

DIGITAL AGENDA for the NORTH SEA

GOOD PRACTICE GUIDE

www.DANS-CLUSTER.eu



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GOOD PRACTICE GUIDE

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The Digital Agenda for Europe is essential to deliver smart, sustainable and inclusive growth. Because going digital can significantly boost our economy, strengthen our society, and deliver more effective, efficient public services. After all, information and communications technologies already accounts for nearly half of recent European productivity growth.

Delivering a connected, competitive continent won't happen by itself. EU online markets are still separated by barriers which stand in the way of pan-European services and content. There is limited ICT standard-setting and interoperability, which inhibits creativity. A lack of trust and security can hamper user confidence and participation. And many Europeans are not yet fully digital, either lacking the skills and resources to go online, or not having a fast broadband connection available.

For many of these problems, we overcome them best by working together, with Europe-wide collaboration. And in this context, I am pleased to introduce this Good Practice Guide, prepared as part of the cluster project DANS – Digital Agenda for the North Sea, undertaken as part of the Interreg IVB North Sea Programme. The Good Practice Guide aims to promote transnational exchanges of experience, and ensures effective use of results by showing how the Digital Agenda is implemented in the North Sea Region. When projects deliver results, the Good Practice Guide will also make it easier to exchange and disseminate good practices and increase their impact at European level. By showing concrete examples of how e-government, e-services and creativity can support regional research and innovation agendas, I hope it will prove useful and inspiring to further activity in this rapidly growing field.



Neelie Kroes
Vice-President of the European Commission



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Digital Agenda

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2010-2020 for Europe

Digital Agenda

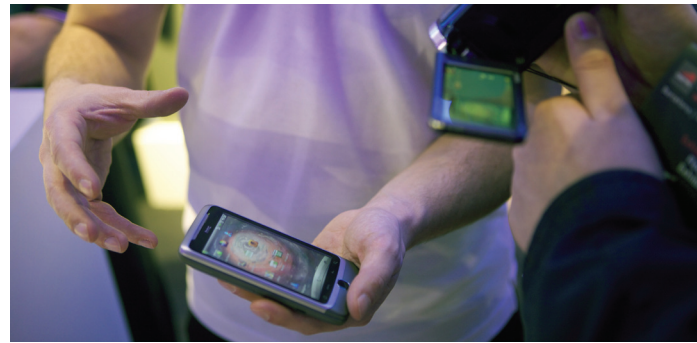
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2010-2020 for Europe

Digital Agenda

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2010-2020 for Europe



The overall aim of the Digital Agenda is to deliver sustainable economic and social benefits from a digital single market based on fast and ultra fast internet and interoperable applications. The crisis has wiped out years of economic and social progress and exposed structural weaknesses in Europe's economy. Europe's primary goal today must be to get Europe back on track. To achieve a sustainable future, it must already look beyond the short term. Faced with demographic ageing and global competition we have three options: work harder, work longer or work smarter. We will probably have to do all three, but the third option is the only way to guarantee increasing standards of life for Europeans. To gain this, the Digital Agenda makes proposals for actions that need to be taken urgently to get Europe on track for smart, sustainable and inclusive growth. Its proposals will set the scene for the longer-term transformations that the increasingly digital economy and society will bring about.

The Europe 2020 Strategy

In March 2010, the European Commission launched the Europe 2020 Strategy to exit the crisis and prepare the EU economy for the challenges of the next decade. Europe 2020 sets out a vision to achieve high levels of employment, a low carbon economy, productivity and social cohesion, to be implemented through concrete actions at EU and national levels. This battle for growth and jobs requires ownership at top political level and mobilisation from all actors across Europe. The Digital Agenda for Europe is one of the seven flagship initiatives of the Europe 2020 Strategy. It is set out to define the key enabling role that the use of Information and Communication Technologies (ICT) will have to play if Europe wants to succeed in its ambitions for 2020.

Objective of the Agenda

The objective of this Agenda is to chart a course for maximizing the social and economic potential of ICT, most notably the internet, a vital medium of economic and societal activity; for doing business, working, playing, communicating and expressing ourselves freely. Successful delivery of the Agenda will spur innovation, economic growth and improvements in daily life for both citizens and businesses. Wider deployment and more effective use of digital technologies will thus enable Europe to address its key challenges and will provide Europeans with a better quality of life through, for example, better health care, safer and more efficient transport solutions, cleaner environment.

The ICT Sector

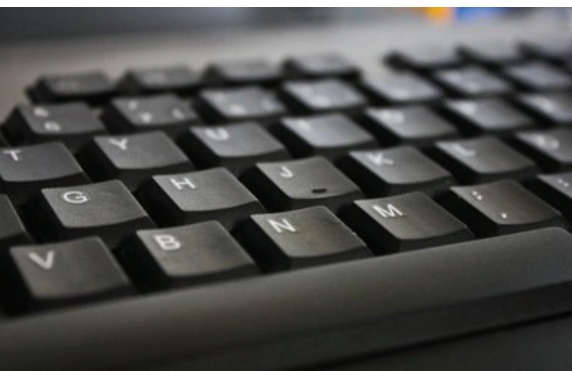
The ICT sector is directly responsible for 5 % of European GDP, with a market value of € 660 billion annually. It contributes far more to overall productivity growth (20 % directly from the ICT sector and 30 % from ICT investments). This is because of the high levels of dynamism and innovation inherent in the sector, and the enabling role the sector plays in changing how other sectors do business. At the same time, the social impact of ICT has become significant – for example, the fact that there are more than 250 million daily internet users in Europe and virtually all Europeans own mobile phones has changed their life style.

High Speed Networks

The development of high-speed networks today is having the same revolutionary impact as the development of electricity and transportation networks had a century ago. With the on-going developments in consumer electronics, the dividing lines between digital devices are fading away. Services are converging and moving from the physical into the digital world, universally accessible on any device, be it a smartphone, tablet, personal computer, digital radio or high-definition television. It is projected that by 2020 digital content and applications will be almost entirely delivered online.

International Aspects of the Digital Agenda

The European Digital Agenda aims to make Europe a powerhouse of smart, sustainable and inclusive growth on the global stage. Given the strategic importance of the internet, international cooperation is crucial. Internet is a formidable instrument for freedom of speech worldwide. The seven pillars in the Digital Agenda all have international dimensions. For many of the policy issues in the Digital Agenda, progress can only be made on an international level. The Digital Single Market in particular needs an external face because progress on many of the policy issues can only be made on an international level. Interoperability and standards recognised at the world scale can help promote more rapid innovation by lowering the risks and costs of new technologies. Addressing rising cyber security threats also needs to take place in an international context. Finally, it is also important to benchmark European progress in the Digital Agenda against the best international performance. Thus an international dimension of the Digital Agenda in order to complete the actions above is crucial, in particular given the strategic importance of the Internet.



DANS
Digital Agenda for the North Sea

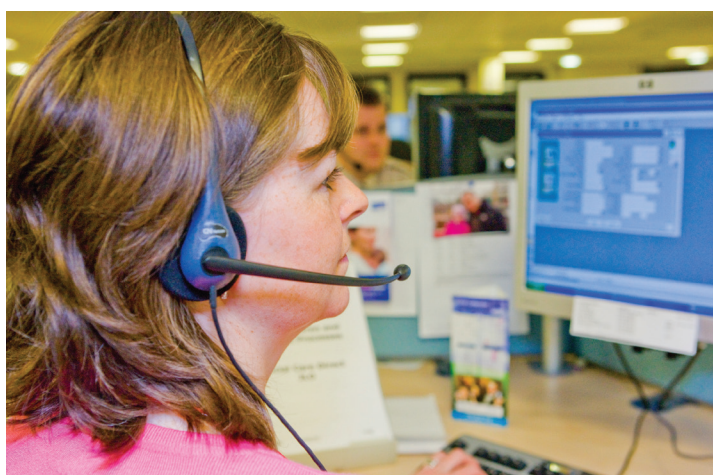
DIGITAL AGENDA FOR THE NORTH SEA

DANS Cluster's aim is to:

- develop a joint North Sea Region strategy to implement the Digital Agenda for Europe on a regional level
- foster transnational creative and innovative technology-based services for the citizens of the North Sea Region

The cluster combines 3 Interreg IVB Projects:

- Creative City Challenge
- E-CLIC
- Smart Cities



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 (DAE), 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 will 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 Cluster's Good Practice Guide. This guide contains a selection of good practices from the three projects: *Creative City Challenge*, *E-CLIC* and *Smart Cities*, which have been "linked" to the Digital Agenda's seven pillars/action areas in order to show concrete examples of what the Digital Agenda for Europe can achieve in the North Sea Region.



Broadband access is essential to the prosperity and future development of Europe's rural regions. Furthermore, broadband media services are a prerequisite for effective business and a must for the growth of job opportunities on which regional economies depend. Based on this, the *E-CLIC* project focused on the innovation and development of broadband media services and products in the North Sea Region.


The overall aim of the project was to establish eight E-CLIC Centres across the North Sea Region. The focus of the centres are on transnational collaboration and innovation in the field of broadband media services.

The project *Smart Cities* created an innovation network between governments and academic partners leading to excellence in the domain of the development and take-up of e-services, setting a new baseline for e-services' delivery in the whole North Sea Region.

The project aimed to understand which e-services work best and why. It facilitated transfer of e-Government successes across national border; it identified and supported the real transformational impacts of such transfer of good practices on local government. It also equipped decision makers with the knowledge and ambition to achieve further innovation in the delivery of e-enabled public services; and it engaged national authorities in this ambition.

The project *Creative City Challenge*, CCC, analysed challenges and barriers confronting the creative sector in the North Sea Region. The analysis aimed to develop an effective strategy supported by a range of instruments and methods, which may have helped to sustainably support the creative industries in the North Sea Region.

The goal of the project was to create competitive, innovation-based urban and regional economies in the North Sea Region, in line with the objectives of the EU Lisbon Agenda 2000.



*It is time for a
new single market to
deliver the benefits of
the digital era.*

It is time for a new single market to deliver the benefits of the digital era. The internet is borderless, but online markets, both globally and in the EU, are still separated by multiple barriers affecting not only access to pan-European telecom services, but also to what should be global internet services and content.

First, the creation of attractive online content and services and its free circulation inside the EU and across its borders are fundamental to stimulate the cycle of demand. Persistent fragmentation is stifling Europe's competitiveness in the digital economy. It is, therefore, not surprising that the EU is falling behind in markets such as media services, both in terms of what consumers can access and in terms of business models that can create jobs in Europe. Most of the recent successful Internet businesses such as Google, eBay, Amazon and Facebook, originate outside of Europe.

Second, despite the body of key single market legislation on eCommerce, eInvoicing and eSignatures, transactions in the digital environment are still too complex with inconsistent implementation of the rules across Member States.

Third, consumers and businesses are still faced with considerable uncertainty about their rights and legal protection when doing business on line.

Fourth, Europe is far from having a single market for telecom services. The single market; therefore, needs a fundamental update to bring it into the Internet era.

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 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.

Good Practices within Action Area 1

1. E-CLIC The Studios
2. E-CLIC Effects of Active Promotion on Web Traffic
3. E-CLIC Successful Online Business Models

Title

The Studios – A business accelerator at Howest University College of West Flanders

Geographical Area

Kortrijk, West Flanders, Belgium

Subject

To increase the level of education in the field of digital business administration. To provide students with an opportunity to find their paths in life.

Objectives

The main aim of the project is to help young entrepreneurs get started in the business world.

Connection to Action Area

Digital Single Market – The EU has been adopting action plans dedicated to assisting citizens in becoming part of the common digital market. With its dynamic and creative environment for businesses, especially the ones in the creative field of media and communications technology, digital arts and entertainment and industrial product design, The Studios contributes to this goal substantially.

Primary Contact

Initiator and implementer of the project was Howest, University College West Flanders.

Stakeholders

Students and professors in Howest are the main beneficiaries of the project. Also impacted are members of the network of The Studios e.g. senior entrepreneurs, the Belgian Chamber of Commerce, Creative Starters – the local government driven network that offer support and advice to creative starters.

Overview

Europe needs more entrepreneurs and The Studios at Howest is doing its part in encouraging students to turn their ideas into businesses. Howest has a long history of working closely with industrial partners and a solid reputation when it comes to value-based, client-driven research. Studies show however, that in the EU the perception of entrepreneurship is risky and negative and fear of failure prevents young entrepreneurs from starting up a business. The University College created The Studios to assist undergraduate and graduate students in finding their wings within the walls of their alma mater in a safe well-known environment.

The Studios brings a mix of innovative people together, eager to build successful companies. With Howest as a neighbour, companies have many resources, knowledge and facilities, research access, a library and more. The Studios is a fully equipped and has a dynamic setting with affordable offices, meeting rooms, seminar space, brainstorming gardens, parking areas and even a basketball court.

The on-campus business accelerator helps to give graduating students the possibility of starting up their own companies; it widens their network of advice and support by giving them access to senior entrepreneurs, the national Chamber of Commerce and Creative Starters. The university's close relation to public institutions brings these young businesses closer to possible funding for feasibility studies, prototype development, and so forth.

Methods Used

The idea behind The Studios is that by the end of their final year, students would be inspired to start up their own companies. These companies are to consist of at least two driven student entrepreneurs in their final year, which need to pass a screening process, during which they propose their ideas and business plan. If they pass this evaluation process and are willing to work more intensively on their idea, they can do

an internship in their own company, with guidance from The Studios. During this 3-month pre-incubation period starting in February, they can do further research on their idea, to see if it has a market, social acceptance and commercial potential. If they are still driven and convinced about their company idea after this, they can stay at The Studios until September. After September they need to decide if they will start up the actual company, go back to studying or go to work somewhere as an employee.

The Studios was launched in September 2009.

Since its launch, six innovative businesses have benefited from their experience at The Studios. Several small business projects have tested the waters alongside them, with some going live and others looking for further work experience.

Setting up cost was approximately € 1 million. The recurrent running cost is approximately € 70 000 per year.

A business accelerator can especially be useful in the vicinity of colleges or universities offering BA/MA in business administration. If the business accelerator is not set up by an institute of tertiary education, it should be required to have close and good relationship with at least one.

One of the lessons learnt was that the idea of entrepreneurship should be integrated early on into the undergraduate curriculum because in their final year most students have to do an off-campus internship with a company in their field.

In terms of integrating entrepreneurship education into the curriculum, the classic lecture approach is avoided and replaced by a more hands-on workshop principle with lessons coming from real entrepreneurs the students can relate to. This allows students to learn from their peers who started their own businesses and have first-hand, inspiring experiences to share.

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www.thestudios.be
www.howest.be/Default.aspx?target=howest&lan=nl&item=316
www.leydesdorff.net/th9/TH9FullpaperFinal%20-CDM.pdf

Time Scale

Evaluation

Cost

Replication

Lessons Learnt

Contact

**Further
Information**

Title

Effects of Active Promotion on Web Traffic

Geographical Area

Groningen, The Netherlands

Subject

To enhance awareness of companies with websites how advertising can increase their competitiveness.

Objectives

The experiment was expected to prove the relationship between the number of visits on a mobile website and the website related promotional activities performed.

Connection to Action Area

Digital Single Market – The number of customers of a business may boost when a connected website and/or mobile website is introduced.

Primary Contact

Hanze University of Applied Sciences, School of Computer Science, Groningen, The Netherlands WiMultitask - a student company

Stakeholders

Especially business owners, who would like to boost their turnover in a cost-effective way, using traditional internet and/or mobile websites.

Overview

The case study confirms that the number of visits to a previously unknown website is highly dependant on the website's publicity and advertisements. Analyses of data supports that the number of hits on a website is parallel to the advertisement activities undertaken. Extrapolating this to newly started websites it means that besides bringing a new and user-friendly website online, it is also necessary to continuously advertise it over a long period of time, until the brand is established enough.

Methods Used

The Dutch national radio station's annual fundraising event called "3FM Serious Request" took place in December 2009 in Groningen. The Municipality of Groningen supports the event with a website, www.groningengeeft.nl – Groningen Gives, that kept track of the activities and the amount of money raised. A team of IT and Marketing students from the Hanze University built a mobile version of the website and carried out various promotional activities, e.g. interview in a local and a national newspaper, a local TV station, interview on a local and two national radio stations, article on the University's website and twitter account, both before and during the event. Traffic on the mobile website was recorded using Google Analytics.

The project was run from December 2009 until January 2010. During this period a mobile website was created, advertisements carried out, data collected and analysed.

Statistics showed that traffic was highest on days when more traditional tools of advertisement, TV, radio and newspaper were used, and it collapsed when the website was no longer advertised. It is also worth noting that visitor loyalty is typical for this type of information service with 60 % of the visitors being one-time users.

The cost may vary depending on how professional the website is, what features it offers and who the creator of the mobile website is, i.e. more expensive when done by professionals.

As a conclusion we can say that, based on the case study, it is worth to create mobile versions of websites in order to increase interest irrespectively of geographical area.

The mobile website should be heavily supported by continuous promotional activities in order for the visitors to last.

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Time Scale

Evaluation

Cost

Replication

Lessons Learnt

Contact

Further Information

Title

Successful Online Business Models

Geographical Area

The Netherlands

Subject

To offer a framework for successful online business. To define what attributes an online business has to have in order to succeed.

Objectives

The aim was to pinpoint the qualities and characteristics that make successful online businesses in order to help both current and future businessmen and women to succeed.

Connection to Action Area

Digital Single Market – The checklist created as an outcome of the case study may help shake up business creation, increase the number of online businesses and thus boost online retailing.

Primary Contact

Hanze University of Applied Sciences Groningen, The Netherlands and the University of Stavanger, Norway

Stakeholders

Primarily those contemplating starting an online business.

Overview

In the last few years, internet has seen a boom in new, creative online businesses. In the head of every prospective businessman the inevitable question arises: what is their secret? What is it that they do better than the others? Having examined eight successful online business models in the Netherlands similarities, that may act as factors of success, showed up:

1. Finding a niche market, knowing the fact that website visitors are generally loyal to their first choices, i.e. keep visiting the website they found first after new, maybe even better alternatives appear.
2. Cost-effective, automated configuration – once the website is up-and-running, it does not need manual intervention.
3. Offering products or services for free – users are not prepared to pay for on-line services unless they have experienced the benefits.
4. Finding an effective revenue model¹.
5. Distributing the service on the widest scale possible – i.e. beside the website each business examined had a mobile version as well.

¹ The revenue model is the way in which a business gains money for its services. It can occur in the form of paid advertisements, online retailing, freemium (where a product or service is offered for free, while additional features are offered for a premium), subscription etc.

² The 9 building blocks are: customer segments, value propositions (the offer), distribution channels (between the previous two), customer relationships, revenue streams, key resources, key activities, key partners/partner network and cost structure. See the note on next page.

The Osterwalder ontology was used to describe the online business models being examined. The ontology is a strategic tool to develop new or to improve already existing businesses. The method behind it is to describe the business value proposition, i.e. what the business can offer, infrastructure, customer relations and finances with the aid of nine so-called building blocks². The model promotes creativity and helps businessmen to think out of the box.

To retrieve all the information needed about the online businesses, the results from the Multiscope Visiscan were used. Visiscan is the product software of market research from the company Multiscope, devised to measure the reach, branding and evaluation of websites in the Netherlands.

The project was run from September 2009 until July 2010.

As an outcome of the case study, a checklist has been designed, which helps business model designers to consider the appropriateness of their model:

- is there sufficient place for a new business on the market?
- is your value configuration process fully automated?
- are you offering your product for free?
- is there any value in your model that is created by the users, and with which revenue model can you exploit it the most?
- which distribution channels are used in order to reach customers?

The five-step checklist created can be used all over the world without restrictions.

Some researchers are of the opinion that the Osterwalder model – while perfectly applicable to normal businesses – can not be applied to online ones, since value can hold a totally different meaning for the client than for the vendor.

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Methods Used

Time Scale

Evaluation

Replication

Lessons Learnt

Contact

Further Information

*We need effective interoperability
between IT products and
services to build a
truly digital society.*

We need effective interoperability between IT products and services to build a truly digital society. The Internet is the best example of the power of technical interoperability. Its open architecture gave interoperable devices and applications to billions around the world, but to reap the full benefits of ICT deployment interoperability between devices, applications, data repositories, services and networks must be further enhanced.

Promoting Better Use of Standards

Europe's standard-setting framework must catch up with fast-moving technology markets because standards are vital for interoperability. Reflecting the rise and growing importance of ICT standards developed by certain global fora and consortia, one important aim is to allow their use in legislation and public procurement.

Public authorities should also make best use of the full range of relevant standards when procuring hardware, software and IT services; for example, by selecting standards which can be implemented by all interested suppliers, allowing for more competition and reduced risk of lock-in.

Action Area 2

Inoperability and Standards

Too many barriers still block the free flow of online services and entertainment across national borders. The Digital Agenda 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.

Good Practices within Action Area 2

1. E-CLIC IPv6 Implementation
2. Smart Cities Barnsley Council
3. Smart Cities London Borough of Brent
4. Smart Cities Municipal Web Portals

Title

IPv6 Implementation

Geographical Area

Northern Netherlands

Subject

To raise the level of e-service for people living and businesses operating in Northern Netherlands.

Objectives

The aim was to ensure an unhindered transition between Internet protocol systems¹ thus guaranteeing continuous service for internet users.

Connection to Action Area

Interoperability and Standards – Interoperability between ICT services and applications is a key necessity for a productive economy, and standards are vital for interoperability. Making sure that the transition from one standard to another goes flawless contributes to maintaining interoperability.

Primary Contact

Initiator of the project was GN-IX, an independent Dutch company which is the centre for broadband connectivity and Internet services in the Northern Netherlands. A student from Hanze University Groningen also took part in the project. Other partners included Bytesnet, a company that delivers datacentre services and R-IX, the company providing broadband connectivity and Internet services in the Rotterdam area².

Stakeholders

Mostly impacted by the project are people living in Northern Netherlands.

Overview

Due to the growth in the use of internet and the rapidly growing number of PCs, laptops, PDAs, mobile phones and even appliances like refrigerators and washing machines being online, the world is running out of available IP addresses. In February 2011 IANA, the International Assigned Numbers Agency assigned the last of the IPv4 address blocks to RIR's, the Regional Internet Registrars, officially starting the transition to IPv6. In the coming weeks and months the world was to slowly switch to IPv6, the system that can provide more addresses than there are stars in the whole universe (3.8×10^{38}), and it is predicted to be sufficient for the coming 70 to 100 years.

As the company responsible for regional Internet exchange, it is very important for GN-IX to be prepared for all the future changes and developments on the World Wide Web. Due to the fact that some companies in the near future will only be able to connect via IPv6, GN-IX's customers expect them to be up to date and to be able to deliver the most recent products on the internet.

¹ Internet Protocol, IP is the principal system of digital message formats and rules for exchanging those messages between computing systems consisting of various devices (computers, printers, smartphones etc.). In the framework of the system, each device is assigned a numerical label and an IP address. The first major version of IP is IPv4, and the updated version is IPv6.

² For more information on the partners go to www.gn-ix.net, www.bytesnet.eu and www.r-ix.nl respectively.

Switching to IPv6 can be carried out in numerous ways, one of them being a mechanism that arranges the possibility for communication between IPv6 and IPv4 servers. The method chosen by GN-IX was the so called Dual-Stack solution, which means that two networks – one for the IPv4 one for the IPv6 traffic – exist simultaneously, where the IPv6 protocol is preferred above IPv4 unless there is no possibility to use the former. After a while the whole Internet will be running in IPv6, and IPv4 can be shut down.

GN-IX was gearing up and was ready to start and run IPv6 on its network in the period between February 2011 and July 2011. The research which included testing started in February until May 2011. In June the final implementation plan was created. The actual implementation of the Dual Stack network took only a month, because of the good preparation and was applied in July 2011.

After implementing the dual stack solution, GN-IX could monitor the IPv4 and IPv6 traffic. As expected, the IPv4 traffic stayed stable, but the IPv6 traffic was and still is growing. For the regional traffic it is good to have IPv6 support, so parties don't have to reroute their traffic to other destinations. As a company responsible for regional Internet exchange, one has to be a precursor with the use of new technology.

At the moment we do not benefit from the transition, since the transition also cost a lot of effort, knowledge, support and time. This as an investment for the future as we expect more parties will come to use it.

The implementation of the Dual-Stack system can and should be replicated without geographical boundaries, assuming that the required hardware and technical features are available.

The project fulfilled a much needed and inevitable task, which made it a natural success. The most difficult task was to get the knowledge for a good implementation and share this with our customers.

Since it is a new technique, it was hard to find information and best practises. Another problem we encountered was the lack of support for IPv6 from our vendors, especially when reusing hardware. The same problem also occurred on both new hardware and software. Since IPv6 is not always standard, the transit providers are still experimenting with IPv6 support for BGP. Due to good communication between vendors, transit providers and the customers we have implemented IPv6 on most of the hardware.

Tom van der Werf, tom.vdwerf@gn-ix.net

Methods Used

Time Scale

Evaluation

Cost

Replication

Lessons Learnt

Contact

Title

Barnsley Council

Geographical Area

Barnsley is a town in South Yorkshire, England. It is served by Barnsley Metropolitan Council and at the 2001 census had a population of 218,063.

Subject

Complete overhaul of website to make it easier for both the public and council staff to search for and surface consistent information and to utilise a tried and tested framework that would provide a system for managing information resources across the organisation.

Objectives

The web team in Barnsley, working with Services and Corporate Communications, were tasked with providing a website for the 21st Century Council, a website that would be more visually attractive, easier to search and up to date. They looked at a variety of solutions but wanted to be able to rely on tried and tested methods and found that esd-toolkit was a good allround solution with a framework of standards that they could work with.

Connection to Action Area

Interoperability and Standards – Makes the controlled lists an integral part of information management across the organisation.

Primary Contact

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Stakeholders

Barnsley Council, Partner Organisations and citizens

Overview

This case study shows how Barnsley have tackled Information Management to surface consistent data to the public and staff. The aim is to help other organisations utilise the ontologies to save time and money, to enable more accurate costing, meaningful comparisons and the evidencing of performance. By using controlled lists it provides a standard way of referring to what we do when communicating within and between organisations. It uses unique numeric identifiers for each piece of data, irrespective of the language and naming conventions that are used by different people and organisations to identify or describe what we do or are referring to. These common numeric service identifiers make it possible to share information wherever it is gathered and to build up a collective intelligence about services, data and users. Publishing this way of working will spread the use of controlled lists and thus make them more useful in exchanging information between organisations across normal boundaries.

Methods Used

Barnsley saw that for each service that the Council delivers, esd-toolkit identifies the associated interactions that can be carried out against them, for example, applying for a service, paying for a service, information provision, etc. Therefore, for each applicable service that Barnsley provides from the Local Government Service List they create a webpage in their web content management system to satisfy the “information provision” interaction. For the incoming interactions, i.e. taking a payment or an application, they create an electronic form and make a relationship back to the webpage. As they move more towards a transactional website, their plans include that the incoming interactions will also populate the Customer Relationship Management System, CRMS to enable on-line and mediated tracking of service request. To help their customers find all the published information, i.e. the webpages, they use the Local Government Navigation List. This groups the services they provide into head-

ings that their customers can recognise. It also allows them to put services under more than one heading because people think differently about where they might look for a service. The mappings are all provided and kept up to date by esd-toolkit.

The benefits of the project will continue indefinitely as Barnsley have embedded internal processes to ensure that changes to the esd-toolkit and/or our business operations are coordinated to keep everything in sync. In addition, this approach is enabling the Council to develop a consistent customer experience across all access channels, including DirectGov.

The whole of South Yorkshire is investing heavily in a digital future, most notably in the Digital Region project, but also in its joint commitment to digital inclusion. Barnsley will monitor the use of the website over time even though many improvements are still planned. A fundamental review of all functions and services delivered giving consideration to:

- Are we legally required to deliver the service?
- What can be delivered on-line?
- Alternative delivery models?
- Developing Customer services.

Unknown at the moment, investment in the hardware infrastructure estimated at approximately € 20 000. Staff time involved not measured.

This project can be carried out by any public sector organisation regardless of geographical location.

The ability to use the controlled lists in esd-toolkit knowing that they will be maintained and hosted for us in the future has saved time and money.

In Barnsley's words: "It's invaluable having a defined and maintained list of all the services that we deliver. With a clear view of them all, in one place, and an understanding of how our customers can interact with them and through which channels, we're able to more effectively manage our channel shift, several services at a time.

It is about being able to identify each single service, each interaction, each channel and therefore each customer journey. Having mapped those journeys we can identify improvements and efficiencies in each. We can monitor and report on the transaction volumes and costs of each journey and then see clearly the efficiencies available and realised as we implement each improvement.

On a personal note, it's the clear visibility of the big picture that pays the dividends. It allows me to see the wood for the trees so to speak".

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Time Scale

Evaluation

Cost

Replication

Lessons Learnt

Contact

Further Information

Title

London Borough of Brent

Geographical Area

The London Borough of Brent is a London borough in North-West London, UK and forms part of Outer London. Brent has a mixture of residential, industrial and commercial land. Wembley is the major town of Brent, which is home to Wembley Stadium and Wembley Arena. In the 2001 Census, the borough had a population of 263,464.

Subject

To increase the level of e-services in order to provide citizens with up-to-date information in an efficient, cost-effective way.

Objectives

- To increase effective use of the website in order to reduce costs.
- To make the website easier for citizens to find what they are looking for and make data easier to maintain and surface.
- To protect frontline services and ensuring resources are not wasted on inappropriate structures, out of date ways of working and inefficient business processes i.e. to cut out duplication of effort.

Connection to Action Area

Interoperability and Standards – The website operation relies heavily upon these standards and would not work without them.

Primary Contact

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Now, James Watson, james.watson@brent.gov.uk

Stakeholders

Brent Council and citizens and neighbouring councils' citizens in the boroughs of Barnet, Camden, Ealing, Hammersmith & Fulham, Harrow, Kensington @ Chelsea and Westminster.

Overview

Brent were keen to surface consistent data to the public and staff by utilising maps and links to external data so that the cost of keeping data was kept to a minimum.

By using the controlled lists already in esd-toolkit and the DirectGov¹ method of linking the LGSL² and LGIL³ it combines the existing use of technology to offer a solution to the constant requests for information about neighbouring boroughs.

It provides a standard way of surfacing information by using unique numeric identifiers for each piece of data making it possible to share and use information even if it is not held and maintained by your own organisation.

¹ Directgov is the UK government's digital service for people in England and Wales. Also accessible via mobile, it delivers information and practical advice about public services, bringing them all together in one place. For more information visit: www.direct.gov.uk

² The Local Government Service List (LGSL) is a collection of services within the esd-toolkit, that a council (or other public sector body) in the UK provides to or on behalf of those who live, work and pass through the area for which they are responsible. Not all councils perform all services in the list but it gives a common set of actions from which to choose.

³ The Local Government Interaction List (LGIL) is a list offered within the framework of the esd-toolkit, defining the type of dealings (publish information, make a payment, etc) a council may have in support of a service. For more information on LGIL visit: <http://doc.esd.org.uk/InteractionList/1.01.html>

Brent's website is structured according to LGNL and LGSL. It derives its "related links" from resources cross-referenced against the same LGSL or LGNL number. Neighbouring councils' web pages for the same service are displayed via the Local DirectGov lookup for the LGSL service.

Brent maintains a list of links to external websites (e.g. DirectGov, National Health Service, Business Link, Health and Safety Executive) for LGSL and LGNL numbers to populate related links. The list is available in XML or CSV format from <http://www.brent.gov.uk/opensdata.nsf/pages/LBB-1> from Brent's Open Data page. Brent uses the term "PID", Process area IDentifier to denote a term in LGNL and a service at the lowest level of the LGNL structure. Each primary service page is referenced by a URL in which the PID number is a parameter. Through mappings from LGNL and LGSL to IPSV, IPSV metadata is imported.

Cross-references to external sites including Directgov, Business Link and NHS Choices are achieved by manual tagging of their pages against PID numbers and shown as "Related links".

"Popular services" are those under the same top level LGNL branch that have the highest hit rate, as given by Google Analytics. Maps show geographical locations for the PID e.g. recycling sites or schools, while policies and strategies shown are those tagged with the PID of the page. Similarly, contact details are shown according to their PID tagging.

On going

Citizens from Brent and neighbouring boroughs can access information relevant to their needs and are easily directed to alternative appropriate websites if necessary.

This project can be carried out by any public sector organisation regardless of geographical location.

Brent has experimented with how people access information from their website and introduced a simpler interface based largely on searching; however, following user feedback they have gone back to using a navigation system, LGNL. The navigation list allows a user to identify broader and narrower subjects from a selected subject.

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Title

Municipal Web Portals

Geographical Area

Pan-European, Bremerhaven, Edinburgh, Groningen, Karlstad, Kortrijk, Kristiansand, Lillesand, Osterholz-Scharmbeck

Subject

The web has become the single most important communication channel in our society; however, the web is not just limited to communication. It connects people, and lets them interact and share. Customers expect first class online service. How can municipalities build engaging websites that deliver services in the best possible way? It might be done through a story of e-forms, better navigation, reorganised back-ends, strategy and user surveys.

Objectives

Optimal delivery of information and services that citizens really want; keeping up with citizens' demands and technology; extension to and interaction with urban public domain.

- Include more websites on tourist attractions and businesses in our websites via sub domains, e.g. all cities owned companies.
- Digitize management processes as much as possible.
- Improve opportunities for participation of citizens.
- Improve citizen involvement in discussion and decision-making processes via the website.
- Link with social networks.
- Continually improve both content and functionality. More services must be provided electronically.

Connection to Action Area

Interoperability and Standards

Primary Contact

Implemented by Bremerhaven, Edinburgh, Groningen, Karlstad, Kortrijk, Kristiansand, Lillesand and Osterholz-Scharmbeck

Stakeholders

The different partners were at different stages of web development: some just trying to get it "up and going", while others were more mature and were planning further developments and expanding the services they provided.

Overview

Presenting a brief summary of three case studies.

Bremerhaven: Web Access to Geo-services

Info-terminals around the city use web technology to give citizens access to information about tourist attractions, events in the city and live data feeds on the urban public transport network and other city information. Additionally, the bus system was equipped with a real-time data tracking system via WiFi.

Edinburgh City Council: Prize-winning user-centricity

The old web platform was unreliable and often crashed. Its forms were all manually coded in HTML and there was no scope for any integration with social media. Through user research the web portal was redesigned from the outside in. New automated workflows were set up, with the contact centre as operation hub. The site was also awarded four stars in the Socitm Better Connected Report 2011.

Kortrijk: My City

The City of Kortrijk provides citizens with a personal web login for the 'My Pages' concept which brings customers into the back office, where they have access to their personal files, are able to respond to queries from civil servants, and are able to see the

status and progress of their applications. It uses a central contact database and delegates the responsibility for keeping contact details up-to-date to the citizens themselves.

User surveys, process reengineering, different Content Management Systems, Co-Design, back end and front end programming.

2009-2011

Bremerhaven: Customers have access to useful information about attractions and the area. Performance was strengthened by shifting customers to self-service online information and services. Employees kept more time to deal with the more complex queries they received, and staff time cost was reduced.

Edinburgh: Customers have more up-to-date information, and 24/7 transactions. Performance went up in increased customer satisfaction, compliance with guidelines and standards and thus a higher Socitm rating. Employees have more efficient publishing tools and a good knowledge sharing intranet platform. Support costs dropped and staff time was saved.

Kortrijk: Customers have more transparency and convenience, in a more efficient system. Employees enjoy the faster administration for communication campaigns. Fewer hours are spent trying to keep contact details accurate and up-to-date.

Two other goals were directly measurable:

- Existing forms were made available and online transactions increased for both up to 90%.
- Improving Socitm ranking from two to three stars.

Dependent on actual state of website and wishes.

Results can be replicated everywhere without limitations.

You cannot overestimate the importance of having a solid and efficient ICT-architecture as the foundation on which to build a web portal. You can have whatever ambitions you like, but if the basic architecture is not flexible and built with communication and interaction in mind, you will not be able to deliver your goals.

The real driver for establishing a new site is not the questions from citizens or national government, but from the local authority and/or some of the administrative units in the organisation.

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Methods Used

Time Scale

Evaluation

Cost

Replication

Lessons Learnt

Contact

Further Information

*Europeans will not embrace
technology they do not trust -
the digital age is neither
"big brother" nor "cyber wild west".*

Europeans will not embrace technology they do not trust - the digital age is neither "big brother" nor "cyber wild west". Users must be safe and secure when they connect online. Just like in the physical world, cybercrime cannot be tolerated. Besides, some of the most innovative and advanced online services – such as eBanking or eHealth - would simply not exist if new technologies were not fully reliable. So far, the Internet has proved remarkably secure, resilient and stable, but IT networks and end users' terminals remain vulnerable to a wide range of evolving threats: in recent years, spam emails have grown to the point of heavily congesting e-mail traffic on the internet - and they spread a wide range of virus and malicious software. The rights to privacy and to the protection of personal data are fundamental rights in the EU. There is a growing scourge of identity theft and online fraud. Attacks are becoming increasingly sophisticated and often motivated by financial purposes, they can also be politically motivated. Addressing those threats and strengthening security in the digital society is a shared responsibility – of individuals as much as of private and public bodies, both at home and globally.

Action Area 3

Trust and Security

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

Good Practices within Action Area 3

1. E-CLIC User Friendly E-privacy
2. E-CLIC Secure Voice over Internet Protocol

Title

User Friendly E-privacy

Geographical Area

Karlstad, Sweden

Subject

- To enhance quality of online security and security of smart phones with touch-screens.
- To find ways of using future mobile technologies which are secure, privacy-friendly and easy to use.
- To raise the number of people trusting and using smart phones for online services.

Objectives

The main objective of the project was to provide evidence of a better security system for smart phones. Target demography is the average smart phone user who is concerned about his privacy and security.

Connection to Action Area

Trust and Security – Although the number of people accessing the Internet via their mobile phones is increasing and research studies foresee a massive increase of smart phone applications and growth of the mobile internet, still almost 70% of the population believe that transmitting personal data over the Internet is not sufficiently secure.

Primary Contact

The project was funded by the Swedish Knowledge Foundation and the E-CLIC project, and carried out by departments of Computer Science, Information Systems and Psychology at Karlstad University, in collaboration with industrial partners Nordea Bank in Denmark and Gemalto, a world leader in digital security, in Sweden.

Overview

The use of mobile smart devices for storing sensitive information and accessing online services is increasing. At the same time, methods for authenticating users into their mobile devices and mobile online services that are not only secure, but also private and user-friendly are needed.

Currently, most of the solutions for authenticating users into their devices and other mobile services are based on the same solutions offered when using desktop computers, which usually involve the use of a PIN, a strong password or some sort of extra external security token device. These techniques become cumbersome when applied to mobile devices and do not always provide a satisfactory user experience. Researchers suggest the use of graphical passwords i.e unlock pattern as an easier alternative to written passwords, based on the idea that people have a better ability to recall images than texts. When these unlock patterns are combined with biometric analysis, such as the owner's specific personal features for instance the length of time it takes for him to connect two dots onscreen, the security of the graphical password can be further enhanced. Using touch screen biometrics in combination with graphical passwords and the mobile phone providing a trusted user interface element, will provide a 3-factor authentication mechanism which increases security. Authenticating the user by:

- what he knows with a PIN
- what he is by biometrics
- what he possesses, a trusted phone

Using Google's platform for mobile devices, Android, the researchers developed a mobile application that collected data from different individuals on the way they move their finger across the screen with the purpose of unlocking their phone. The data collection method consisted of asking 32 test participants draw three different lock patterns 50 times each, giving us a total of 150 trials per participant.

While the participants drew a pattern, two main features were captured for each successful trial: the finger-in-dot time, which is the time in milliseconds from the moment the participant's finger touches a dot to the moment the finger is dragged outside the dot area, and the finger-in-between-dots time, representing the speed at which the finger moves from one dot to the next.

The initial research of the project were carried out between February and December 2011. We would like to expand this study to include the combination of different biometric methods such as multimodal biometrics and other secure technologies that can provide users with a seamless authentication experience into mobile applications that handle sensitive data.

Results show that the security of mobile devices can be improved by enhancing a lock pattern mechanism with biometric features. Supposing that the pattern is only known to the legitimate user, the chances for an imposter to successfully authenticate into the system are further reduced. Adding biometrics to a six-dotted lock pattern would make it more secure than using 4- and 5-digit PINs.

To carry out the study two Android mobile phones and a 10 inches tablet computer were purchased, amounting to a total cost of approximately € 1400. In order to motivate participants of the study to become involved by drawing unlock patterns on mobile touch-screens incentives were given with a value varying from € 6 to 9.

Results of the project can be utilized all over the world without limitations for the benefit of the ever increasing smart phone using population.

Privacy concerns may arise from the fact that people can be identified from the way they draw their finger on the screen. For example, third party phone apps, and even normal websites, could be recording the users' finger movements on the background in order to identify users without their knowledge or consent.

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Methods Used

Time Scale

Evaluation

Cost

Replication

Lessons Learnt

Contact

Further Information

Title

Secure Voice over Internet Protocol¹

Geographical Area

Wilhelmshaven, Germany

Subject

Main aim of the project was to raise the level and security of e-services for citizens.

Objectives

The main objective of the project was to provide users of instant communication applications with an option to conduct their interactions in a secure way.

Connection to Action Area

Trust and Security – According to various surveys, Internet users are extremely sensitive and aware about security when it comes to online activities. Providing them with a verified, secure means to use online communications – coupled with the ever-increasing prices of traditional communication techniques – may help to increase the number of people trusting and using online services.

Primary Contact

Both the initiator and the implementer of the project was the Laboratory for Communication Networks and Transmission Technology at Jade Hochschule in Wilhelmshaven.

Stakeholders

The target group of the project is anyone with a desire to conduct secure calls without being listened-in over the Internet. Since the system is free to use from anywhere via Internet, the project can impact anyone from the target group all over the world.

Overview

Jade Hochschule has been exploring the possibilities and risks of communication via public data networks. During these researches, it turned out that not only instant communications over the Internet, but also communications in a local network, not connected to the internet, can easily be hacked. Only a few providers offer secured VoIP. To overcome insecurity, the university has developed its own system, called SecVoIP, using the open source software *FreeSWITCH*, which is capable to encrypt VoIP calls. The system is public and has free registration as only prerequisite to use it.

Methods Used

Conventional VoIP-connections transmit information using protocols that are not secured completely, thus making it easy to redirect the transmitted information to another computer where they can be decrypted. The updated system uses a secure version of the same protocol.

¹ Voice over Internet Protocol (VoIP) is the system of technology (rules, methodology, transmission techniques etc.) used as a means of transporting phone (and video) calls over the internet.

The first steps for a public, highly secured server for incoming and outgoing calls were taken in the frame of a bachelor's thesis in 2009. The idea was to put the server into practice at the end of 2010 when the website was set up. A further step will be the enabling of routing into the public communication network.

Since the website was set up 30 customers have, by the beginning of 2012, registered.

Estimated costs were: for engineers approximately € 100 000, for the server approximately € 2 000 and for the commercial publishing € 10 000.

Due to the application of providing a telephone server, there are no geographical restrictions as to joining the service. The SecVoIP server is located in Wilhelmshaven and available via Internet from everywhere. The system can be reproduced without restrictions as well.

The system can be used with any kind of telephony device; however, the encryptions performed to make the calls secure cannot be delivered with using just any kind of phone or software application. Only a certain number of phone solutions can be used e.g.: SNOM 320, SNOM 370 or PhoneLite.

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Time Scale

Evaluation

Cost

Replication

Lessons Learnt

Contact

Further
Information

*We need very fast Internet for
the economy to grow strongly
and to create jobs and prosperity,
and to ensure that citizens can access
the content and services they want.*

We need very fast Internet for the economy to grow strongly and to create jobs and prosperity, and to ensure that citizens can access the content and services they want. The future economy will be a network-based knowledge economy with the Internet at its centre. Europe needs widely available and competitively-priced and fast internet access. Today in Europe, Internet access is mainly based on the first generation of broadband, meaning that Internet is accessed over legacy telephone copper and TV cable networks. New services such as high-definition television or videoconferencing need much faster Internet access than generally available in parts of Europe. To meet the needs of the Future Internet, 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 Digital Agenda aims to turn this ambition into reality by focusing on two parallel goals: to guarantee universal broadband coverage, combining fixed and wireless with Internet speeds gradually increasing up to 30 Mbps and over time to foster the deployment and take-up of next generation access networks in a large part of the EU territory, allowing fast Internet connections above 100 Mbps.

Good Practices within Action Area 4

1. E-CLIC Broadband Access in Rural Areas - The Värmland Model
2. E-CLIC A Model for Supplying Broadband Access to Rural Areas in the Weser-Ems District

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 Digital Agenda aims to turn this ambition into reality by stimulating investments and proposing a comprehensive radio spectrum plan.

Title

Broadband Access in Rural Areas - The Värmland Model

Geographical Area

Värmland County, Sweden

Subject

How to guarantee high-speed broadband access to households and businesses in rural areas at a reasonable cost.

Objectives

To provide higher quality of life for citizens living in rural areas and to strengthen regional attractiveness. To promote social inclusion and competitiveness for all citizens independent on geographical area or social background.

Connection to Action Area

Very Fast Internet – High-speed Internet is vital for the economy to grow strongly and to create jobs and prosperity, and to ensure that citizens can access the content and services they want.

Primary Contact

Värmland County Administrative Board was the initiator of the project and “the rural broadband access model” was created by Sunne Municipality. Implementers of the project were also Region Värmland, 15 other municipalities in Värmland and the regional ICT cluster, Compare.

Stakeholders

All 16 municipalities’ IT managers and the regional IT coordinator. Politicians from the county have also been informed and updated about the current broadband situation.

Overview

When mapping the broadband access in Värmland, through the E-CLIC project, the good practice and model of the rural municipality Sunne was highlighted. Sunne has managed to come up with a model that guarantees all households in the municipality access to the fibre optic broadband at a reasonable cost.

One key element in Sunne’s model is information; to get the households interested and let them see the benefit and opportunities high-speed internet gives. If all households in the municipality agree to do a common investment, the total cost automatically becomes lower. Another key element is cooperation; the municipality’s IT manager and the advisor for rural business development have a well-established cooperation both with the villagers and the local politicians.

Methods Used

The first step was to map the current existing fibre optic broadband in the municipality against the number of households. According to Sunne Municipality, it is important that there is someone to manage and coordinate the project to get all households interested. It is also vital that the local politicians put the subject high on their agenda.

The work Sunne is doing, to assure that all households get access to high-speed Internet started in 2010 and is on-going.

The success can be measured in the number of households in the municipality that have access to fibre optic broadband. At this moment most households in the municipality of Sunne are in the phase of digging.

The regional benefit of this kind of work is high. High-speed Internet is vital for the regional economy to grow strongly and to create jobs and prosperity. This will increase the attractiveness of the municipality, both to live and to work in.

The municipality has invested approximately € 2,2 million in the fibre net, but they expect the money to be paid back when all households have joined the project. The cost per household is hard to estimate as the work is time consuming for the households and investments and own working hours are needed. Estimated investment in actual money per household is € 2 500.

Europe consists of lots of rural areas and small villages. To reach the goal of the Digital Agenda and its seven pillars, initiatives like this one need to be highlighted and put on the European agenda. This can serve as an example, a good practice from a rural municipality in Sweden which can be transferrable to any rural municipality in Europe. The key elements of the model are information and cooperation, which are applicable anywhere where enthusiasm exists.

Sunne Municipality has been very successful with their unique model to assure all households access to fibre optic broadband. Mapping the existing access is the first step; without good knowledge about the current situation the quality of the work cannot be guaranteed. A good project leader that can communicate both with the villagers and the politicians is also one of the recommendations that Sunne municipality wants to point out.

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Sunne was appointed “The fibre municipality of the year” by the Swedish Government in 2012.



Time Scale

Evaluation

Cost

Replication

Lessons Learnt

Contact

Further Information

Title

A Model for Supplying Broadband Access to the Internet to Rural Areas in the Weser-Ems District

Geographical Area

The Weser-Ems region in Lower Saxony, Germany

Subject

To increase quality of life of people living in rural areas and to raise the level of e-services by providing them with broadband access.

Objectives

The main objective of the project was to set up and describe a useful, general model to supply broadband access to the Internet in rural areas for the benefit of the population living there.

Connection to Action Area

Very Fast Internet – The Commission adopted three complementary measures to deliver fast and ultra-fast broadband in Europe in September 2010: A Recommendation on regulated access to Next Generation Access, a Radio Spectrum Policy Programme and a Communication on Broadband. Now the focus is on working with Member States and stakeholders on putting the proposals into practice as well as on financing solutions for the investment needed to upgrade Europe to high-speed infrastructures.

This project has contributed to the expectation of the Commission by providing a general method that can be used when delivering broadband internet access to less densely populated areas of the EU.

Primary Contact

The research was carried out in the laboratory for communication networks and broadcasting technology at the Wilhelmshaven site of the University of Applied Sciences Wilhelmshaven/Oldenburg/Elsfleth. Towns in the Weser-Ems district were provided with broadband internet access in cooperation with internet company ju-DSL.

Stakeholders

Mostly impacted by the project can be the population, municipalities, governments and companies setting up business in rural areas.

Overview

In rural, sparsely populated areas broadband Internet can play a significant role in retaining the population by connecting them with the “outside world”, and it is nowadays also considered a prerequisite by businesses looking for new areas to invest and expand. The case study outlines an elaborate scheme and leads readers through the detailed methodology of how remote areas can be provided with internet access. The methodology is universal and offers various options to achieve each step so that the method can be customized to different conditions and circumstances. Within the framework of the project, using the method developed, people living in the town of Uplengen were provided with the opportunity to connect to broadband internet access.

Methods Used

The 4-step methodology developed starts with a thorough planning phase followed by testing, implementation and finally the operation itself.

Since it is a very costly venture, in order to provide undersupplied areas with broadband access, the process should be thought meticulously through in advance.

During this planning phase information is gathered about the current state from providers, customers and other stakeholders, afterwards technical requirements are examined, then technical, geographical, infrastructural and administrative feasibility is analyzed and finally a proposition for solution is made.

In the design phase testing of the proposed solution takes place in order to prove feasibility and pinpoint any obstacle that might occur. It is followed by the implementation phase when all the components for the developed solution are set up. The process is finished with the operation phase that requires the responsible bodies to monitor the system providing maintenance.

The research and investigations were carried out in the summer semester of 2009 and in the winter semester of 2009/10.

Thanks to the method put to practice, customers in the area of Uplengen, who formerly did not have the opportunity to get broadband connection, were able to be connected to the network of ju-DSL. By the end of the summer in 2009, 60 pre-contracts were signed between customers and the company. We have not had any contact since then.

An estimate of the cost for the engineers was approximately 600 hours, at a rate of € 100 per hour which would give a total of € 60 000.

Although it was created to improve living standards in rural areas, the method developed is detailed enough to be used under any circumstance.

When gathering information in the first phase, Internet providers might not be so willing to share their data on their networks, because this would mean revealing their business strategies to competitors. Offering providers some additional advantage in return (e.g.: offering them the opportunity to widen their clientele) for their information might help overcome this problem.

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The case study is laid out in our laboratory as a hardcover.

Time Scale

Evaluation


Cost

Replication

Lessons Learnt

Contact

**Further
Information**



*Europe must invest
more in R&D and
ensure our best ideas
reach the market.*

Europe must invest more in R&D and ensure our best ideas reach the market. Given that ICT represents a significant share of total value-added in European industrial strengths such as automobile, consumer appliances or health and medical, the lack of investment in ICT R&D is a threat to the entire European manufacturing and service sectors.

Europe must step up, focus and pool its investments to keep its competitive edge in this field and continue to invest in high-risk research, including multi-disciplinary fundamental research. Europe should also build its innovative advantage in key areas through reinforced eInfrastructures and through the targeted development of innovation clusters in key fields. It should develop an EU-wide strategy on "cloud computing" notably for government and science. Europe's public sector expenditure should be used to spur innovation while raising the efficiency and quality of public services. European public authorities must join forces to align regulation, certification, procurement and standardisation in favour of innovation. Public and private partnerships and stakeholder fora are needed that lay out joint technology roadmaps, from research to commercialisation, for harnessing innovation to social need.

Knowledge transfer activities should be managed effectively and supported by suitable financial instruments and publicly funded research should be widely disseminated through Open Access publication of scientific data and papers.

Action Area 5

Research and Innovation

To attract Europe's best minds to re-search, 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 of the US investment level. The Digital Agenda seeks to maintain Europe's competitive edge through increased coordination and elimination of Europe's fragmented efforts.

Good Practices within Action Area 5

- | | |
|-----------------|--------------------------------|
| 1. E-CLIC | Business Process Innovation QR |
| 2. Smart Cities | Bury Council |
| 3. Smart Cities | Durham Council |
| 4. Smart Cities | CoDesign |
| 5. CCC | INNOWIZ Platform |

Title

Business Process Innovation with QR Codes

Geographical Area

Hunebed Centre – a Dutch archeological museum

Subject

To increase attractiveness of a museum by enriching visitor experience using ICT tools and technology.

Objectives

The aim of the project was to investigate the potential use of new mobile augmented reality¹ solutions in order to enhance visitor experience and attract more visitors at the museum.

Connection to Action Area

Research and Innovation – Being innovative may play a decisive role in the success and future of a business. Using ICT tools and technology to update the services a business can offer may lead to original or even ground-breaking outcomes.

Primary Contact

Initiator of the project was the museum, while the research was conducted by four students of the Business Administration and the International Business and Management programmes at the University of Groningen.

Stakeholders

Visitors and employees of the museum were the most strongly affected by outcomes of the research.

Overview

In the middle of economic stagnation, in a world of generally decreasing subsidies, there is a natural need to attract more paying customers to businesses. This fact, coupled with the need to keep up with potential competitors in a field, can trigger innovative technological developments.

Hunebed Centre, a Dutch archeological museum wanted to examine its visitor process and investigate how the use of augmented reality with mobile smart phones can be integrated in the process² of enriching visitors experience. With the use of AR, the museum hopes to attract more customers, especially youngsters between the ages of 12 and 17, who – as studies show – generally do not visit often.

Having mapped the current visitor process, three popular mobile AR solutions – Layar, 7scenes and Quick Response codes³ – were tested and the latter was chosen as the best option. The reason for choosing QR codes was fourfold: free usage and easy accessibility, relatively cheap introduction that does not need big upfront investment from the implementer, user-friendliness (it does not force visitors to use them, the codes carry only optional, additional information) and cost-effectiveness (the codes do not need to be changed, only the online contents to which they direct visitors).

Methods Used

In order to define how new mobile AR solutions can enrich the customer experience during the visitor process at the Hunebed Centre, a business process study of the current state was made using the Business Process Modeling Notation⁴. Afterwards, several popular mobile AR solutions were reviewed and the best solution for the

¹ Augmented reality (AR) technology integrates a computer-generated imagery into the user's real view of physical reality, that is, the real world is augmented/complemented by computer-generated input – such as sound, video, graphics or GPS data.

² In this case visitor process is the sequence of activities performed by customers and the interaction between actors (visitors, exhibited objects and employees of the museum).

³ A Quick Response (QR) code is a two-dimensional barcode made up of a pattern of black and white boxes, which can be scanned with the help of a smart phone camera, a downloadable reader application and internet access. The code can store more data than a regular barcode, the encoded information can be text, URLs etc. When a QR code is scanned, the user is directed to a certain online content (e.g.: a PDF, a podcast, a video etc.).

museum was selected. It was followed by the redesigning of the visitor process with integration of the selected solution alternative and finally, the selected solution was implemented at the museum.

The research was conducted in the period between September 2010 and February 2011.

Currently, the Hunebed Centre displays six QR codes at various outside objects. There was no significant increase of visitors yet. Feedback from visitors was partly critical: some of the QR codes are placed in a way that one has to kneel down to scan them. The YouTube film that opens does not give additional, but more or less the same information as on the board next to the object. But it is still too early for a real evaluation, that will take place at the end of the year.

The use of QR codes is free of any licence with free mobile apps for scanning QR codes being widely available. It does not require any software development from the implementer either.

The project can be easily replicated in any museum. Other, more creative utilizations are possible; for instance, at festivals, by municipalities at statues or other artefacts made available to public.

When using QR codes, it is important to update regularly the online content which they refer to in order to keep recurring visitors interested.

The use of QR codes is currently limited to the outside area of the museum, because the mobile internet signal is weak inside. This problem can be solved by installing free WiFi at all locations.

When using QR codes you have to be aware of the fact that, in spite of the most recent technological revolution, there are still people who do not have smart phones. This difficulty can be overcome by lending mobile phones to visitors for the time of the visit.

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Article in "tijd", weekend magazine of "Trouw", 6 Oct. 2012, p.40/41



university of
groningen

faculty of economics
and business

⁴ Business Process Modeling Notation (BPMN) is a standard notation/system that defines a Business Process Diagram (BPD) that is understandable for all business users. A BPD is a flowcharting technique-based graphical model of an organization's business process. The diagram shows the network of activities performed (i.e. the business process) and the flow between them that together create the product or service that is being delivered. See the note on the previous page.

Time Scale

Evaluation

Cost

Replication

Lessons Learnt

Contact

Further Information

Title

Bury Council

Geographical Area

Bury is a town in the North of England and forms part of the AGMA, Association of Greater Manchester Authorities. The town of Bury has a total population of 60,718, whereas the wider Metropolitan Borough has a population of 180,608.

Subject

To increase the level of e-services for the benefit of elderly or disabled citizens thus enhancing their quality of life.

Objectives

The main aim of the project was to organize and provide non-stop professional care service for those in need of it in an efficient, cost-effective way.

Connection to Action Area

Research and Innovation – Using customer profiling techniques enables more accurate targeting of services to those who really need them and cannot afford to pay.

Primary Contact

Benjamin Imafidon, Chief Executive Department, Bury MBC

Stakeholders

- The elderly and disabled residents in Bury
- The relations of the elderly and disabled
- Social Services Team in Bury
- Bury Council

Overview

For the elderly and disabled, Bury provide The Care link & Telecare service which gives:

- 24/7 service
- 365 days emergency response
- Enable users to maintain independence
- Safety- Someone is always available to answer call for help

With tight budgets Bury wanted to ascertain that those who needed the service were receiving it and understand if it would adversely affect the service if those who could possibly pay for it or towards it were asked to contribute.

Methods Used

- By uploading the transactional data of current users, Bury looked at who was currently receiving the service and where they were located within the Borough.
- Bury looked at the current methods of advertising the service.
- They compared who was using the service with the total of households in the area to understand who were more likely to be able to afford to pay for the service.
- From this data they were able to perform a gap analysis so that they could start to target those who were not applying but were probably eligible with the message and through channels that they would be most responsive to.

They concluded that:

The following groups are more likely to use the service

- M – Elderly needs
- O – Claimant culture
- L – Active retirement
- A – Rural solitude
- B – Small town diversity

Afford to pay for service

- A, B and L groups have high – below average income levels; and below average on receiving benefits
- M and O groups are low on income levels and high on receiving benefits.

2011

- Uptake of service by those who are eligible
- Lives of the elderly and disabled made less stressful knowing that they have the Telecare service
- Relatives of the elderly and disabled secure in the knowledge that everything is being done to support those in need.

Cost neutral

This can be done not only for this service but for other services that could produce an income.

Only residents within Bury should be issued with alarms. By profiling the post codes of applicants it showed a few users outside the borough. These are being investigated and there may be several reasons why these have shown up:

1. Post code incorrectly recorded
2. Post code of a relative applying on behalf of a Bury resident recorded instead of the user of the alarm
3. A genuine mistake whereby a Telecare alarm had been issued outside of the borough.

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Bury Council
www.bury.gov.uk



Time Scale

Evaluation

Cost

Replication

Lessons Learnt

Contact

Further
Information

Title **Durham Council**

Geographical Area

Newton Aycliffe is a town in County Durham, England. It has a population of 29,000 people. The county as a whole came from a heritage of mining and farming, as well as a heavy railway industry. It is now an area of regeneration.

Subject

To raise the quality of life for citizens of the county by offering them services they really need, based on studies carried out with the help of ICT.

Objectives

A case study to investigate how gym usage could be increased at Newton Aycliffe Leisure Centre. This was done by profiling the types of people already using or would like to use the gym; barriers to using the gym; access and service channels and marketing messages. The main objectives were:

- Increased take up of membership and usage
- More consistent usage i.e. be more appealing those who take out a membership then no longer attend

The target demographic groups were: wealthy people living in the most sought after neighbourhoods, successful professionals living in suburban or semi-rural homes, middle income families living in moderate suburban semis, couples with young children in comfortable modern housing, couples and young singles in small modern starter homes, residents with sufficient incomes in right-to-buy social housing and families in low-rise social housing with high levels of benefit need.

Connection to Action Area

Research and Innovation – Use of controlled lists and standards enabled Durham to measure understand which services were being used by which demographic groups and target future marketing at those who (a) could afford to pay for the service and (b) those who needed support to improve fitness levels.

Primary Contact

Dorothy Emerson, Customer First Officer, Service Development Unit
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Stakeholders

Durham Council, Citizens of Newton Aycliffe, Citizens from surrounding areas

Overview

- To increase usage of the gym
- To effectively market the facility targeting groups identified through profiling
- To improve the fitness levels of the citizens
- To maintain memberships by providing a compelling programme

Methods Used

Utilising statistics already available from Sport England and mapping those to the Experian Mosaic groups and types enabled Durham to understand how to approach a marketing campaign personalised to those who were already interested or slightly interested in fitness levels.

Uploading transactions from current usage into esd-toolkit¹ enabled a gap analysis to be carried out:

- those who used the gym regularly
- those who used the gym occasionally
- those who took out memberships and did not use it
- those who had the propensity to use a gym but were not using it or were perhaps members of another gym

¹ Effective Services Delivery Toolkit (esd-toolkit) is a framework of tried and tested tools, guidance and practical examples to support innovation in public service delivery created by software company Porism Limited.

Based upon what they understood about the groups and types from above, this lead to creating a marketing campaign:

Targeting High income groups:

- Take email address when registering new members and update on new events
- Text members with updates
- Set up Facebook page or advertise on Facebook to capture young members

Targeting Low income:

- Adverts in local paper, on buses and bus stops
- Leaflets in contact centres
- Loyalty schemes, e.g. go to four sessions, get the fifth for free

The project will continue throughout 2012 and is extending to the other Council leisure centres throughout the County.

- Increased usage
- Higher retention of members and usage whilst a member
- Higher usage by lower income groups which could lead to increased fitness level in traditionally those with poor health
- Increased self esteem and less mental health issues
- Reduction of vandalism
- Increased understanding of why residents use the gym and factors influencing retention of membership

Carried out within existing resources plus any marketing material.

This can be replicated by any organisation who would like to understand the usage of a facility, increase turnover or develop an on going operation. Leiedal in Belgium has also carried out a similar exercise.

- The success of the project is still being measured but it is recognised that targeting potential customers and marketing to them in their preferred channel is well worth while.
- An understanding of the Sports England classifications and the links to the mosaic groups. This was overcome by comparing the groups and setting up a matrix of the two sets of profiling information.
- A clear definition of your objectives and the data sets available to support the project.

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Time Scale

Evaluation

Cost

Replication

Lessons Learnt

Contact

Further
Information

Title

CoDesign

Geographical Area

Pan-European

Subject

Moving from processes designed by appointed experts towards user-led process design and service delivery. This could be seen as part of a broader shift towards citizens and professional staff working together to co-produce services in municipalities.

Objectives

- Learning how to design better and user-entered services
- Learning how to collect ideas and move them into action
- Providing useful practical background information for municipalities and other public sector organisations that are considering incorporating aspects of co-design into their service development.

Connection to Action Area

Research and Innovation – Design thinking provides a useful range of techniques for bringing together citizens, as users and municipal staff, as providers, to work to identify the problems that need to be solved - avoiding being trapped by pre-defined 'solutions' that may never really be used.

Primary Contact

Edinburgh Napier University (UK), Intercommunale Leiedal (BE), City of Edinburgh Council (UK), Kristiansand Kommunn (NO).

Stakeholders

Co-design was implemented by all partners in their process and service design. Smart Cities partners have used a wide range of co-design practices and capabilities, ranging from legally mandated engagement with user representatives when designing services (Kristiansand) using customer journey mapping to ensure that the customer experience is improved as part of service redesign (Edinburgh) to listening to user requirements as a web platform is developed (Osterholz-Scharmbeck).

Overview

The major theme to emerge from the co-design experiences focuses on organisational maturity – particularly do not run before you can walk. Before committing to co-design, it is necessary for an organisation to understand how to manage the required level of long-term engagement and commitment and to be aware of the risks and the resource requirements. The process of design thinking has to be experienced rather than learned: it involves emotions and feelings as much as pre-planning.

Methods Used

Horizontal co-design

This approach can be summarised as “working together with partners to deliver new services”. Under this definition, co-design involves working with peer organisations. Examples of horizontal co-design in this report include Leiedal and Kortrijk working with other municipalities in their region, or with other Flemish cities such as Ghent.

Vertical co-design

Vertical co-design covers moving from the basics of opening up communication across departmental silos, to engaging with end users and customers. While citizens

could be considered to be customers as well, in many cases the customers in the process may actually play an intermediary role in service delivery.

Co-design was not seen as a project deliverable or a separate project, but investigated, promoted and used throughout the whole Smart Cities Project.

Impact is hard to measure as co-design was used indirectly through the project, but finished projects show that the solutions made with the help of co-design were better suited for the end users. E.g. The Health and Social Care department in the municipality of Kristiansand in Norway used co-design to redesign the DuVito Centre as its main customer contact point. The design process for the centre spent two to three months of training and co-design with alcohol and drug abusers. Bodies representing disabled people, elderly people and the social services department were also involved. As a result, a lot of attention was paid to the making the premises as accessible as possible for wheelchair and baby buggy users, and for people with difficulties with their vision or hearing. As a result, the new centre has won several awards in Norway for the way it engages citizens.

Results can be utilized all over the world without limitations. Best target group would be organisations that design services that involve a wide public, e.g. a city service that will be used by all eligible citizens.

Involving citizens in the design process creates significant challenges in collecting ideas and moving them into action.

Sociology, marketing and economic science have a lot to offer to the developers of e-services – but this means bringing a range of data sources together to develop accurate profiles of target customer groups.

In the commercial world, co-design is more common in organisations with a relatively high level of new product development. It is generally initiated by the service provider as part of the development of niche markets and can be done with user-friendly toolkits. This requires the maintenance of long term relationships with customers rather than mass-market short-term transactions.

Four important aspects of co-design:

1. Participation: co-design is collaborative
2. Development: co-design is a developmental process
3. Co-design shifts power to the process
4. Co-design activities are outcome-based

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More information and concrete cases: see publication on co-design.
www.smartcities.info/files/Co-Design%20in%20Smart%20Cities.pdf



Time Scale

Evaluation

Replication

Lessons Learnt

Contact

**Further
Information**

Title

INNOWIZ Platform

Geographical Area

INNOWIZ originated in Flanders, Belgium, but is now frequently used by many people in other European countries and beyond.

Subject

INNOWIZ is an online tool to foster creativity and innovation: it offers companies, SME's and individuals both a 4-step-method to manage creative processes 'from idea to realisation' and a database of creativity tools that empowers peoples' framework of 'design thinking'.

Objectives

The INNOWIZ methodology offers a ladder for innovation. The target demography is simple: it is open to everyone in the world.

Connection to Action Area

The INNOWIZ platform helps achieve at least two goals defined in the action area of the Digital Agenda Europe, namely – Research and Innovation and Enhancing E-skills.

Primary Contact

Howest Industrial Design Centre was the initiator and implementer of the INNOWIZ platform.

Industrial Design Centre is an open knowledge centre and a communication platform between the industry and the industrial design education and research programs of the Howest University College Kortrijk, part of Ghent University, Belgium. Industrial Design Centre is an open 'research through design' lab specialized in prototyping, creativity methodology, lighting, engineering and materials, humanity and sustainability.

Stakeholders

Since the very beginning of the project in 2006, INNOWIZ has been supported by IWT, the Institute of Science & Technology in Flanders and Europe.

Many companies and SMEs have got trained in the usage of INNOWIZ and/or adopted the INNOWIZ method in their own innovation strategy: local SMEs and companies such as CREAX, Reynaers Aluminium, Samsonite, Telenet, Bloso Flemish Sports Federation, Barbecook and Recticel.

Overview

In an era of financial crisis and economic downturn, it is a huge challenge for entrepreneurs to take risks for innovative ideas and concepts. On the other hand, they have to do so in order to be successful. Innovation is applied creativity and everybody can train its skills for creativity.

Methods Used

The INNOWIZ method contains four main steps: challenge definition, idea generation, idea selection and idea concretization. It is a cyclic problem solving method to tackle projects related to work or life.

INNOWIZ combines its method with an online database of creativity techniques. It is free, open source and endlessly inspiring. Researchers regularly update the database with new tools and templates. Depending on the subject you are working on – technical, strategic or communicative – there might be a selection of techniques that fit your challenge.

INNOWIZ started in 2006 and is still up and running. The database is updated regularly with fresh, free and open source innovation and creativity tools. Train-the-trainer sessions, workshops for teams and creativity sessions for bigger groups can be requested at any time. Industrial Design Centre develops a customized toolbox consisting of creativity techniques that fit in with an organisation's specific challenges.

INNOWIZ has a few thousands of users from all over the world. All industrial design students who graduate from Howest University College are fully trained in the usage of INNOWIZ and several creativity tools. They are all ambassadors of the tool in Flemish companies or abroad.

INNOWIZ has a sensitizing function in order to promote creativity among Flemish companies. And we must say that they do adapt to ever changing economic conditions in a very creative and sustainable way. The credits for creativity therefore and first of all go to them.

The estimated cost to achieve the end product is quite small. There is no need to make a new INNOWIZ platform, as the existing one is open to everybody.

An ambassadorship-training in INNOWIZ can be available on request. One can use and teach INNOWIZ freely to everyone who might benefit from it.

The target groups that might benefit mostly from it are creative consultants, companies, SMEs, start-up companies, teachers, students, civil servants, designers, etc.

The success factors for working with INNOWIZ are an open attitude, a willingness to play with the different techniques, not being afraid of making failures, a hands-on mind-set, i.e. better realising an idea in an early stage in order to get feedback from other stakeholders, rather than over thinking it too much.

If you are moderating a creative session, then INNOWIZ can inspire you to prepare the structure of your brainstorm. You can use the 'selection template' in order to narrow your selection. A good advice is also to try if the techniques help you, as a moderator of a brainstorm session, to tackle the given topic. If the techniques give you some inspiration, then they will inspire your participants as well. The topic and setting of every brainstorm session is different, the techniques to get the inspiration are different as well.

Please address your request to info@innowiz.be or info@industrialdesigncenter.be
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Time Scale

Evaluation


Cost

Replication

Lessons Learnt

Contact

Further Information



*The digital era should be about
empowerment and emancipation;
background or skills should not be
a barrier to accessing this potential.*

The digital era should be about empowerment and emancipation; background or skills should not be a barrier to accessing this potential. As more daily tasks are carried out online, from applying for a job to paying taxes or booking tickets, using the internet has become an integral part of daily life for many Europeans. Yet, 150 million Europeans – some 30% - have never used the Internet. Often they say they have no need or that it is too expensive. This group is largely made up of people aged 65 to 74 years old, people with low income, the unemployed and the less educated.

In many cases the take-up gap is due to lack of user skills such as digital and media literacy, not only for employability, but also for learning, creating, participating and being confident and discerning in the use of digital media. By developing and enhancing digital skills, all EU citizens, and in particular groups at risk of socio-economic exclusion e.g. elderly, jobless, immigrants, marginalised youngsters, and women returning on the job market, will be able to participate on a more equal footing in the digital economy. They will have better job prospects, and enjoy higher opportunities for learning, creating, participating and being confident in the use of digital tools, media and using services and tools made available by eLearning, eGovernment, eHealth.

Digital competence is thus one of the eight key competences which are fundamental for individuals in a knowledge-based society. It is also key for all to understand how to be safe online. In addition, ICT cannot function effectively as a European growth sector and as a motor of competitiveness and productivity gains across the European economy without skilled practitioners.

This calls for multi-stakeholder partnerships, increased learning, recognition of digital competences in formal education and training systems, as well as awareness raising and effective ICT training and certification outside formal education systems, including the use of online tools and digital media for re-skilling and continuing professional development.

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 Digital Agenda tackles this unacceptable digital divide.

Good Practices within Action Area 6

1. E-CLIC PDF – a New Breed of E-learning
2. E-CLIC Usability and User Experience of www.seniorenberatung-hannover.de
3. Smart Cities Customer Contac Centres
4. CCC Travelling Exhibition to Present Best Practice Instruments and Cooperation: Road Movie
5. CCC Creative Boost

Title

PDF – A New Breed of E-learning

Geographical Area

Stavanger, Norway

Subject

To enhance the possibilities and raise the level and quality of e-learning for students.

Objectives

The main aim of the project was to develop a digital learning tool that would digitally support and complement the part-time nursing bachelor degree course.

Connection to Action Area

Enhancing E-skills – In spite of the fact that e-learning carries enormous benefits both for students and teachers, such as enabling self-regulated and informal learning regardless of place and time, allowing for new teaching practices, accommodating different learning styles, reducing training costs etc., it is still not widely used in education. The project is in line with the action “Member States to mainstream eLearning in national policies” of the Digital Agenda.

Primary Contact

The University of Stavanger initiated the project, and it was carried out by NettOp, the University’s department for development of digital learning tools in close cooperation with lecturers from the Institute for Health Studies of the university. It was in part funded by Norway Opening Universities¹.

Stakeholders

Part-time students and lecturers of the Institute for Health Studies are primarily impacted by the project.

Overview

The concept of the project was that by publishing a PDF document via Adobe Reader utilising the new advancements in Adobe InDesign² and Adobe Flash³ programs, a text-based document can be made, which also contains bespoke, media-rich interactive elements while at the same time also benefiting from all the navigational and text-based tools of Adobe Reader. In this way, an academic text can be combined with e-learning, sound and film to resemble an e-learning course and at the same time remaining a print-friendly, text-heavy document that is academically useful.

Methods Used

Choosing to make interactive PDFs as the digital tool made Adobe Reader the natural choice as the default presentation platform software to use. There was a relatively short time period available from the time the development started of the digital learning tool, to the time the first students started their studies, so an effective and smart working process needed to be found to produce the interactive content. The work process developed started with acquiring the basic manuscript from the lecturer, editing and at the same time generating the graphic elements, illustrations and sound recordings that would fit it. The latter would be added to the edited text in PDF format, followed by a quality control and testing. At the end of the process one has the PDF e-learning document, ready to be released to the VLE⁴/LMS⁵.

¹ Norway Opening Universities (NOU; Norgesuniversitetet) is not a university but a national political initiative, supported by the Norwegian government and the Ministry of Education and Research, for opening Norwegian colleges and universities in various ways, such as opening them to more flexible modes of teaching and learning by stimulating the creative and competent use of ICT or opening access to higher education.

² Adobe InDesign an application software created by Adobe Systems that offers graphic designing tools and can be used to create works such as posters, flyers, brochures, magazines, newspapers and books etc.

³ Adobe Flash is a multimedia platform used to add animation, video, and interactivity to web pages.

The University initiated the project in 2008, with the grant of the NOU giving it further momentum in 2009. The created documents have been used by students since 2009, with plans for the production and development of the digital learning to come to a close at the end of 2013.

Since production and development began, over 100 interactive PDFs have been created, containing almost 900 illustrations, videos, games or interactions. Approximately 3500 students have been affected by the project.

Adobe Reader can be downloaded free from the Adobe website; however, Adobe Flash Develop and Adobe InDesign though available as trial versions, should be bought in the long run. In addition to this, the working fee of developers has to be considered.

Mostly educational institutions – their lecturers and students – did benefit from the project. Also, having e-learning as an option may increase the attractiveness of the institution.

Having used Adobe Reader meant that developers gained a lot of ready-to-be-used functionality packed around their own content, without having to “reinvent the wheel” and attempt to program similar tools. An obstacle to overcome was the concern of lecturers that our product could be used to replace them. This could be dealt with by educating and coaching them through the process and explaining how this tool would only complement and assist their work.

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University of Nottingham was our partner in this project. Their main focus was to study the implementation of the interactive PDFs in the study programme. The first report, focusing on the students, is available. The second report, focusing on lecturers and project development will be available during 2012.



⁴ Virtual Learning Environment (VLS) is a web-based education system that imitates conventional real-world education by using a set of similar virtual concepts for homework, tests, classes, classrooms etc. See the note on the previous page.

⁵ Learning management system (LMS) is a software application for the administration, documentation, tracking, reporting and delivery of online education courses or training programs, that is able to distribute online college courses over the Internet with features for online collaboration. See the note on the previous page.

Time Scale

Evaluation

Cost

Replication

Lessons Learnt

Contact

Further Information

Title

**Usability and User Experience of
www.seniorenberatung-hannover.de**

Geographical Area

Hannover, Germany

Subject

To enhance quality of life of elderly citizens by increasing usability and user-friendliness of a website.

Objectives

To gain information about how citizens use the website and to measure user satisfaction.

Connection to Action Area

Enhancing E-skills – By studying senior citizens needs and preferences, websites can include more targeted information for them, thus enhancing a so far neglected age group's inclusion and digital knowledge.

Primary Contact

The study was conducted by the University of Applied Sciences, Hannover in cooperation with the Municipal Service Senior Citizens of Hannover (KSH).

Overview

The Municipal Service Senior Citizens of Hannover operates an information and advice portal for senior citizens on the Internet.

Methods Used

In order to make the website more user-friendly, 30 subjects were divided in two age groups whereas group one was between the age of 40 and 59 and group two- 60 years or older. Both groups were put to a three-step test:

Step one was to fill in a questionnaire to establish the subject's general knowledge of Internet, awareness and expectations of the portal, followed by examining subjects performing given tasks while using the website for the first time and finally having them fill in another questionnaire about user satisfaction of the portal.

In step two, non-contact eye-tracking instrument was used, a device that helps to identify the user's eye movements, their duration, and retention time etc. The study helped to define the most relevant information for the target group and their best possible placement as well, based on the subjects' eye movements while using the webpage.

The third step was to fill in a questionnaire to evaluate different criteria for performance and satisfaction.

The study was conducted in 2010.

The website was evaluated positive with an average rating of 3.5 on a scale of 1 to 5, over all requested categories. This is reflected in a high recommendation: 24 of 30 subjects would inform friends and family about the website. 21 would use the website in the future. Group two evaluated more critically than group one. Evaluation showed that the elderly liked the website even though they had more trouble during the tasks and needed more time to find what they were looking for.

Apart from the design, group two had more fun than the younger ones, they liked to discover the website, which has had a positive effect on the overall assessment of trend. Elements at the bottom of the page were often perceived below average, which was also due to a lack of scrolling down.

Older people have growing media literacy in computer and Internet. Most participants use the Internet at least several times a week, which shows a tight integration in the relevant media set.

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Time Scale

Evaluation

Lessons Learnt

Contact

Further Information

Title

Customer Contact Centres

Geographical Area

Karlstad (SE), Groningen (NL), Kortrijk (BE), Edinburgh (UK), Norfolk (UK)

Subject

Across Europe municipalities are facing a wide range of challenges as businesses and citizens demand better, more efficient and more flexible services. Municipalities are working hard to become more customer-driven, and to change how they deliver services to respond better to their customers' demands. This can be done by improving customer centres. The Smart Cities partners teamed up to see how they could do this best.

Objectives

Develop a strategic and practical approach to service improvement: how services are delivered and how they can be made better, based mainly on an intelligent channel strategy, an organised back office and change management.

Connection to Action Area

Enhancing E-skills

Primary Contact

Commonly started by all partners involved.

Stakeholders

Municipality back-offices, front-offices, citizens, communication teams.

Overview

Surveys taught us that:

- there was still a digital divide, 20% of respondents did not use Internet, citizens are used to online transactions
- municipalities needed to improve their online contact systems
- services needed to be marketed better and municipalities needed to develop a channel strategy

Methods Used

Crowdsourcing, peer review, co-design, large scale surveys, workshops, the Answer Model® i.e. a model on customer contact strategy, developing a municipal service list of products and services, the esd-toolkit which are standard lists of products, services, descriptions and process maps used by local authorities, I-Scan which is e-readiness assessment.

Time Scale

The set up was taking place during 2009-2011, the use is ongoing.

Evaluation

The city of Edinburgh Council customer contact centre now handles 1.5 million phone calls a year, and deals with complaints and enquiries from other service channels including the municipal website and email.

1777, the free central phone number in Kortrijk is being used to find information on the city council and all services offered. The number centralises all other information and contact centre numbers.

By bringing front and back office together, Groningen has encouraged all of their employees to learn from each other, to work together, and align their work activities so that the needs of customers always come first.

Varies according to the depth of integration of the contact centre services.

Smart Cities provided possibilities to exchange information and knowledge between partners. Contact centres have been developed based on regular budgets for service provisioning in the municipalities. Furthermore, cities like Kortrijk have made a contact centre just by moving internal budgets and resources.

Contact centres can be set up as the core of service delivery in very diverse environments. The methodology and channel strategy is general and can be implemented in small and big municipalities.

A channel strategy needs to be developed.

Developing more customer focused services starts with putting people first; it is them who are at the centre of customer services, not any IT solution. A big challenge will be the problem of change. The desire to improve services may be there, but all struggled with the internal changes that are necessary to create a truly effective customer contact centre.

The importance of a good ICT infrastructure should not be neglected. Thumbs up for standardisation and integration.

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www.smartcities.info/files/Creating%20

Cost

Replication

Lessons Learnt

Contact

**Further
Information**

Title

Travelling Exhibition to present Best Practice Instruments and Cooperation: Road Movie

Geographical Area

Bremen, Hamburg, Oldenburg, Groningen, Kortrijk, Newcastle, Gothenburg

Subject

To increase the awareness of the CCC, the partners, the regions, creative industries in NSR to the public. Contribution to transnational interchange of learning materials and best practice, promotion of transnational activities in creativity.

Objectives

Exhibit a group of films, which will constitute the centerpiece of the CCC Travelling Exhibition. These films could highlight the new economic assets of the CCC partner cities/regions such as modern architecture, infrastructure and new public, economic and cultural zones of interest. Particular emphasis will not only be given to the partners and the creative industries of the CCC Cities. The films produced will also present best practice instruments and cooperation developed during the project.

Connection to Action Area

Enhancing E-skills – The project contributes to inclusion by promoting the project CCC that aims to create competitive, innovation-based urban and regional economies in the North Sea Region with the help of ICT.

Primary Contact

WFB Bremen Economic Development Corp.

Stakeholders

The regions and creative industries in the North Sea Region, and partners within the CCC project.

Overview

One of CCC's tasks was the promotion of the project via innovative filming and the web. A professional film team, (www.dialog-pr.com), was going to produce five films and a mash-up about the participating cities, regions and their creative activities. The outcome is a Travelling Exhibition in the best sense of the word: not only films for each beneficiary and one mash-up have been produced, but also the journey to the various cities/partners has been documented in a Road Movie Diary to be seen on a blog – on our CCC website and of course on YouTube and Facebook.

At the Groningen Conference in September 2012 the produced films, one per city and region and one mash-up was presented to an international audience. Sustainability will be granted with providing the material via www.

Methods Used

Latest film technologies and professional agency briefing methods of project partners have been applied.

The end-product was delivered via a blog during recording process from April to July 2012. Three short films of best practice examples per each partner involved and a five-minute mash-up were presented to an international audience during the CCC final conference in Groningen on the 20 September 2012.

Dissemination of product: films and mash-up via the web ensures sustainability, global use and global inspiration, crossing the borders of North Sea Region.

The project was carried out during 2012. Sustainability is guaranteed as films are shown on the web until “end of time.” Partners and Best Practices involved can use films whenever they want as promotional material.

The films themselves – as the end-products of the project – can be considered indicators. A further indicator will be later on the number of hits on the web and use through partners.

Approximately € 12 000, staff costs are not included.

The project can be reproduced without limitations as a tool for dissemination and popularization.

The project’s success can mainly be owed to various meetings and obliging work in regard to project partners. Innovative and uncommon idea of presenting a European Project with latest film technologies.

When budgeting a “Travelling Exhibition”, be aware that costs for an exhibition e.g. for a museum, a minimum of € 50 000 is required. To make an exhibition also travel raises the costs enormously. Another obstacle was partners from Science and Local Governments who had problems with creative and marketing methods. However, these setbacks can be overcome by talking, presenting, modifying the project. Adopting the outcome and the exhibits to the available budget.

People from Creative Industries should be engaged as external experts during the application phase.

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Available on CCC Website: www.creative-city-challenge.net, films per partner and mash-up from September 2012 as well as media coverage.

Time Scale

Evaluation

Cost

Replication

Lessons Learnt

Contact

Further Information

Title

Creative Boost

Geographical Area

Dundee, Scotland

Subject

To increase the levels of enterprise and entrepreneurship skills amongst recent graduates from creative industries courses and new and aspirant SMEs in these sectors, thereby improving opportunities for employment.

It had been observed that self-accessible enterprise skills development materials, contextualised specifically for the creative industries were lacking. The project aims to develop online materials to address this deficit and pilot and assess their delivery.

Objectives

The outcome of the project was expected to increase levels of practical and applicable knowledge in developing business enterprise skills amongst recent graduates from creative industries courses and new and aspirant SMEs in these sectors.

It was expected that more opportunities for self-employment would be seen to be developed by course beneficiaries.

Once completed, the materials developed will be available for all through an on-line portal. Pilot delivery has been with recent graduates of creative industries degree courses, of mixed sex, age and background.

Connection to Action Area

Enhancing E-skills – Many of the pilot beneficiaries have reported increased levels of digital literacy and conversance with digital media.

ICT for Social Challenges – Through the web portal, materials will be available to all ICT-enabled individuals and institutions across the EU.

Primary Contact

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Stakeholders

Dundee College: www.dundeecollege.ac.uk

Creative and Cultural Skills: ccskills.org.uk

Cultural Enterprise Office: www.culturalenterpriseoffice.co.uk

Overview

The content of the study case has been some 250 hours of online learning developed for the course. Some 150 pilot beneficiaries have been used to assess and refine their usability and practicality.

Levels of employment in the creative industries by graduates in the creative industries five years after graduation were identified in a number of sector reports to be less than 20%. This was identified as particularly being the case amongst fine art and craft graduates. Early research highlighted a lack of self-accessible enterprise skills development materials contextualised specifically for the creative industries to promote greater entrepreneurship in these areas.

From focus group research, it was identified that open access online learning materials were the most appropriate to reach graduates at the various stages of their career development beyond graduation.

It was decided that open source (Moodle) and industry standards compliant (SCORM) authoring tools would be used to allow for the widest distribution and re-authoring.

Through the use of these approaches, materials can be accessed on demand and referred back to as graduates and SMEs find they need various levels and areas of support.

Initial research was carried out in November 2009 with the first pilot delivery programme running in June 2010. The programme continues to be developed for final open-access release in September 2012. The portal will be available for access until at least 2017.

The following quotes of feedback were expressed by the attendees regarding what they have learned at a Creative Boost Course:

- *Lots! I feel much more confident about starting my business. Will continue to dip into website from time to time as my business develops.*
- *I have learned what is involved in starting a business and what to focus on.*
- *To be more confident in myself so others can be, to plan properly, marketing, get a good elevator pitch, much more than I expected.*

€ 200,000.00

Through the use of open source and industry standards compliant materials, the project can be transferred and translated for local use across all regions amongst creative industries graduates and SMEs.

A key part of the success of delivery was working with the beneficiaries at the very early stages to establish the relevance of enterprise skills to their own career development. Mentoring and the use of live case studies went a long way to ensure engagement and 'buy-in' which was later used to develop online videos and synopsis across varying disciplines to promote the widest relevance.

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Methods Used

Time Scale

Evaluation

Cost

Replication

Lessons Learnt

Contact

Further Information

*Smart use of technology and
exploitation of information
will help us to address
the challenges facing society
like climate change and
the ageing population.*

Smart use of technology and exploitation of information will help us to address the challenges facing society like climate change and the ageing population. The digital society must be envisioned as a society with better outcomes for all. The deployment of ICT is becoming a critical element for delivering policy objectives like supporting an ageing society, climate change, reducing energy consumption, improving transportation efficiency and mobility, empowering patients and ensuring the inclusion of persons with disabilities.

Sustainable healthcare and ICT-based support for dignified and independent living.

The deployment of eHealth technologies in Europe can improve the quality of care, reduce medical costs and foster independent living, including in remote places. An essential condition for success is that these technologies incorporate the right of individuals to have their personal health information safely stored within a health-care system accessible online. The eHealth Lead Market Initiative will promote standardisation, interoperability testing and certification of electronic health records and equipment. New telemedicine services such as online medical consultations, improved emergency care and portable devices allowing monitoring the health condition of people suffering from chronic disease and disabilities have the potential to offer a freedom of movement that patients have never previously enjoyed. To exploit the full potential of new eHealth services, the EU needs to remove legal and organisational barriers, particularly those to pan-European interoperability, and strengthen cooperation among Member States.

ICT for Environment

The EU has committed to cut down its greenhouse gas emissions and to improve energy efficiency. The ICT sector has a key role to play in this challenge. ICT offers potential for a structural shift to less resource-intensive products and services, for energy savings in buildings and electricity networks, as well as for more efficient and less energy consuming intelligent transport systems. The ICT sector should lead the way by reporting its own progress on environmental performance.

Good Practices within Action Area 7

1. E-CLIC E-power to the People
2. E-CLIC Webcast Systems
3. E-CLIC Royal Dutch Visio

Action Area 7

ICT for Social Challenges

Digital technologies have enormous potential to benefit our everyday lives and tackle social challenges. The Digital Agenda 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.

Title

E-power to the People – a Driver for Cross-sector Regional Development in Europe

Geographical Area

Municipality of Örnsköldsvik, Västernorrland County, Sweden

Subject

The main aim is to raise the level of services for citizens and SMEs in sparsely populated areas (SPAs), offering a higher quality of life for the citizens and an enhanced attractiveness for the region. This goal can be achieved by simplifying necessary communication and interaction between citizens, companies and public authorities through innovative e-services. On a wider scale, the aim is to help SPAs avoid increasing population outflow, triggered by lack of proper services and products available in their close vicinity, with the help of ICT.

Objectives

The objective was to create an adaptable and scalable comprehensive e-service model to ensure and heighten individual and organizational participation, e-service literacy, citizen-authority dialogue, activity and flexibility especially in SPAs.

Connection to Action Area

ICT for Social Challenges – For sparsely populated areas ICT development can be the key instrument to remain populated and in connection with the “outer world”. Interestingly, since these areas are in desperate need of ICT developments, they may act as the trigger and starting point of the evolution of e-services.

Primary Contact

The project was funded by VINNOVA (the Swedish Governmental Agency for Innovation Systems), E-CLIC, a transnational project within the North Sea Region programme, the Municipality of Örnsköldsvik, the County Administrative Board of Västernorrland and the Association of Local Authorities in Västernorrland.

Stakeholders

- people, SMEs and public authorities living and operating in SPAs
- people living in SPAs but working outside the area
- people born in SPAs who no longer live there but still have roots (relatives, interests) in the area
- outsiders (tourists, visitors)

Overview

Living or running a business in remote or sparsely populated areas has both negative and positive impacts on everyday life and business. It also poses challenges to municipalities, county and governmental authorities. Access to health care, public transport, labour market, education and broadband are restricted, while on the other hand SPAs offer cheap housing, nearness to nature and less stress. The rapid spreading of the internet and mobile communication has offered new possibilities to live and work in remote regions. Sweden, due to the advanced IT-penetration among the population, is one of the early adapters of technology in the public sector, and offers a wide range of e-services, but has not been able to achieve the desired levels of e-government.

The project was targeted towards user-driven service development in a close collaboration between citizens, public authorities, municipalities, SMEs and R&D in the Municipality of Örnsköldsvik.

Using a combination of the citizen value model and the co-design process (see below) stakeholders were identified and invited to workshop activities, where common brainstorming led to ideas for improvement and served as input to prototyping and implementing developments.

As a result, an e-service model for sparsely populated areas was developed, containing work packages such as a virtual, online meeting place for the community (Innlandet - www.innlandet.se) containing information on and facilitating local, regional, national and global collaboration in various areas; the Future Village School, where students and teachers can work creatively together online; or a virtual mall – eMall, for SMEs that

contains an electronic market for service exchange, where customers can announce offers and set up deals with each other and a human broker expert-function, for marketing, successive upgrading, recruitment of SMEs for the eMall as well as customers.

Developing public e-services and other web based applications requires a methodology that could handle situations with a heterogeneous user group with different skills, experiences, needs, interests and with various technical conditions. In order to achieve this, a combination of the citizen value model and the co-design innovation methodology was used.

The citizen value model assumes that e-services are supposed to be of value for individual citizens, which means that information both from and about the targeted clients are needed to boost quality-driven, user-friendly development of e-services.

The co-design methodology is a four-step workshop activity for stakeholders, during which problems are pinpointed, followed by creating a future, ideal scenario, and then the means to reaching the ideal state are found, tested and implemented. Finally the implemented solutions are evaluated, which again leads back to the first stage of brainstorming for new ways to improve the now existing state – and the four-step cycle starts again.

The project has been running since October 2008. In 2011 the results transformed into a commercial activity – Innlandet AB owned by private companies and researchers. Also a new project eSPINN has developed from E-CLIC/ISSI results. This new project starting 2012 focuses on an ePilot concept – aiming at inspiring and supporting villages to build or upgrade existing communication infrastructure to high level capacity internet and smartphone availability and access.

The eMall involves today ten companies together with public services.

Companies pay a share of the turnover to the eMall.

The e-service model can be introduced in any community in a need to help connect people. Note that in order to be successful, internet and mobile phone communication capacity and penetration has to be advanced in the area.

It takes time and several meetings to gain the residents' confidence, and change all the participating stakeholder's attitudes which probably is the most important key factor on the way to success.

The protection of the local school was a key concern for residents. They play an important role in removing the artificial walls between schools, companies and public service, and enhance collaboration and openness.

Infrastructure for high-capacity data communication is indispensable for expanding the e-services model.

Another absolute condition for success is a close collaboration between private and public actors in an innovative PPP.

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A key factor for success is PERSEVERANCE. It is also important to work with people competent to bridge the gap between academia and business.



Methods Used

Time Scale

Evaluation

Cost

Replication

Lessons Learnt

Contact

Further Information

Title Webcast Systems

Geographical Area

University of Stavanger, Norway

Subject

To improve quality and level of education at the university by introducing new, cost-effective and less time-consuming digital tools. To find the most suitable webcast system in order to broaden the scope of e-learning.

Objectives

The installation of a webcast system – which makes the recording and publishing process automated – was expected to increase the number of recordings of e-learning materials due to their less expensive and time-consuming production. Webcast-technology also makes learning more flexible by making lectures available for on-demand viewing and making it easy to share content.

Target demography included both students and lecturers of the University.

Connection to Action Area

ICT for Social Challenges – E-Health, e-government and e-learning are the future. Using webcast systems in the classrooms is the only means by which ICT can contribute to a more cost-efficient and flexible education.

Primary Contact

University of Stavanger, Norway

Stakeholders

Both students and lecturers of the university were impacted by the project.

Overview

Since 2001, the University of Stavanger has produced lecture webcasts by combining video, audio and graphics. This method has required a lot of manual processing, recording, video, audio editing and publishing using Adobe Flash. The university was looking for the most suitable way to enhance e-learning by making it less costly and time-consuming. Several alternatives have been examined before Mediasite from Sonic Foundry has been evaluated as the system of choice¹.

Methods Used

First, an overview of available solutions for webcam systems was made, during which it became obvious that there is no open source solution available which meets the requirements. The candidates had to be able to support advanced features such as scheduling, remote control and automatic publishing. In a long research and evaluation process the scope was narrowed down to four possible commercial webcast system alternatives, scrutinized both from a technical and financial point of view. Aspects examined included: management of multiple recordings simultaneously and remotely, automatized recording and publishing capabilities, powerful editing capacities, playback and streaming capacities, available product support, flexibility of content

¹ Sonic Foundry is a developer of video management platforms founded in 1991, based in the US. Mediasite is their patented webcasting platform, which automates the capture, management, delivery, search and analytics of video lectures, online training, conference presentations and executive briefings. (For more information visit: www.sonicfoundry.com)

management, easy integrability with existing audio/video equipment etc. Based on the requirements, Mediasite turned out to have the most compelling mixture of the above mentioned.

The system was installed during summer 2009, and it was tested during autumn 2009.

The effectiveness of the system was tested during autumn 2009, in a series of recordings. Approximately 80 lectures from the mathematics course were recorded and published automatically.

Recorder appliances, server software and support boost the costs.

Using webcast systems does not necessarily need to be limited to classrooms. For instance SME can also benefit from its various features during video conferencing, online training, conference presentations etc.

Note, that choosing Mediasite the excellent product support in Norway played a significant role (compared to the other three alternatives). This aspect may vary among countries.

The same goes for costs: in this case expected requirements excluded open source alternatives (e.g.: Opencast), however you may find that one of these perfectly fits your own expectations.

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http://issuu.com/univers/docs/unviers_3-2010 (page 3)
www.ecampus.no/2010/06/23/med-blikk-pa-universitetet-i-stavanger/

Time Scale

Evaluation

Cost

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Lessons Learnt

Contact

**Further
Information**

Title

Royal Dutch Visio

Geographical Area

The Netherlands

Subject

To raise the level of e-services for the benefit of handicapped in order to enhance their quality of life.

Objectives

The main goal of the project was to improve the overall condition and stamina of the clients of Royal Dutch Visio¹, by motivating handicapped people through music and allowing agogues, i.e. leaders or trainers to assist more than one client at a time during physical training sessions with the help of an ICT-tool.

Connection to Action Area

ICT for Social Challenges – eHealth applications have a growing role in hospitals all over the EU. The project has contributed to this ideal by expanding the use of ICT-tools to a so far unmanaged market.

Primary Contact

The initiator was Royal Dutch Visio, while the implementers of the project were students of the School of Computer Science at the Hanze University of Applied Sciences in Groningen.

Stakeholders

Primarily, clients and agogues of Visio. On a wider scale the whole community and society is affected.

Overview

One of the activities offered by Royal Visio is assisting clients with training sessions to improve their condition. Obviously, agogues could only assist one client at a time, motivating them to exercise. The organization asked Hanze University to come up with an application that will allow agogues to assist multiple clients simultaneously. The application developed motivates clients to exercise on their own by playing their favourite music when they have an elevated heart rate. At the same time the application records the progress of heart rates of clients, and this data can be used to analyze the condition of clients and helps agogues to set up personalized training programmes for them.

When the application is started, the agogues can start measurement of the heart rate with just one additional touch of a button. The application starts playing music once the client's heartrate is elevated, while at the same time it also records data and sends it via WiFi to the database on a local server. One great feature of the application is the rendering of the heart rate data of clients into charts, which then can be exported to an excel file.

Methods Used

The ingenuity of the system does not lie in its complexity, but in the creativity of the idea. The application developed is simple and user-friendly and does not require complicated technical devices. The only tools needed are a smartphone with android operating system, a Bluetooth heart rate monitor, WiFi and a laptop or server running the database.

However, due to lack of the Bluetooth protocol of the heart rate measurement devices, the application has only been tested with a simulator.

Time Scale

The project started in April 2011 and will be finished before December 2012. As of future developments, modifying the devices to measure distance as well as heart rates

¹ Royal Visio is the National Foundation for the Visually Impaired and Blind in the Netherlands established in 1895. It is a non-profit organization that provides help for the blind and visually impaired in every aspect of their lives (health care, education, training, rehabilitation, everyday activities etc.). For more information visit: www.visio.org (for information in English, choose "International" in the menu)

would make a nice addition to the current application, since these combined data could give a better overall picture of the condition of the client.

The application has been tested in real life and on actual clients. Heart rate is one of the indicators of the intensity of the effort during a training session. In a follow up study other indicators will be investigated too, to improve the reaction time between changes in the effort and the music. This will be effectuated in a follow up study by putting a magnetic sensor on the cardio equipment. And implementing this new sensor into the current system.

Having a university as a developing partner, where students can see the assignment as a good way to practice, can reduce the costs drastically. The cost for hardware and modifications to existing materials are more or less € 5000. The costs for support of students are about € 20.000.

The application was developed with a very specific goal in mind i.e. for the benefit of the visually impaired, however, it can also be utilized for instance in health care in the case of people with heart or obesity problems.

A key success factor of the project was that it stemmed from a real, valid need articulated by the procurer (Royal Dutch Visio).

The project could not be put to real test due to lack of access to protocol of heart rate monitors.

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Wouter Lamers (Human Technology)

Jelmer Schaaf (Physiotherapy)

Case studies and reports from the transnational project E-CLIC, WP 3

www.e-clic.eu/case-studies-and-reports/

Thesis on published case study.

[hwww.hanze.nl/NR/rdonlyres/3A38BE87-AA2A-4AE2-9F1A-D9B2008D3067/0/](http://hwww.hanze.nl/NR/rdonlyres/3A38BE87-AA2A-4AE2-9F1A-D9B2008D3067/0/Measuringphysicalfitnessscherm.pdf)

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Hanze
University of Applied Sciences
Groningen

Evaluation

Cost

Replication

Lessons Learnt

Contact

Further Information

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