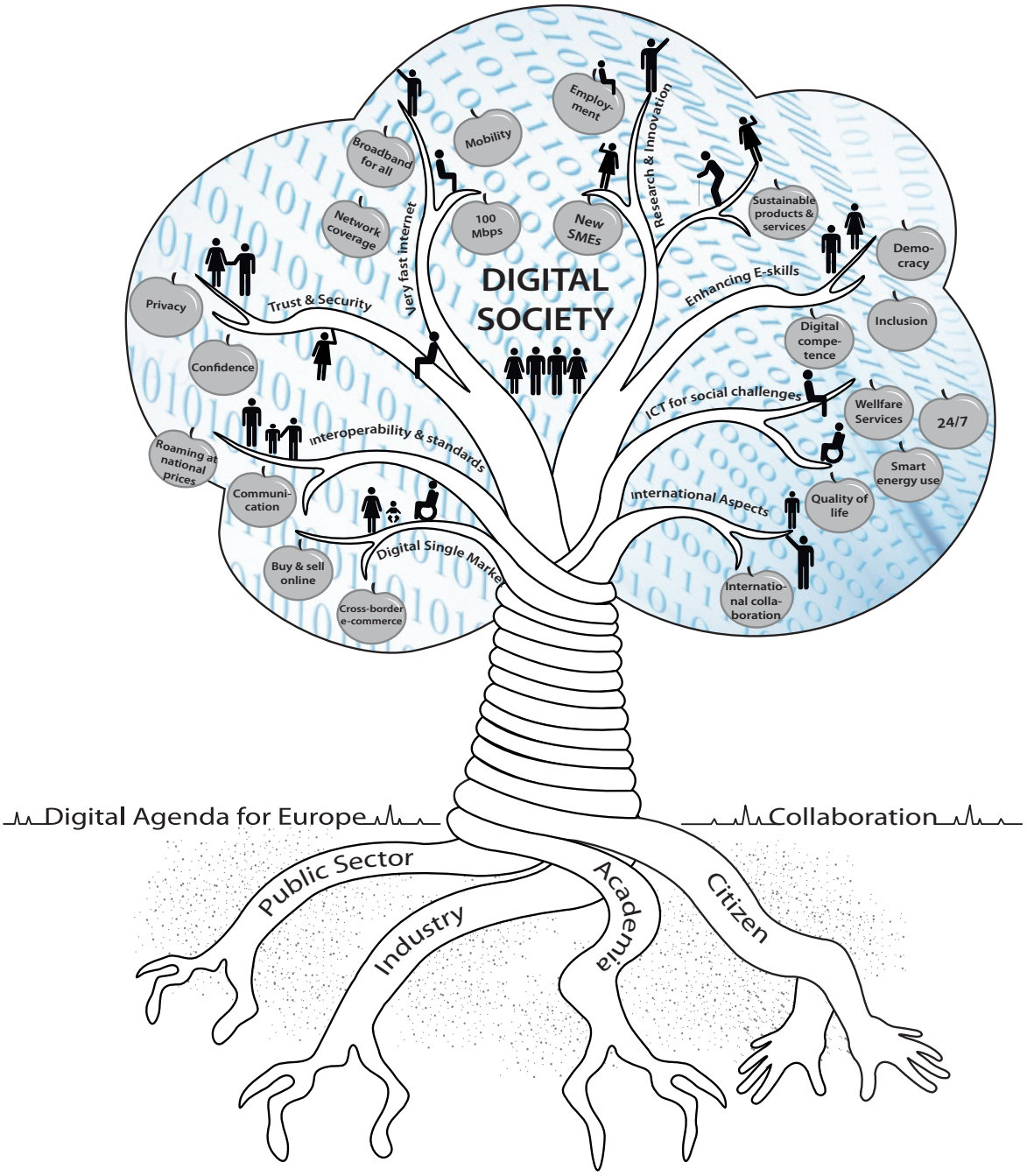
THE DANS MODEL



The Interreg IVB North Sea Region Programme
Investing in the future by working together for a sustainable and competitive region
European Union
The European Regional Development Fund
SmartCities
creative city challenge

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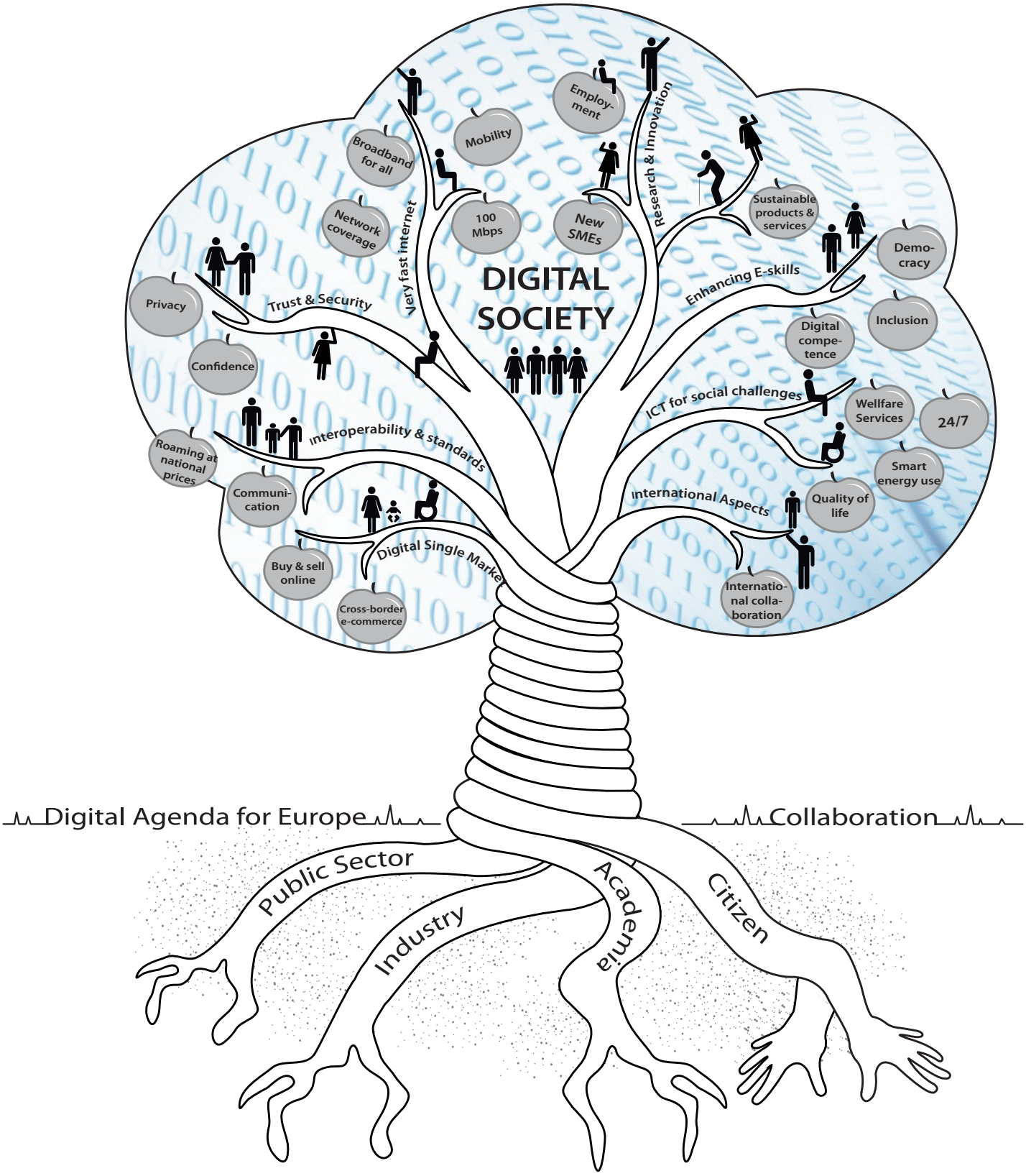
Digital Agenda for the North Sea

DANS

THE DANS MODEL

Supporting the Implementation of the Digital Agenda for Europe on Regional Level in the North Sea Region

www.DANS-CLUSTER.eu


DIGITAL SOCIETY
Broadband for all
Mobility
Employ-ment
Research & Innovation
Network coverage
100 Mbps
New SMEs
Very fast internet
Sustainable products & services
Demo-cracy
Enhancing E-skills
Privacy
Trust & Security
Confidence
Digital compe-tence
Inclusion
ICT for social challenges
Wellfare Services
24/7
Roaming at national prices
Interoperability & standards
Smart energy use
Communi-cation
International Aspects
Quality of life
Digital Single Market
Buy & sell online
Cross-border e-commerce
Internatio-nal colla-boration
Digital Agenda for Europe
Collaboration
Public Sector
Industry
Academia
Citizen

THE DANS MODEL

Introducing the Citizen as a Fourth Helix in a Quadruple Helix Model

This Quadruple Helix model has been created by the **Digital Agenda for the North Sea** [1](DANS) cluster project, a transnational project, co-financed by the INTERREG IVB North Sea Region programme[2]. Three INTERREG IVB projects, **Creative City Challenge**[3] , **E-CLIC**[4], and **Smart cities**[5] form the basis of the DANS cluster, with the aim to provide a solid basis for the implementation of the Digital Agenda for Europe (DAE)[6] , in the North Sea Region. One of the objectives in the DANS cluster project is to develop and disseminate a DANS collaboration model for the implementation of the Digital Agenda for Europe on a local and regional level, to further maximize the social and economic potential of ICT[7] by promoting ICT innovation.

The DANS Model has evolved from the rich results of the E-CLIC Model, which was a model tested and evaluated for regional and transnational collaboration in the field of innovation, applied research and development of broadband media services over the course of three and a half years. A ring of collaborative innovation centres, E-CLIC centres, based on regional Triple Helix partnerships that collaborated transnationally, was set up in the North Sea Region. The innovation centres were meeting places which had different set-ups, e.g. Living Labs[8], each user-oriented, which engaged potential user groups, students, SMEs and the interested public in the development and testing phase of the services and products developed.

To support and succeed with the implementation of the Digital Agenda for Europe and reach the key targets, all actors in the society need to be involved. In the DANS cluster view, also the citizens should be included in driving innovation in regions of Europe and therefore be a part of the partnership, to interact and collaborate with regional and local innovations systems for ICT. A DANS Model based on a Quadruple Helix model includes the citizen, in addition to the traditional combination of innovation actors, public authorities, industry and academia. The DANS Model will improve the performance and help to create innovations that can be turned into businesses and jobs that increase Europe's competitiveness.

As a collaboration model or innovation model, the Quadruple Helix model is not fully established yet, but the DANS project experiences show that the QH model can be used in many different areas of development in various sectors. Quadruple Helix model and citizen perspective fits and is suitable for operations near the innovation processes where the citizen needs are central, as in health care, public e-services, energy efficiency, and smart transportation. User oriented innovation also creates greater social benefit at a lower cost and by offering user friendly products and services it also strengthens the ability of users to influence their daily lives and society at large. It also provides with a bottom-up perspective, as a counterweight to the otherwise prevailing top-down perspective in the research and innovation process.

ICT will be a key enabler in co-creating unique value and individual solutions, therefore citizens should be involved in the early stages of the innovation process to collect hidden knowledge from citizens, and by finding inspiration and new solutions to problems. The DANS Model is to be seen an additional tool, pointing the way for the benefit of local and regional innovation systems, to improve performance, collaboration and the impact of innovation by increasing the involvement of citizen as a consumer and user in innovation. The aim of the model is to inspire and integrate the citizen as a fourth helix in the regional ICT innovation process and policies to promote the implementation of the Digital Agenda for Europe towards a digital society. The Quadruple Helix model will provide a great leverage to and support the objectives in the action areas of the Digital Agenda.

1 DANS cluster- digital Agenda for the North Sea, http://www.dans-cluster.eu
2 The North Sea Region Programme 2007-2013, http://www.northsearegion.eu
3 Creative City Challenge, http://www.creative-city-challenge.net
4 Acronym for European Collaborative Innovation Centres for Broadband Media Services, http://www.e-clic.eu
5 Smart Cities, http://www.smartcities.info
6 The Digital Agenda for Europe, DAE: One of the seven flagship initiatives of the Europe 2020 Strategy http://ec.europa.eu/digital-agenda
7 Information and Communication Technology, ICT: ICT covers all forms of hardware and software for data and communications with the intent to create, store, transmit, analyze and process information in all its forms
8 Living Labs is an arena for innovation, a concept for the development of innovative products and services within ICT.

INTRODUCTION

Innovation is a driving force of economic growth and welfare and contributes to increase the standard of living. Advances in ICT have profoundly changed the way we do business, develop products, act as consumers and interact as humans. There are many sources and drivers of innovation. Technology has played an important role as a driver of innovation but is gradually becoming more of an enabler of innovation.

Thanks to globalization, dynamic competition, the rapid development of ICT and the Internet, there has been a shift in the innovation process forcing entities; industry, academic institutions, research facilities and even the public sector, to look externally for input and knowledge from a wide range of sources, giving rise to open innovation in order to maintain their own competiveness and to produce socially, economically, environmental sustainable products and services. As more external ideas are integrated, the greater the possibility to create something new, but open innovation also involves risks because traditional value creation arrangements has to be broken up and modernized with new strategies, and with new interaction competencies. At the same time new innovation models, such as user-oriented innovation, where the citizens need is in focus, have emerged as a new way of creating value. The citizen as a customer and a user is being more acknowledged and involved as a source to generate new ideas, to identify solutions and some cases becoming involved in the innovation process as a partner.

To support and succeed with the implementation of the Digital Agenda for Europe and reach the key targets, all actors in the society need to be involved. In the DANS cluster vision, also the citizens should be included in driving innovation in regions of Europe and therefore be a part of the partnership, interact and collaborate with regional and local innovations systems for ICT.

The DANS Cluster - Digital Agenda for the North Sea

The fields of creativity, innovation, digital services and e-government are central to the economic development of the European Union, as well as to its future policies, especially in the period 2011-2020. The Digital Agenda for Europe, is a key element of European policy which is of strategic value to the North Sea Region, due to the fact that services related to and for the information society continuously generate employment, fight social exclusion and contribute to economic development and territorial cohesion. The DAE helps the EU to promote modern communication technologies for increased access to services, hence improving life quality in the North Sea Region.

The implementation of the DAE will lead to substantial enhancements in respect of regional development in Europe as a whole, and in the North Sea Region in particular. It is against this background that the Digital Agenda for the North Sea (DANS) cluster project (01.10.2011–31.03.2013) has been set up. It connects three Interreg IVB funded projects – Creative City Challenge, E-CLIC and Smart Cities – with an impact beyond the project partnership and reaching the whole North Sea Region. The three projects combine their expertise, contacts and networks in producing a new, more powerful cluster, which will focus on the link between local and regional strategies to the DAE, identify implementation barriers and point out the synergies. Furthermore, it is the DANS cluster's aim to attract important new stakeholders on a regional and national level, exchange good practices and have transnational collaboration, providing a solid basis upon which the Digital Agenda for Europe may be implemented within the North Sea Region. One specific output of the DANS cluster project is the DANS Model, which is a model to support the implementation of the DAE on regional level in the North Sea Region.

The Digital Agenda for Europe

The Digital Agenda for Europe is one of the seven flagship initiatives of Europe 2020. It describes the role that Information and communication technology, ICT have for Europe to achieve its ambitions for 2020. The DAE contains 100 different actions and various initiatives that are grouped into eight areas for action. The proposals aim to create favorable conditions for the development of ICT by overcoming obstacles and barriers that hampers Europe in moving towards a digital society. By going digital we can significantly boost our economy, strengthen our society and deliver more efficient public e-services. Delivering a connected, competitive continent will not happen by itself. EU online markets are still separated by barriers, which stand in the way of one single digital market. There is limited ICT standard- setting and interoperability, which inhibits creativity. A lack of trust and security can hamper user confidence and participation. Many Europeans are not yet fully digital, either lacking the skills and the resources to go online or not having a fast broadband connection available. For many of these problems, we overcome them best by working together in a Europe-wide collaboration.

The Action Areas of the Digital Agenda for Europe

Action Area 1 - Digital Single Market

Too many barriers still block the free flow of online services and entertainment across national borders. The Digital Agenda for Europe, DAE, will update EU Single Market rules for the digital era. The aims are to boost the music download business, establish a single area for online payments, and further protect EU consumers in cyberspace.

Action Area 2 – Interoperability and Standards

The Internet is a great example of interoperability – numerous devices and applications working together anywhere in the world. Europe must ensure that new IT devices, applications, data repositories and services interact seamlessly anywhere – just like the internet. The DAE identifies improved standard-setting procedures and increased interoperability as the keys to success.

Action Area 3 - Trust and Security

Only 12% of European web users feel completely safe making online transactions. Threats such as malicious software and online fraud unsettle consumers and dog efforts to promote the online economy. The DAE proposes a number of practical solutions, including a coordinated European response to cyber-attacks and reinforced rules on personal data protection.

Action Area 4 - Very Fast Internet

New services, such as high definition television or videoconferencing, need much faster Internet access than generally available in Europe. To match world leaders like South Korea and Japan, Europe needs download rates of 30 Mbps for all of its citizens and at least 50% of European households subscribing to Internet connections above 100 Mbps by 2020. The DAE aims to turn this ambition into reality by stimulating investments and proposing a comprehensive radio spectrum plan.

Action Area 5 – Research and Innovation

To attract Europe's best minds to research, world class infrastructure and adequate funding are crucial. The best research ideas must be turned into marketable products and services. Currently, EU investment in ICT research is still less than half US levels. The DAE seeks to maintain Europe's competitive edge through increased coordination and elimination of Europe's fragmented efforts.

Action Area 6 – Enhancing E-skills

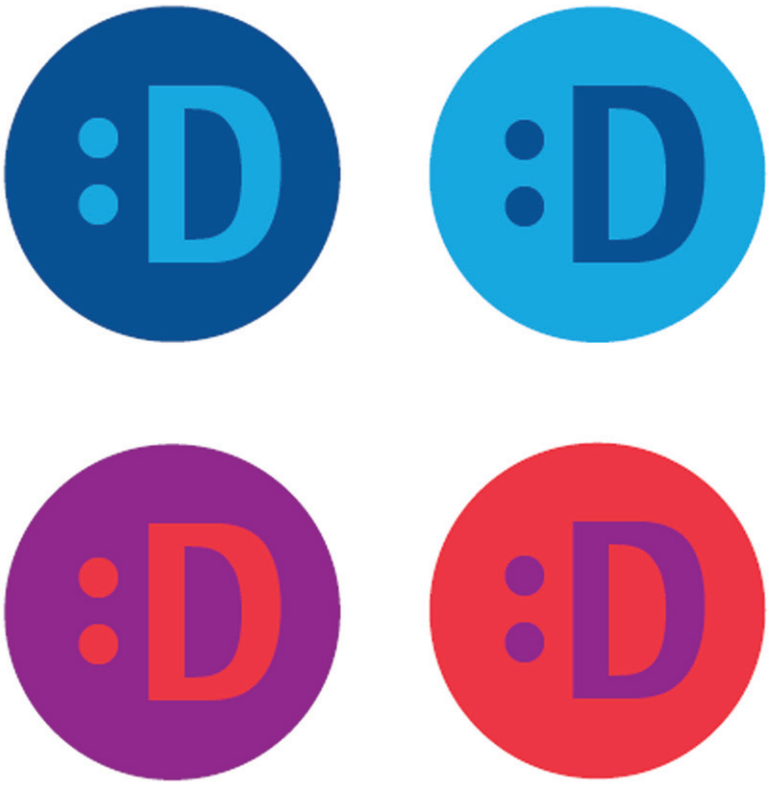
Over 50% of Europeans use the Internet daily – but 30% have never used it at all! Moreover, disabled persons face particular difficulties in benefiting fully from new electronic content and services. As ever more daily tasks are carried out online, all our people need enhanced digital skills to participate fully in society. The DAE tackles this unacceptable digital divide.

Action Area 7 - ICT for Social Challenges

Digital technologies have enormous potential to benefit our everyday lives and tackle social challenges. The DAE focuses on ICTs capability to reduce energy consumption, support ageing citizens' lives, revolutionises health services and deliver better public services. ICTs can also drive forward the digitisation of Europe's cultural heritage providing online access for all.

Action area 8 – International Aspects

The DAE aims to make Europe a powerhouse of smart, sustainable and inclusive growth on the global stage. The seven action areas in the DAE all have international dimensions.[9]



9 European Commission, the Digital Agenda for Europe, http://ec.europa.eu/digital-agenda

RATIONALE

The North Sea project DANS, Digital Agenda for the North Sea, has developed a DANS Quadruple Helix collaboration model for implementation of the Digital Agenda for Europe at the regional level in the North Sea region. The DANS Model is based on a Quadruple Helix model, which includes the citizen, in addition to the traditional combination of innovation actors, public authorities, industry and academia in the digitization process of a future e-society. The DANS Model is to be seen as an additional tool to the existing innovations system, pointing the way for the benefit of local and regional innovation systems, to improve performance, collaboration and the impact of innovation in order to generate economic growth by increasing the involvement of citizens in ICT innovation.

From E-CLIC's Triple Helix Model towards DANS' Quadruple Helix Model

The DANS Model has been evolved from the rich results of the E-CLIC Model, which was a model tested and evaluated for regional and transnational collaboration in the field of innovation, applied research and development of broadband media services over the course of three and a half years. A ring of collaborative innovation centres, E-CLIC centres, based upon regional Triple Helix partnerships that collaborated transnationally, was set up in the North Sea Region. The innovation centres were meeting places which had different set-ups, e.g. Living Labs, each user-oriented, which engaged potential user groups, students, SME and the interested public in the development and testing phase of the services and products developed.

As a collaboration model or innovation model, the Quadruple Helix model is not fully established yet, but the DANS project's results show that the QH model can be used in many different areas of development, especially within the area of social challenges where the Quadruple Helix model and citizen perspective fits. The QH model is suitable in innovation processes where citizen needs are central, as in health care, public e-services, energy efficiency and smart transportation.

Triple Helix

The Triple Helix model describes the interaction between public sector, academia and industry. It is often used to explain the development of innovation in regional innovation systems and as a partnership model in many EU projects. The aim is to coordinate the region's development resources, leverage the complementary expertise of the actors and create a common vision to enhance the region's ability to innovate. The industry is responsible for the production, the public sector often accounts for stability and funding and the academia stands for new knowledge and technology.

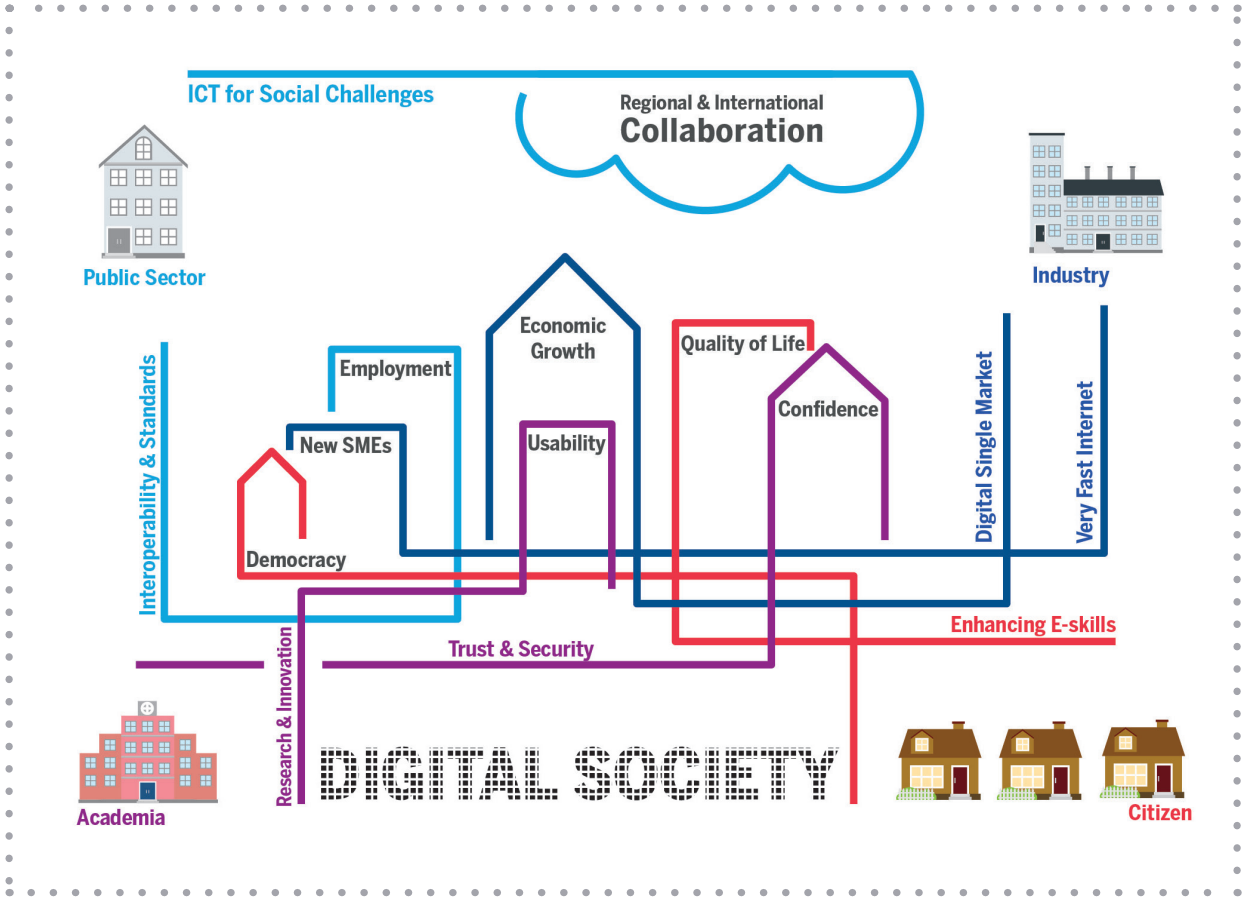
In the Triple Helix model, citizens are left to the role of passive recipients, consumers or end-users who only assimilate the products and services developed in mass production for the market. Many believe that the model is simplified and based on outdated institutional and traditional patterns and no longer describes what actually happens in the dynamic innovation processes. In our knowledge-based economy, the ICT sector can no longer work from static interaction models, instead it has to seek new paths, find new forms of collaboration with new actors. By expanding the Triple Helix model with a fourth helix, including the citizen, a Quadruple Helix model can be created.

WHY Should the Citizen be Included as a Fourth Helix in a Quadruple Helix Model?

In order for the EU 2020 strategy to be successful, all stakeholders need to be involved, including civil society. Introducing the citizen, as a fourth helix alongside the traditional combination of innovation actors, public authorities, industry and academia in an innovation process, will improve the performance and help to create innovations that can be turned into businesses and jobs that increase Europe's competitiveness. The DANS cluster project believe that citizen and user involvement creates more usable, useful products and services both for the private and the public sector, which generate extra added values as faster-time- to-market, higher acceptance and usage among stakeholders, stronger brands and increased sales.

Who is the Citizen?

The citizen is a user or a prospective user of ICT. As a fourth player in the QH model, "citizen" can vary from the individual to the organizational levels, from individual citizen, consumers, workers, entrepreneurs, independent contractor, to non-profit organizations or associations. The degree of involvement of citizens in the development process has a crucial role if the citizen can be considered as a fourth player in the innovation model or as a background figure in a Triple Helix model.



ICT and Citizen Involvement as Enablers to Solve Societal Challenges

Today ICT is an obvious prerequisite for a competitive and sustainable society. ICT has fundamentally changed how we conduct business, develop products, act as consumers and interact as humans. Europe has more than 518 million Internet users online every day, which is about 63 % of the European population.[10] The demands, needs and opportunities of the digitisation will continue to create significant added value. Despite all the positive effects of the digitisation there are various challenges addressed by the DAE before all of the benefits of the ICT revolution can be further developed.

The Public Sector challenges and global environmental challenges are creating new demands and needs from citizens, industry and society driving a call for "social innovations" and "green IT". The societal challenges which are related to climate, energy, environment and the aging population as well as social security, health and education, is set high on the political agenda. Challenges for society also provide opportunities to find solutions to problems by developing new smart sustainable technology applications for society that create growth. This will demand new business models, partnerships, collaboration models and interactions as well as new actors for innovation activities and environments to create effective innovations that generate social benefits. To underpin these developments, there is increasing evidence that ICT is an important tool and enabler of open, user-oriented and challenged driven innovation.

ICT together with user involvement and collaboration are the key enablers to how we are to obtain sustainable practice-related goods and services in terms of elderly homecare, smart transportation, energy efficiency along with other challenges we face. By excluding the citizens we are risking to produce untapped dead technology that serves no purpose. The industry and the public sector generally have more citizens and customers than employees; why not utilize their knowledge, ideas and information about themselves as users of various products and services in order to understand the problems they face and their needs to be solved. Creative, dedicated and demanding users contribute to more sustainable products and services, socially, economic and ecological. The public sector should assist in creating new types of physical or digital platforms and infrastructure where consumers, users and companies could meet and interact. Adding the citizen and a user perspective will complement, enhance and fasten the innovation cycle and lower the cost.

E-Government and Digital Welfare Technology

The Public Sector is facing major challenges to become more efficient, easy accessible and customer-oriented. With limited resources and rapidly growing needs, the public sector must engage in activities that create the desired value for society and the citizen. "ICT as a welfare technology" has become a concept and is seen as a way to perform and provide public services smarter, more efficiently and at lower cost through development and use of new electronic interactive services.

The Public Sector in their work on e-government and e-services often lack the user-oriented approach. E-services are meant to facilitate and simplify the contact between the administration and citizens. It should be relevant, user friendly, written in a language so that it is easy to understand and easily accessible to people with disabilities. Also citizen must feel confident that their personal data is safe, so they can take part in government service securely online. Effective e-government involves rethinking of the organization and processes and the public sector need to depart from their in-house approach in where e-services are no longer an issue for the IT department. An increased interaction with the citizen gives a more valuable end product and also gives rise to a "learning process" for the developer, of how the user interacts whilst

10 Internet World Stats, Usage and Participation, http://www.internetworldstats.com

identifying the needs of the market. This in turn minimizes the risk that the final product is faulty, reduces development costs and costs related to support and service. The Quadruple Helix model can create great public benefit in the development of public e-services. (For example of how municipalities try to deliver customer-oriented services, see, DANS Good Practice Guide, Customer Contact Centres, p.62.)

Open Government Data

Open data and especially open government data, is a resource, because of the quantity and quality of the data it collects, which is yet largely untapped. Many individuals and organisations collect a broad range of different types of data in order to perform their everyday jobs. Government data is public data by law and therefore should be made open and available for others to use. There are many areas where we can expect open data to create value. There are also many different groups of individuals and businesses who can benefit from the availability of open data and can give rise to new knowledge, innovations, applications, products and services and businesses, including for the government itself. It can also generate new collaborative and participatory models between a government and its citizens, as well as improved efficiency, effectiveness of government services. Open government data can also help citizen to participate more actively in society. Political institutions and government agencies are likewise opening up to increased interaction with the public. As a result democracy becomes more transparent and more active.[11]

Digital Inclusion, E-skills and Democracy

It´s important from a democratic perspective that all citizens and businesses have the opportunity to participate in the digital society. The digital divide is the gap between people with effective access to digital information and communication technology and those with very limited or no access at all. Digital divide may be based on gender, income, race groups, and locations. It includes the imbalances in physical access to technology as well as the imbalances in resources and skills needed to effectively participate as a digital citizen. The digital divide also exists between those in cities and those in rural areas. Advances in communication technologies are mainly centering on the Internet. Internet access is therefore a prerequisite and the basis of digital society. (For example of good practice of citizen involvement for broadband access in rural areas, see DANS Good Practice Guide, The Värmland Model, p.42.)

For those who do not yet use the internet, they need two things in particular in order to do so, access to a working broadband connection and basic digital literacy to be able to participate in the digital society of the future. E-skills are the skills required for the confident and critical use of ICT for work, leisure, learning and communication. (For example of a good practice of usability and user experience to enhance quality of elderly citizen, see DANS Good Practice Guide, Usability and User Experience, p.60.)

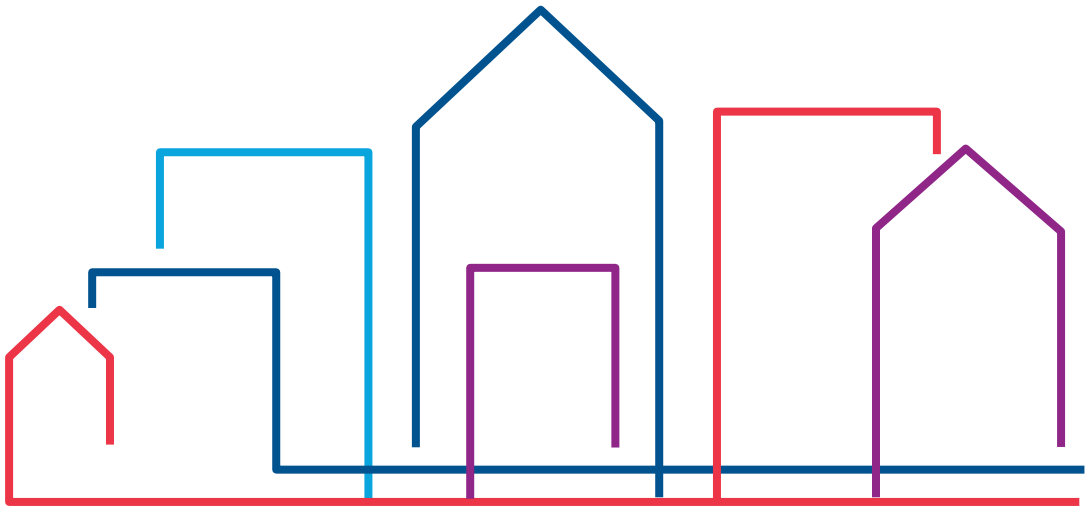
The education system needs to promote the digitization of all levels to equip individuals and society for the future and digital literacy should be considered as relevant as traditional literacies – such as reading and writing and mathematics. The ambition should be that every child should have access to digital tools in school to become a citizen of the digital society, and that every teacher should have access to their own computer and knowledge of how to use it as a tool in teaching. ICT should therefore be integrated in the curriculum of school disciplines and taught in an integrated manner. (For example of a good practice to improve the quality and level education by implementing digital tools, see DANS Good Practice Guide, Webcast System, p.72.)

11 Open data handbook, http://opendatahandbook.org.

eHealth applications have a growing role in health care system all over the EU and is seen as the key to modern healthcare and social services. It is a very broad area, which cover many topics about how future health care as a whole can be improved and function with the help of e-services. The goal is to create tangible benefits for patients, staff and decision makers. The individuals in their role as citizens, patients, service users and family members will have access to easily accessed and quality assured information about health, health care and access to documentation from their previous treatments. Citizens demand the same from the care sector as they do from other service providers in society and more and more people are nowadays looking for individual solutions to their problems, taking their own initiatives and making active choices. Citizen should be offered individualized service and interactive e-services in order to exercise participation and self-determination on their own terms.

ICT is for everyone, but some people cannot use the standard devices and ICT solutions that are produced to be used in our daily lives. Technology affects vital societal functions today and it is both unfair and ineffective if certain groups are excluded from the development and use. To ensure that ICT products, tools and opportunities of the online age are available to everyone, new technology and special solutions and devices need to be developed and adapted to people's different abilities. People, who are hearing impaired, visually impaired or motor impaired, should be able to benefit equally – in terms of both access and quality in order for them to live their lives independently. (For example of a good practice of how to increase the level of e-services for the benefit of elderly and the disabled citizens, see DANS Good Practice Guide, Bury Council, p.48. and Royal Dutch Visio, p. 74.)

By including the citizen with a user perspective, digital participation and engagement is created, which is important from a democratic perspective and for society at large. It also provides the citizens as consumers and users the possibility of participating in the innovation process, to influence products and services that are affecting their private and professional lives and in the creation of value. This will provide the innovation process a bottom up perspective as a counterweight to the otherwise prevailing top-down perspective, thereby also democratizing the innovation process.



HOW Can Citizens Knowledge and Need Be Engaged in the Innovation Process Quadruple Helix Model?

Involving citizens as users means giving them the opportunity to participate in the innovation or development process as representatives of a target user group with the aim to improve the chances of developing successful products and services. Different methods and approaches to involve the citizens and their needs of a product or service can be used, depending upon the degree of involvement that is required i.e. the actual influence the user has on the final product and service. One way of differentiating degrees of citizen and user involvement is to categorize them according to for, with and by users. Different methods can be applied that forms the basis for developing a new product or service. The methods might vary from one actor to the other, depending upon the area of development, the knowledge the actors wants to obtain, but also the users´ ability to express the problems they face and the needs they have.

Innovation of Products, Services and Design **for** Users, Indirect Methods

Data about the users and user behavior are used, this approach often include surveys. There are a variety of tools available for conducting user surveys; interviews and market reports. Focus groups are commonly used for problem detection in order to test concepts rather than to generate ideas.

Experts on Interaction design models and theories can also be used, which aim to define and facilitate interaction between a user and a system by understanding both the technology as well as human needs.

Wisdom of the crowd is a type of crowdsourcing, based on the idea that a group of people is on average more intelligent than an individual. By collecting large amounts of information from a group of people you will gain a complete and true picture of an area, topic, product or service. This method has proven to be effective on the web because many people with different and diverse background contribute in real-time.

Innovation of Products, Services and Design **with** Users, Direct Methods

Data of the users' preference, needs and requirements are in focus where the users are involved and can respond on the end-result and solutions for the products and services. The methods presented can be seen as new ways for businesses to innovate and create competitive advantage as well and for the public sector to make sure their services deliver what the public wants and needs.

Co-design is an abbreviation for collaborative design, community design or cooperative design.[12] It is a method, a user-led development process where design professionals invite end-users or a community to participate in designing solutions to the problem, a need or to deliver a product and service. Design professionals empower, encourage, and guide the users during the process by which the design objective is created. It is generally recognized that the quality of design increases if the stakeholders' interests are considered in the design process and that the final result will be more appropriate and acceptable to the user. (For further reading, see DANS Good Practice Guide, CODesign, p.52.)

Living Lab is an innovation environment or an innovation approach in which the industry, researchers, public authorities, and citizens work together for the creation and test of new product and services, ideas, markets, and technologies in real-life contexts. The idea is that people´s ideas, experiences, and knowledge, as well as their daily needs of support from products, services, or applications, are the starting point of innovation and stimulate and challenge the development. The kind of environment needed depends on the product or service being developed. They help adaptation of technology to real life use by their feedbacks and hence speed up the lifecycle of realization of innovations.

12 Design Council, http://www.designcouncil.org.uk

Innovation of Products, Services and Design by Users, Direct Methods

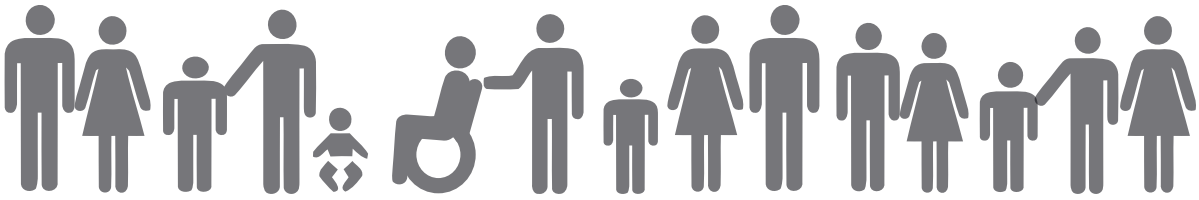
The users are involved and actively taking part in the development and innovation of the product and services. The lead user method, users´ toolkit and crowdsourcing, are all examples of tapping knowledge for a specific product and service from users.

Lead User Method, lead users are leading buyers who are early adopters of new technologies, products and technologies. Lead users are motivated by their own dissatisfaction with the existing output, and modify products or services to their own needs. Their experienced needs will later be experienced by many other users and therefore usually create trends on the regular market for new innovative products.[13] Lead user activities can be used by organisations and manufactures to produce and commercialise user-developed innovations, supply complementary products to the user-developed innovations or engage in a joint innovation process with the lead users.

Toolkits for user innovation, producers and manufacturers must understand user needs in order to develop successful products and since consumers preferences and needs are changing more quickly, some manufacturers has abandoned the idea of trying to understand the user needs of products and services and current trends. Instead they provide the users with toolkits in order to tap the users on the knowledge of needs and preferences. The toolkits provided by the manufacturer are explicit for a given product or service and to a specified production system. Within those constraints, the users are given freedom to innovate, allowing them to develop their product through trial-and-error.[14]

The Effective Services Delivery Toolkit, ESD Toolkit[15], is a framework of tried and tested tools, guidance and practical examples to support and help with innovation in the public sector to deliver smarter more efficient services. The ESD toolkit is developed by the sector for the sector and grounded in practice as well as theory. Many of the toolkits are freely available to all public service deliverers.

Crowdsourcing, this open innovation method involves using the internet to invite your customers, users, and other large groups of people online communities from the external world to contribute in the production of finished product designs, needed services, ideas, or content instead of using the traditional in-house knowledge. Wikipedia is one of the early examples of crowdsourcing.



13 Eric von Hippel, "Democratizing innovation",Cambridge, The MIT Press 2006, p.4ff
14 Eric von Hippel," User toolkits for Innovation", Journal of Product Innovation Management, July, 2001
15 Effective Service Delivery Toolkit, http://www.esd.org.uk/esdtoolkit

Towards a Digital Society

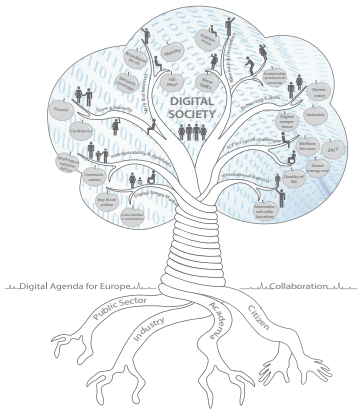
Anyone and everyone can engage interactively on the Internet. This is giving rise to both new arrangements of participation and new forms of value creation accompanied by a shift in power towards citizen and consumer sovereignty. The increasing use of ICT tools and modern network technologies will bring changes to the way we live and work, the way business operates and the way society functions and there will be a new age of digital citizens, digital enterprises - and we speak of a "digital society".

A digital society is a modern, progressive society where citizen and other organisations have the knowledge and tools as a result of the adoption and integration of ICT. In a digital society, people benefit from various streamlined government services and reduced bureaucracy. People are able to pay their bills and taxes, access important information and register companies through an online gateway, one-stop-shops, that works 24/7. All governmental units will be electronically connected with each other and will provide better public services. People will be highly ICT literate and will use e-Government services to improve their lives. A borderless Internet also gives rise to a digital society. The number of connected machines, Internet of Things,[16] is expected to soon exceed 50 billion and is predicted to be the next evolution of the Internet acting as a catalyst to increase the integration between the physical and digital world.

The DANS Model in Practice

If we are to succeed in the implementation of the Digital Agenda at the regional level a joint effort is required where the public sector, citizens, the business community and academia work closely together with a view to increase and make the best of using digitization opportunities in the North Sea Region. We can make a real difference only when we work together. Rightly produced and rightly used, ICT is a resource and a tool that simplifies everyday life for citizens and businesses and can help in generating new value for less. By adding the citizen as a fourth actor in the innovation process for ICT the industry and the public sector will be able to accomplish sustainable products and services in the face of environmental, social and economic challenges.

Involving citizens in the innovation process is important from a democratic perspective as digital participation and engagement is created. It will also offer the possibility for the citizen to influence products and services that are affecting their private and professional lives, providing the innovation process a bottom up perspective as a counterweight to the otherwise prevailing top-down perspective, thereby also democratizing the innovation process. Therefore, it is important to bring together all stakeholders with different skills who themselves would not have worked together to address these issues.



16 The Internet of Things (IoT) is a computing concept that describes a future where everyday physical objects will be connected to the Internet and will be able to identify themselves to other devices.

CONTACT

Contact Details
Värmland County Administrative Board
Katarina Nordmark
Phone: +46 (0)54 19 70 52, +46 (0)733 699 000
E-mail: katarina.nordmark@lansstyrelsen.se

Paul Nemes
Phone: +46 (0)54 19 73 66, +46 (0)70 209 77 83
E-mail: paul.nemes@lansstyrelsen.se

Address:
Våxnäsgatan 5
SE-651 86 Karlstad

www.DANS-CLUSTER.eu

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