important.

SIDN is organisationally and financially stable. The greatest risk facing the organisation is probably over-reliance on the success of the .nl domain. For several years, therefore, SIDN has been pursuing a diversification strategy. At the end of 2016, that led to the acquisition of Connectis. The future of Connectis was one of the main topics occupying the attention of the Supervisory Board in 2017. After close consultation with the Supervisory Board, SIDN's CEO has temporarily taken over the helm at Connectis.

The stability and availability of SIDN's infrastructure were again very high last year. A DDoS attack on our ICT infrastructure in April was successfully countered, without any inconvenience to internet users. Although unwelcome, the incident served to demonstrate the high quality of our systems.
The Supervisory Board believes that the policies pursued by SIDN have been such that the quality of SIDN's services is assured and that the company is ready for the future.

Paul Schnabel,
Chair of the Supervisory Board

Other Supervisory Board members
Mark Frequin (member of the Selection & Appointments Committee and the Remuneration Committee)
Simon Hania (member of the Security & Stability Committee)
Kees Neggers (member of the Security & Stability Committee)
Jeannine Peek
Peter van Schelven (member of the Audit Committee)
Willem van Waveren (member of the Audit Committee)
More information about the SB members can be found on www.sidn.nl

Meetings
Supervisory Board: 4 meetings
Audit Committee: 2 meetings
Selection & Appointments Committee: 0 meetings
Security & Stability Committee: 2 meetings

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Financial statement

Finance

On 1 January 2017, through our subsidiary SIDN Deelnemingen B.V., we acquired a 65 per cent majority interest in Connectis Group B.V. of Rotterdam. The acquisition price was € 8,612,500. We additionally agreed an earn-out arrangement in the form of a loan of € 812,500. The loan will be repaid out of future dividend payments. In the annual financial statement for 2017, the majority interest is accounted for as a participating interest; hence Connectis Group B.V.'s result for 2017 is included under 'Result from participating interests'.

Our financial position remained strong in 2017. The net result for the year was a loss of € 645,200. The result will be charged to the general reserves. At the close of 2017, our equity capital was € 32,131,800. The equity capital serves partly as a financial buffer, helping to assure the organisation's continuity. The minimum financial buffer required is related to the organisation's structural cost base. The cost base rises over time, as the organisation grows and the quality, stability and security requirements increase. It is therefore necessary to enlarge the financial buffer as well. The financial buffer is currently ample to provide necessary and reasonable cover against the identified risks and uncertainties.

The operating result for the year was a loss of € 19,300. That represents a reduction of € 3,360,100 relative to 2016 (€ 3,340,800). The reduction is attributable to a donation of € 1,651,500 to SIDN Fund in 2017, depreciation of € 904,200 in the value of the goodwill acquired with the majority interest in Connectis Group B.V., and a € 1,098,000 increase in personnel costs. Corrected for the donation to SIDN Fund, the operating result for 2017 is € 1,632,200. As a percentage of turnover, the operating result was -0.1 per cent (2016: 17.0 per cent). Our share in Connectis Group B.V.'s net result for 2017 was a loss of € 169,100.

Net turnover was € 19,705,000: € 90,000 higher than in 2016 (€ 19,615,000). That corresponds to a year-on-year rise of 0.5 per cent, whereas 2016's net turnover had been 1.8 per cent higher than the previous year. The increase in turnover was mainly the result of higher income from both domain name registrations and new activities. The .nl domain contained more than 5.794 million domain names at the end of the year. In 2017, the net growth in the number of registered domain names was 109,706: slightly more than the growth of 80,529 domain names in 2016.

In order to promote the use of DNSSEC to secure domain names, we have been paying an annual rebate per secure domain name since July 2012. By the close of 2017, approximately 2.855 million domain names were secured with DNSSEC (49.3 per cent of all .nl domain names). In 2015, we started the Registrar Scorecard: an incentive programme designed to further increase the quality of the .nl zone. Through the programme, we returned € 517,000 to participating registrars in 2017 (2016: € 280,000). The total value of all the incentives set off against the turnover (DNSSEC discount, Registrar Scorecard rewards, volume discount and direct debit discount) was € 3,213,000: a 15 per cent increase on the 2016 total of € 2,800,000.

The number of registrars fell again, to stand at 1,303 at the close of 2017 (2016: 1,372). That had a negative impact on net turnover of € 48,000. Turnover from new activities was € 687,000 in 2017, an increase of 35 per cent on 2016 (€ 509,000). In 2017, several SIDN employees were attached to Connectis. The associated costs of € 160,000 were charged to Connectis; that sum was partially offset by the hire of temporary personnel.

Our expenditure rose in 2017 by € 3,450,000 (21.1 per cent). Total expenditure in 2017 was € 19,724,000, compared with €16,274,000 in 2016. The rise is attributable to a donation of € 1,651,500 to SIDN Fund, depreciation of € 904,200 in the value of the goodwill acquired with the majority interest in Connectis Group B.V., and increased personnel costs of € 1,098,000.

Personnel costs were € 1,098,000 higher than in 2016, at € 8,794,000 (2016: € 7,696,000). The rise is attributable partly to growth of the workforce and general pay rises (together € 302,000) and partly to higher social security contributions (€ 136,000). The increase in the size of the workforce was due to the expansion of SIDN Labs' research capacity and the establishment of a Security Operations Centre. Expenditure on temporary personnel increased by € 649,000, as a result of delays filling certain vacancies and the need to provide cover for personnel on sick leave. The average size of the workforce rose from eighty-four FTEs in 2016 to eighty-six FTEs in 2017; the total number of people employed at the end of 2017 was ninety-eight, up from ninety-one at the end of 2016.

Depreciation costs in 2017 were € 1,858,000. That is € 453,000 higher than in 2016 (€ 1,405,000). Depreciation of € 904,200 in the value of the goodwill acquired with the majority interest in Connectis Group B.V. is partially offset by the fact that certain fixtures and fittings have now been fully written off; hence depreciation of € 347,000 in 2016 did not recur in 2017.

The other operating expenses in 2017 were € 8,929,000 (2016: € 7,173,000). The increase of € 1,756,000 relative to 2016 was due mainly to the donation of € 1,651,500) made to SIDN Fund in 2017.

In 2017, total capital expenditure was € 809,000, of which € 642,000 was invested in production systems, € 31,000 in security tooling, € 11,000 in R&D tooling, € 91,000 in office ICT equipment and € 34,000 in fixtures and fittings.

Whereas in 2016 we had a positive cash flow of € 4,094,200, in 2017 we generated a negative cash flow of € 10,338,900, mainly as a consequence of acquiring a majority interest in Connectis Group B.V. (€ 8,612,500). In the course of 2017, we made further loans to Connectis totalling € 1,487,000. In order to manage our liquidity risk, we spent € 1,490,000 on the acquisition of Dutch and German government bonds. Our solvency fell slightly from 79.8 per cent in 2016 to 76.8 per cent in 2017. In 2017, € 4,908,000 was invoiced and received for services to be delivered in the following calendar year (2016: € 4,323,000).

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In 2013, we began talks with the tax authorities regarding the tax implications of the donation to SIDN Fund. SIDN and the tax authorities differ in their view of the extent to which the donation is tax-deductible. Hence, the corporation tax assessment received in respect of 2014 was not in line with the amount that SIDN reported as due on its tax return for that year. We therefore filed an appeal. Hence, the total receivable from the tax authorities is estimated at € 901,500.

Outlook

We anticipate a slight increase in the number of registered .nl domain names in 2018 and a modest corresponding growth in earnings from .nl registrations. Total earnings are likely to increase a little as well. Our workforce is expected to grow, thus pushing up overall expenditure. Capital expenditure is likely to be broadly similar to 2017 and we anticipate that the result from participating interests will be nil in 2018. Taking all factors into account, we envisage a positive operating result and expect to generate a positive cash flow. Our intention is to make a donation of € 2,500,000 to SIDN Fund in 2018.

Risks and uncertainties

Vision and policy

Our strategic plan for the next four years is reviewed and updated annually. As part of that process, we consider the company's (strategic) risk exposure. The management team and staff carry out a context analysis, in which opportunities and threats are surveyed. We also identify the strengths and weaknesses of the internal organisation. The conclusions of the analysis are then translated into a statement of risks and (where appropriate) countermeasures. The primary objectives of risk management are to assure the continuity of the organisation and our role as registry for the .nl domain, and to protect our position and reputation.

Since 2011, we have been ISO27001-certified. That status involves operating an Information Security Management System (ISMS), featuring an annual cycle of business impact analysis, risk identification, risk management and residual risk appraisal, all in accordance with a defined information security policy. The findings of internal and external audits are regularly discussed, e.g. in our Tactical Security Meetings (TSMs), after which any necessary improvements are implemented. The outcomes are monitored by means of biannual management reviews. In that context, consideration is given to the results of the audits and performance assessments, as well as to the status of audit action points and any security incidents that may have occurred.

Before starting a project, we produce a project plan, which always includes a section covering the risks associated with the project, the risk management measures to be taken and residual risks. Before the project is given the go-ahead, consideration is given to the risk section of the project plan. Any changes to the risk situation and the risk management measures are addressed in the regular project progress reports.

Our Supervisory Board oversees our organisation's strategy, policy and general operational position. The Supervisory Board pays particular attention to risk management, which is scrutinised by the Board's Audit Committee and Security & Stability Committee.

Risk analysis and reporting

Strategic risks

The main risks associated with SIDN's strategy stem from the strong dependence on (earnings from) the .nl domain and from the contraction of the .nl market. We do not have a direct sales channel to the end market and therefore have very little scope for influencing that market ourselves. The focus is consequently on collaboration with our registrars, e.g. through the Registrar Scorecard, which offers incentives to promote the use of .nl domain names. At the same time, we are seeking to increase our added value, extend the range of services we offer and reduce our dependence on .nl. It was with those aims in mind that we acquired a 65 per cent holding in Connectis Group B.V. at the start of 2017.

In order to maintain risk separation between SIDN and Connectis Group B.V., we established a subsidiary, SIDN Deelnemingen B.V. at the end of 2016. It is the new subsidiary that holds 65 per cent of the shares in Connectis Group B.V.

Connectis Group B.V. is currently transitioning from start-up to scale-up. It is a young, dynamic enterprise with a strong position and abundant opportunities in a growing and competitive market. In 2017, we invested to facilitate the process of transition, with the emphasis on further professionalisation, realignment of the company's commercial strategy and the creation of synergy and added value.

Our strategic risk appetite is moderate in relation to activities with the potential to increase our added value.

Operating risks

The two main risks associated with our operating activities are interruptions to the availability of our services and breaches of the confidentiality or integrity of important data. Such problems could arise from technical and/or human error, or from deliberate (targeted or indiscriminate) human action. A prolonged, large-scale problem in one of those fields has the potential to threaten the continuity of the organisation in two ways. First, by seriously damaging our reputation, giving rise to doubts in political circles and the community at large as to SIDN's legitimacy as the registry for the .nl domain. Second, by leaving us vulnerable to large compensation claims from clients.

The significance of each key process for service continuity is assessed by means of Business Impact Analysis, which is part of the ISMS. Our DNS services – the basis of the functionality of registered domain names – are the most critical, closely followed by our registration services, which enable users to

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register new domain names and to update and cancel existing registrations. Also rated as critical are the Whois/Is, the power supply, our office IT systems, our website www.sidn.nl, and our communication and telecommunication systems.

With a view to assuring availability, integrity and confidentiality, we have put a wide variety of risk management measures in place, designed to minimise the likelihood of problems, and to enable swift corrective action and minimise impact if problems do arise.

The measures in question range from the elimination of single points of failure by extensive redundancy in hardware, software, connections, third-party services and expertise, logical and physical access control, audits and penetration testing, contractual arrangements with suppliers, codes of conduct for SIDN personnel, an emergency backup location, crisis and relocation drills, a privacy board and a Security Operations Centre (SOC).

Our operating risk appetite is low in relation to interruptions to the availability of our services and breaches of the confidentiality or integrity of important data. Our risk appetite in relation to activities with the potential to increase operational excellence is moderate.

Financial risks

- Damage claims and penalties: service interruptions and data confidentiality or integrity breaches have the potential to generate claims and/or penalties. Our General Terms and Conditions limit or exclude our liability for such problems.
- Currency/exchange rate risk: our exposure to currency and exchange rate risks is modest. Our .nl services are priced in euros and we make little use of suppliers that charge us in other currencies.
- Bad debt risk: about 75 per cent of registrars pay by direct debit. Our General Terms and Conditions make provision for action to be taken if a registrar does not fulfil its financial obligations.
- Liquidity risk: our liquid assets are divided across three Dutch banks. In 2017, we acquired a portfolio of Dutch and German government bonds.
- Market risk: our portfolio of Dutch and German government bonds was acquired with a view to holding the bonds until maturity. If circumstance should require us to dispose of the bonds prior to maturity, we would face the risk of the bonds having diminished in value relative to the date of purchase.
- Solvency risk: we maintain a financial buffer to assure the continuity of the organisation (for a period) in the event of a significant loss of our earnings and/or the need for high expenditure at short notice. The minimum size of the buffer increases in step with our structural cost base. The financial buffer is currently well above the defined minimum.
- Uncertainty about our ability to attract finance: to date, we have not needed to seek external finance.

Our financial risk appetite is low.

Legislative and regulatory risks

Changes to national or international legislation and regulations have the potential to affect our organisation and operating processes. We take stock of potentially significant proposed or impending legislative and regulatory changes – e.g. changes in employment law, tax law or data protection law – at an early stage. The impact of any such change is assessed and translated into organisational adaptations, which are then implemented. In view of the potential impact of legislative or regulatory changes relating to our registry role, we have a Legal & Policy Manager with responsibility for that domain. Where necessary and possible, the Legal & Policy Manager seeks to influence the nature of any proposed changes.

We have initiated a comprehensive inventory of our personal data processing activities in relation to the General Data Protection Regulation, which comes into effect in 2018. Each processing activity is being critically examined to determine whether it is consistent with the new legislation. Where necessary, we will modify our procedures to ensure compliance with the law. We have voluntarily appointed a Data Protection Officer.

Our legislative and regulatory risk appetite is low; we endeavour to operate well within the parameters of all applicable legislation and regulations.

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Consolidated financial statements for 2017
Consolidated balance sheet as at 31 December 2017 (before appropriation of profit)

Fixed assets	31 December 2017 (in €)	31 December 2016 (in €)
Intangible fixed assets	8,393,948	459,661
Tangible fixed assets		
Land and buildings	5,326,488	5.505,908
Machinery and equipment	1,107,138	950,455
Other fixed business assets	789,711	851,561
Tangible fixed assets under development	0	0
	7,223,337	7,307,924
Financial fixed assets	4,135,007	987,600
Current assets		
Receivables		
Debtors	303,489	380,696
Tax and social security contributions	363,548	323,440
Other receivables and accrued and deferred assets	1,088,038	954,689
	1,755,075	1,658,825
Liquid assets	20,326,724	30,665,580
	41,834,091	**41,079,590**

	31 December 2017 (in €)	31 December 2016 (in €)
Equity capital		
Issued capital	100	0
General reserve	32,776,948	30,232,909
Annual result	(645,208)	2,544,039
	32,131,840	32,776,948
Provisions	0	0
Long-term liabilities	406,250	0
Short-term liabilities		
Liabilities to suppliers	1,113,426	1,100,879
Tax and social security contributions	365,941	336,799
Other liabilities and accrued and deferred liabilities	7,816,634	6,864,964
	9,296,001	8,302,642
	41,834,091	41,079,590

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Consolidated profit and loss account for 2017

		2017 (in €)	2016 (in €)
Net turnover		19,704,621	19,614,672
Expenditure			
Wages and salaries		7,243,866	6,195,136
Pension charges		858,797	722,340
Other social costs		691,555	778,569
Depreciation of tangible and intangible fixed assets		2,000,513	1,404,688
Other operating expenses		8,929,196	7,173,153
		19,723,927	16,273,886
33	**Operating result**	(19,306)	3,340,786
Income from securities		(14,061)	0
Financial income		36,010	45,075
Financial expenditure		0	0
Result before taxation		2,643	3,385,861
Taxes		(478,772)	(841,822)
Result from participating interests		(169,079)	0
Result after taxation		**(645,208)**	**2,544,039**

Consolidated cash flow statement for 2017

	2017 (in €)	2016 (in €)
Cash flow from operating activities		
Operating result	(19,306)	3.340.786
Adjustments for:		
Depreciation and other reductions in value	2,000,513	1, 404,688
	2,000,513	1,404,688
Movement in working capital:		
Receivables	(96,250)	(183,680)
Short-term liabilities	876,965	1,311,703
	780,715	1,128,023
Cash flow from operating activities	2,761,922	5,873,497
Interest received	30,356	129,253
Corporation tax paid	(709,653)	(966,722)
	(679,297)	(837,469)
Cash flow from operating activities (carried forward)	**2,082,625**	**5,036,028**

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Consolidated cash flow statement for 2017

	2017 (in €)	2016 (in €)
Cash flow from operating activities (carried forward)	2,082,625	5,036,028
Cash flow from investment activities		
Acquisition of participating interest	(243,956)	(100)
Investments in intangible fixed assets	(8,424,855)	0
Investments in tangible fixed assets	(775,767)	(741,738)
Long-term lending	(1,487,260)	(200,000)
Acquisition of securities	(1,489,643)	0
Cash flow from investment activities	(12,421,481)	(941,838)
Increase/(decrease) in funds	(10,338,856)	4,094.190
Movement in funds		
Funds as at 1 January	30,665,580	26,571,390
Increase/(decrease) in funds	(10,338,856)	4,094,190
Funds as at 31 December	**20,326,724**	**30,665,580**

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Directors
and officers

Directors and officers on 31 December 2017

Chief Executive Officer
Roelof Meijer

Management team
Cristian Hesselman, SIDN Labs
Jeanette Horinga, Control & Support
Arjan Middelkoop, New business, Marketing & Sales
Lilian van Mierlo, Registration & Service
Cees Toet, ICT

Staff Council
Renate Lombarts
Barry Peters
Jan van Pijkeren (Chair)
Martin Sluijter (Secretary)

Complaints and Appeals Board
Huib Gardeniers (Secretary)
Mireille Hildebrandt
ErnstJan Louwers
Judith de Vreese-Rood (Chair)
Dennis Wijnberg

Supervisory Board
Mark Frequin
Simon Hania
Kees Neggers
Jeannine Peek
Peter van Schelven
Paul Schnabel (Chair)
Willem van Waveren

II

Glossary

Abuse
Use of the internet for an inappropriate purpose. Common forms of abuse include sending spam, phishing and creating botnets.

Access provider
A service provider that enables customers to access the internet.

Agile working
Working in a responsive and adaptive way. In an agile organisation, projects are often divided into small, surveyable periods and there is continuous consultation with the client. The agile working philosophy originates from the ICT industry and makes use of various techniques, most notably the scrum.

Anycast
Global anycast is a proven and effective technology for spreading network load across multiple instances of seemingly the same server. The way it works is as simple as it is effective: a number of servers share a single IP address, making routers 'think' that they are all the same server. IP packages are forwarded to the 'nearest' point.
Local anycast differs from global anycast insofar as a number of local nodes are created. A node is a computer or another device connected to a given network, which can only be approached locally. As a result, worldwide DDoS traffic cannot ever reach a local node. The only DDoS traffic that can reach the node is locally generated traffic, which is much easier to control. Local anycast is therefore an effective response to the risk of major DDoS attacks.

General Data Protection Regulation (GDPR)
From 25 May 2018, uniform privacy legislation will apply throughout the EU: the General Data Protection Regulation (GDPR).

Big data
A very large volume of digital information gathered for analysis, often from various sources.

Blockchain
The technology underpinning many cryptocurrencies, including Bitcoin. In principle, it works like a general accounting ledger.
However, it isn't maintained by a central administrator, but by all its users. When one user performs a transaction, it is immediately recorded by all users. Its decentralised structure makes a blockchain unhackable.

Caching
Storing data in temporary files. Retaining frequently visited web pages in a cache means that the same information doesn't have to be fetched repeatedly.

ccTLD
In full: country-code top-level domain. A top-level domain linked to a country, e.g. .nl (the Netherlands), .de (Germany) and .fr (France).

CENTR
An association for the registries that run ccTLDs, including SIDN. It is a forum for discussion about policies that affect ccTLDs and a conduit for communication between the ccTLDs and other parties involved in the internet's (further) development, such as ICANN.
See also centr.org.

Cloud computing
Computer services, such as storage, database management, networking and software, which are delivered via the internet ('the cloud'). Examples include video streaming and on-line gaming.
Complaints and Appeals Board (C&AB)
An independent body to which .nl registrars and registrants can appeal against certain types of decision made by SIDN. The C&AB also considers complaints asserting that a domain name's registration is inconsistent with public order or decency.
See also cvkb.nl.

DDoS
A distributed denial-of-service attack is a concerted effort to make a computer, network or service unavailable to its intended user(s). DDoS attacks can be carried out in several different ways.

DNS
Abbreviation of Domain Name System or Domain Name Server. The global DNS is the system and protocol used on the internet to translate domain names into IP addresses and vice versa.

Downtime
The time that a website is unreachable or an application is inactive.

DNSSEC
Domain Name System Security Extensions (DNSSEC) is a suite of extensions to the DNS protocol. It involves the use of cryptographic techniques to prevent cybercriminals diverting internet traffic to fraudulent websites without the users realising. The basic DNS protocol does not provide optimum protection against such threats.

Domain name
A name within the Domain Name System (DNS), the internet's naming system. A domain name such as sidn.nl is made up of several parts: the top-level domain, '.nl', and the second-level domain, 'sidn'.

Domain Name Surveillance Service (DBS)
A monitoring service provided by SIDN to assist with the identification of typosquats and other issues. Users are alerted if a domain name is registered that is similar to their company name or brand name.

Registrant
The person or organisation in whose name a domain name is registered. Only the registrant is entitled to receive SIDN's services.

Dispute Resolution System for .nl Domain Names
Anyone who registers a .nl domain name is responsible for making sure that the registration doesn't infringe anyone else's rights. That can happen if, for example, the domain name makes use of someone else's brand name, trading name, personal name or organisation name. If a registration appears to infringe someone's rights, a dispute can arise. SIDN's Dispute Resolution System has been set up as a quick and affordable alternative to using the law courts to settle a dispute.

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General Data Protection Regulation (GDPR)
From 25 May 2018, uniform privacy legislation will apply throughout the EU. The Dutch regulation implementing the GDPR is the Algemene Verordening Gegevensbescherming (AVG).

ECP
ECP, the Platform for the Information Society, is a vehicle for the business community, the government and social organisations to work together to support the use of ICT in Dutch society.
See also ecp.nl.

E-invoicing
The electronic exchange of invoices.

eID
Electronic evidence of identity, which can be used for gaining secure and reliable access to on-line public and commercial services.

ENTRADA
An open-source big data platform developed by SIDN Labs for the analysis of large volumes of DNS data. The database that ENTRADA uses contains more than a hundred million DNS queries.

Fake webshop
An internet site that looks like a normal webshop, but actually exists only to defraud visitors.

gTLD
Generic top-level domain: one of the main types of internet domain. Well-known gTLDs include .com, .org and .edu. The introduction of numerous new gTLDs, including .amsterdam, began in 2014.

ICANN
The Internet Corporation for Assigned Names and Numbers is a non-profit organisation that performs a number of important tasks, such as assigning and specifying top-level domains, assigning domain names and allocating IP addresses. ICANN does not manage any domain names itself. That job is delegated to registries such as SIDN (.nl) and VeriSign (.com and .net).
See also icann.org.

Identity and access management (IAM)
The collective processes by which an organisation administers and manages network users, including for example processes for managing access to applications and systems.

IETF
The Internet Engineering Task Force is an international community of network designers, operators, suppliers and researchers, which develops internet standards.
See also ietf.org.

Internet governance
The development and application of shared principles, standards, rules, decision-making procedures and programmes that shape the way the internet is used.

Internet Governance Forum
The Internet Governance Forum (IGF) is an annual gathering of governments, market players and non-governmental organisations, under the auspices of the United Nations. At the IGF, public policy issues are discussed with the aim of ensuring that the internet remains manageable, robust, secure and stable. The IGF does not define policy.
See also intgovforum.org.

Internet of Things
A development of the internet, where everyday devices, such as thermostats and baby monitors, are connected to the internet and able to exchange data.

Internet service provider (ISP)
A business that provides internet access services to other businesses or private individuals. Many ISPs also provide other services, such as e-mail, web hosting and spam filtering.

Internet Protocol (IP) address
A unique combination of numbers and/or letters. Every computer or server on the internet has an IP address, at which it can be contacted. If you visit www.whatismyip.com you can check the IP address of the device you are currently using.

IPv6
Every computer or server on the internet has an IP address, at which it can be contacted. Addresses are created in accordance with the Internet Protocol. IPv6 is that latest version of that protocol, which supports an almost infinite number of IP addresses. It has been developed to succeed IPv4 (version 4), because IPv4 addresses are running out.

ISOC (Internet Society)
An international organisation for worldwide collaboration and coordination on matters relating to the internet and the associated technologies and applications. ISOC brings together sixteen thousand internet professionals in 180 countries, many of whom helped to create the internet.
See also internetsociety.org.

Internet Society of the Netherlands (ISOC.nl)
A society of about eight hundred members from backgrounds including the internet industry, the business community, government, consumers' organisations, the non-profit sector, the technology industry and the financial, legal and academic domains.
See also isoc.nl.

Java
A programming language that is widely used on the internet.

Malware
Any kind of malicious software, including computer viruses and worms.

Name server
A computer on the internet, which 'translates' a domain name into an IP address (a unique numeric internet address). The name server is part of the DNS.

New gTLD Programme
An ICANN initiative: the largest extension to the domain name system ever. In 2013, the number of generic domain names was increased from twenty-two to more than a thousand.

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NL IGF

A joint initiative by the Ministry of Economic Affairs, SIDN and ECP. Its purposes are, first, to embed the conclusions of the international Internet Governance Forum (IGF) in national policy and, second, to ensure that the Netherlands has a voice and that Dutch issues are aired within the international IGF.

Notice-and-Take-Down Procedure

A voluntary internet industry code of conduct on dealing with reports of unlawful or illegal website content, such as child pornography, plagiarism, discrimination and selling illegal goods. The code describes the procedure for complaining about the content of a website. A complaint should be addressed first to the provider of the offending content. If the provider cannot be contacted or refuses to take the content down, the matter may be taken up with the next party in the chain. The chain is as follows:

- Content provider
- Website provider (registrant)
- Website hoster
- Internet access provider
- SIDN (registry)

If all the other parties in the chain have been asked to take down the offending content but have not done so, SIDN can, in the last resort, disable the associated domain name.

Open source

A development philosophy based on making source material freely available to all. Open-source software is software whose source code is freely available, so that anyone may copy it, modify it or distribute it without having to pay for the privilege.

Phishing

A form of internet crime. It involves sending e-mails and setting up websites that look as though they come from or belong to well-known and trusted organisations, when in fact they are forgeries. The forged messages and sites encourage people to part with information, such as log-in details and credit card details, which the criminals then use for their own purposes.

Real time

The actual amount of time required to do something. Real-time interaction is interaction without delays or data processing waiting periods.

Registrar

An intermediary who acts for a registrant or prospective registrant in interaction with a registry. (The registry for .nl is SIDN.) Most registrars are hosting service providers, internet service providers or access providers.

Registry

In full: domain name registry. The register of all the internet domain names under a given top-level domain, or the organisation that manages that register.

Resolving

Responding to DNS queries.

RIPE NCC

The Réseaux IP Européens Network Coordination Centre is the Regional Internet Registry (RIR) with responsibility for issuing IP addresses in Europe and the Middle East. RIPE NCC is one of the world's five RIRs, the other four being APNIC (for Asia and Australia), AfriNIC (for Africa), LACNIC (Latin America) and ARIN (for North America).
See also ripe.net.

Server

A powerful computer with a fast connection, which is set up to provide information. A web server is directly connected to the internet.

TLD

Abbreviation of top-level domain. The domain whose name forms the last part of an internet address, after the dot.

Top-level domain

The domain whose name forms the last part of an internet address, after the dot, e.g. '.nl' in 'sidn.nl'.

Internet service provider (ISP)

A business that provides internet services, e.g. on-line TV and internet telephony. ISPs typically also provide network equipment for home networks.

Signing

DNSSEC works with digital signatures, known as 'private keys'. For effective security, DNS data needs to be signed with a digital signature and the signature needs to be checked ('validated') by the data user.

Single sign-on

Single sign-on-software enables a network user to gain automatic access to multiple applications or resources by signing on once. It therefore removes the need to enter a password repeatedly.

Spam

Unsolicited e-mail.

SSL

A data encryption technology for securing the connection between a website visitor and the website's server.

Typosquatting

A form of internet abuse that takes advantage of the fact that people sometimes make slips when typing web and e-mail addresses. A user who mistypes an address lands on the typosquatter's site. Typosquatting is often associated with malicious activities such as phishing.

Unicast

A way of exchanging data on a computer network, where data packages go from a single source to a single destination (host).

Uptime

The period that a computer system or network is available.

Validation

DNSSEC works with digital signatures, known as 'private keys'. For effective security, DNS data needs to be signed with a digital signature and the signature needs to be checked ('validated') by the data user.

Registrars' Association (RA)

Association that speaks for the .nl registrars in their relations with SIDN and regularly discusses the main features of registry policy with SIDN.

Whois
A protocol for retrieving the details of a
domain name, e.g. the name and address
of the registrant and registrar, from a
database. SIDN manages the Whois data
for all .nl domain names.
See sidn.nl/Whois.

WIPO Arbitration and Mediation Center
An independent, international non-profit
organisation that arbitrates in domain
name disputes and other cases.
See also wipo.int.

Zone file
A text file listing all the domain names
in a zone, plus the associated webserver
IP addresses.

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Colophon

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