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The Smarter Care guidebook

(a true story based on the City of Bolzano project "Abitare sicuri/Sicheres wohnen" delivery)

Release 1.1/July 2011

Quote

“Uncertainty about the role and relative value of ICT-based solutions in meeting the needs of older people is perhaps the biggest barrier at present.

For some observers and practitioners the case for widespread deployment of ICT-based products and services to support independent living and homecare is 'self-evident' on the basis of their apparent functionality and utility value.

Others take a much more circumspect and critical view on this, and raise concerns about how far technology-based solutions can really contribute to meeting the essentially human needs of older people and fitting withthe types of human services that have traditionally serviced these needs”.

Source: ICT & Ageing, European Study on Users, Markets and Technologies, Final report , January 2010 www.ict-ageing.eu

Quote

“Sir, What is the secret of your success?”
a reporter once asked a bank president

“Two words.”

“And, sir, what are they?”

“Right decisions.”

“And how do you make right decisions?”

“One word.”

“Ah, and, sir, what is that?”

“Experience”

Purpose of this document

This document describes in detail the Bolzano's "abitare sicuri/sicheres whonen" project. The project touches several crucial points in the aging population care and support landscape: from ICT to ethic, from coaching to loneliness, from digital divide to on-field resources management and training.

The project aims to answer the question if telecare and more in general the upcoming digital technologies can leverage a better sense of care, enhancing human relations, involving users and caregivers and creating a sustainable business model for the local public administration.

The project is an end-end one, so that all the touch points in introducing a smart care system inside a community have been faced, addressed and played.

Due to this large and heterogeneous scenario, instead of simply provide a simple feedback report document, we decided - according with the Bolzano City Hall - to build up a sort of "guidebook" tilted on the project to allow other organizations to take advantage of one of the most updated project on care.

The subject is wide, deep and supported by a large literature so, instead to report wide benchmarkings (by the way easily available through some main sources attached in this document) we focused on the real main trends which affected our project mirrored on the real experience we made on the field on order to:

- frame the global scenario and bring things from theory to practice;
- provide clear and useful recommendations on how-to-do in order to introduce a next generation of smarter care facing the mobile revolution;
- build sustainable business models supported by a real business case "to-be", strongly based on the 6 months pilot period but not forgetting the 18° months full project cycle, from engagement to outcome data analysis.
- Overcome the (necessary) pilot phase to design a go-to way to apply it.

Executive summary

Executive summary

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D.Ssa Michela Trentini

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D.Ssa Maria Cristina Davare

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Ing. Stefano Seppi

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Prof. Alberto March

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Dr. Achim Hein

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Dr. Wilfredo ferre

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Dr. Nicola Palmarini

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Dr. Bharat Bedi, Master Inventor

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Dr. Stephen Nicholas

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Dr. Adrian Lee

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Picture of players

Partner del progetto / Projektpartner:

Città di Bolzano
Stadt Bozen

ASSB·BSB
Azienda Servizi Sociali di Bolzano
Betrieb für Sozialdienste Bozen

Südtiroler Sanitätsbetrieb
Azienda Sanitaria dell'Alto Adige
Azienda Sanitaria de Südtirol

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Stiftung Südtiroler Sparkasse
Fondazione Cassa di Risparmio

con il supporto di / durch das Engagement von:

EUROTECH

HUAWEI

Role of players

Città di Bolzano
Stadt Bozen

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Role of players

IBM

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HUAWEI

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agenda overview

chapter 1
introduction

"The reasons behind the project: demographic trends, care & budgeting"

World population structure change

The ageing of the population today is without parallel in the history of humanity. Increases in the proportions of older persons (60 or older) are being accompanied by declines in the proportions of the young (under age 15).

By 2050, the number of older persons in the world will exceed the number of young for the first time in the history of mankind. You may not have noticed, but this historic reversal in relative proportions of young and old took place by 1998 in the more developed regions.

→In parallel, the number of people aged 55 and over will grow by 15.5% between 2010 and 2030,

→The number of elderly people aged 65-79 will increase significantly after 2010 and until around 2030 (+ 37.4%).

→ever-rising number of very elderly persons (80+): +57.1% between 2010 and 2030.

Demographic trends: generic consideration

Population ageing is already having major consequences and implications in all areas of day-to-day human life, and it will continue to do so.

In the economic area, population ageing will affect economic growth, savings, investment and consumption, labour markets, pensions, taxation and the transfers of wealth, property and care from one generation to another. Population ageing will continue to affect health and health care, family composition and living arrangements, housing and migration.

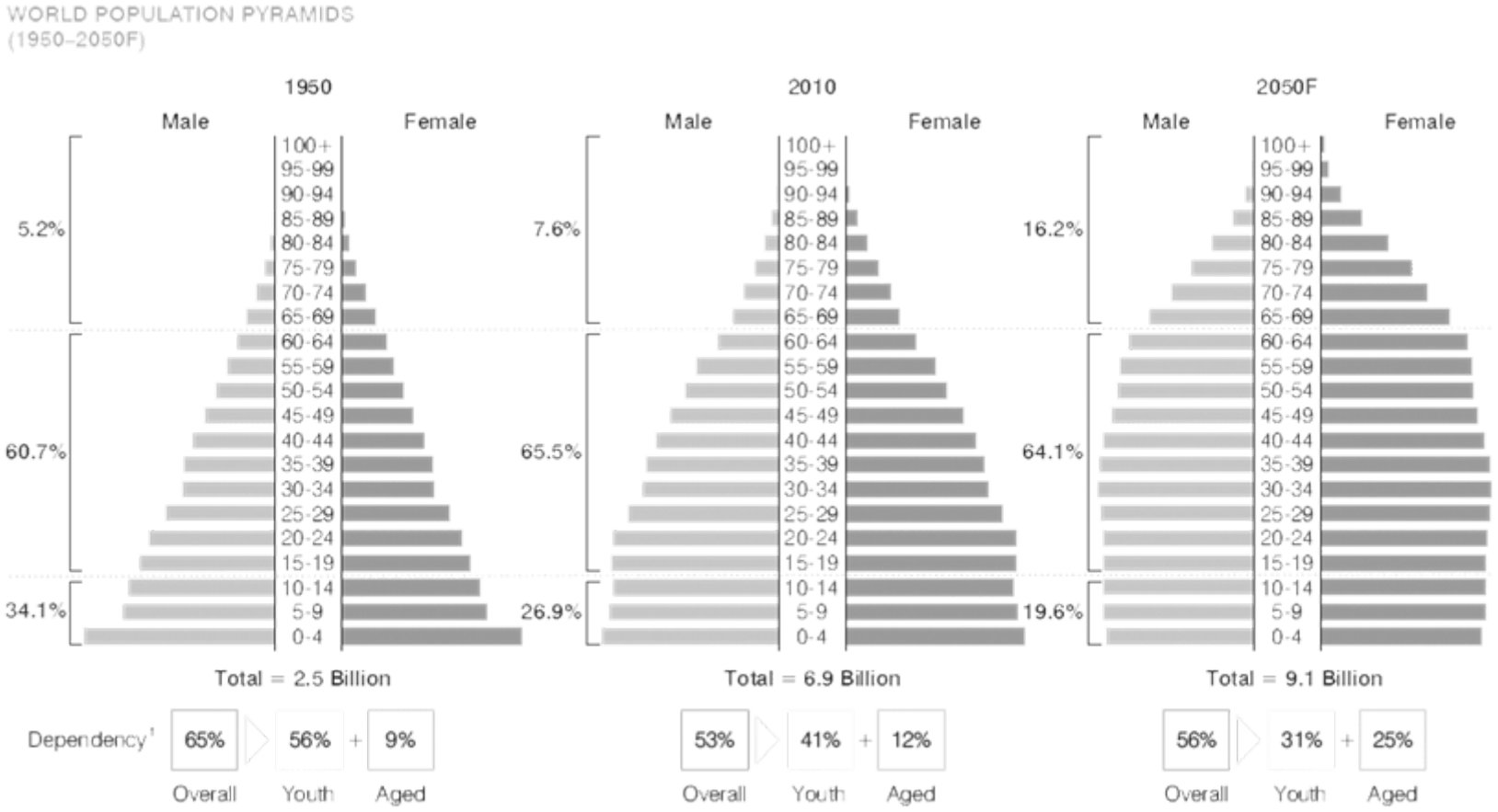
Did you know?
In the political arena, population ageing has already produced a powerful voice in developed countries, as it can influence voting patterns and representation. Older voters usually read, watch the news, educate themselves about the issues, and they vote in much higher percentages than any other age group.

Please have a look at

http://www.timegoesby.net/

http://www.startribune.com/lifestyle/126580303.html

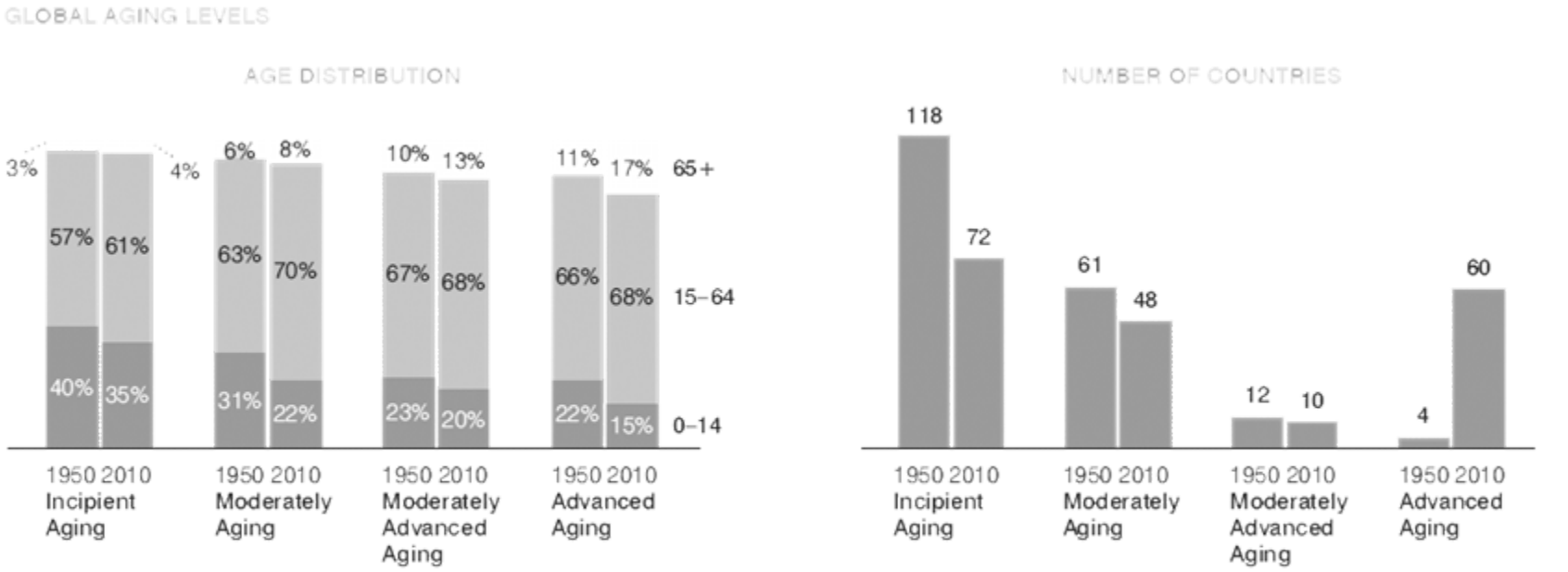
The Dependent Population Is Growing, with the Aged Representing a Greater Majority



¹ Overall dependency is defined as the sum of the youth and aged dependencies. Youth dependency is the ratio of youth (0–14) to working-age population (15–64), and aged dependency is the ratio of aged (65–) to working-age population.
Source: UN Population Division, "World Population Prospects: The 2008 Revision"; Booz & Company analysis

Source: New demographics shaping a prosperous future as countries age, Booz&Co, 2011

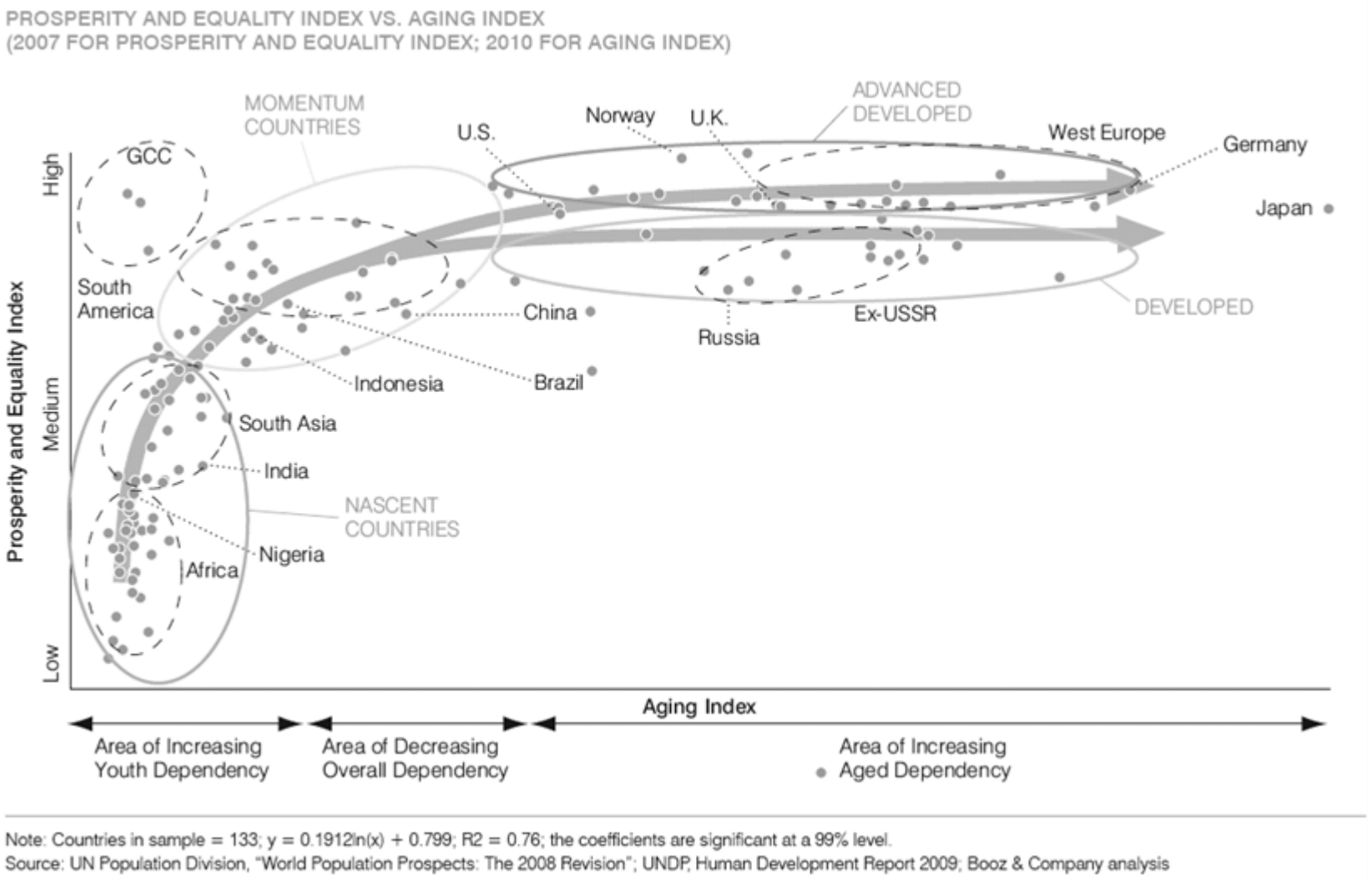
The Number of Incipient Aging Countries Is Shrinking, While Advanced Aging Countries Are on the Rise



Note: A population's aging level can be classified based on the ratio of aged dependency to youth dependency as Advanced Aging (with a ratio of >0.7), Moderately Advanced Aging (with a ratio of 0.5–0.7), Moderately Aging (with a ratio of 0.2–0.5), or Incipient Aging (with a ratio of <0.2).
Source: UN Population Division, "World Population Prospects: The 2008 Revision"; Booz & Company analysis

Source: New demographics shaping a prosperous future as countries age, Booz&Co, 2011

All Countries Are Currently Somewhere Along the Arc of Growth



Note: Countries in sample = 133; y = 0.1912ln(x) + 0.799; R2 = 0.76; the coefficients are significant at a 99% level.
Source: UN Population Division, "World Population Prospects: The 2008 Revision"; UNDP, Human Development Report 2009; Booz & Company analysis

Source: New demographics shaping a prosperous future as countries age, Booz&Co, 2011

The Bolzano demographic picture

As of 31.12.2006 were resident in the province of Bolzano 82,492 elderly, ie aged 65 years and older, a percentage of 17.0% compared to the resident population. It is estimated that in 2020 the percentage of people over 64 years will be almost 20%. On 31.12.2006 were enrolled in the register of the municipalities in the province of Bolzano79,735 2,757 elderly in the family and in cohabitation (eg, nursing homes etc.).. Totalmunicipal population registers in the province of Bolzano have registered 60,126 familieswith at least one component or more than 65 years, the total number of households, up31.1%.

The higher prevalence among the married man and woman among widowers easilyglimpse of what the family types that characterize the elderly. "

Popolazione anziana per classi di età, stato civile e sesso - 2006
Composizione percentuale

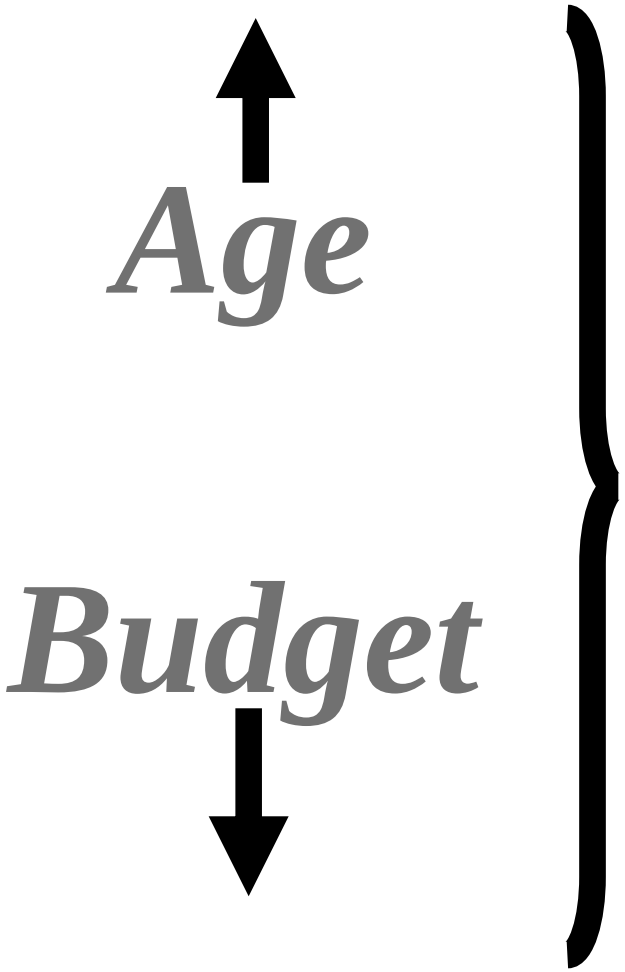
ALTER (Jahre)	Männer / Maschi				Frauen / Femmine				ETÀ (anni)
	Ledig Celibe	Verheiratet (a) Coniugato (a)	Verwitwet Vedovo	Geschieden Divorziato	Ledig Nubile	Verheiratet (a) Coniugata (a)	Verwitwet Vedova	Geschieden Divorziata	
65-69	10,7	82,4	4,6	2,3	9,7	65,9	21,7	2,8	65-69
70-74	10,6	80,5	7,3	1,6	12,0	51,5	34,8	1,7	70-74
75-79	9,7	78,0	11,3	1,0	13,2	36,7	48,8	1,3	75-79
80 und mehr	9,2	67,1	22,7	1,0	15,0	15,4	68,5	1,0	80 e più
Insgesamt	**10,2**	**77,9**	**10,3**	**1,6**	**12,5**	**41,3**	**44,5**	**1,7**	**Totale**

(a) Einschließlich der gesetzlich getrennten Personen / Compresi i separati legalmente

Quelle: ASTAT Fonte: ASTAT

Source: Ältere Menschen in Südtirol – 2006 Gli anziani in provincia di Bolzano – 2006", Istituto provinciale di statistica

The Bolzano pain points based on aging growth



Pain 1: growth of a “healthy” aged community

Today residents people in Bolzano over **75 years of age are 22,5% This data will grow double digit in the next 10 years** with a peculiarity: due to modern cure methods most of this population will be healthy, so the point is: how to take care of a growing mass of users?

Pain 2: few budget and resources

The City budget supposedly will remain the same. This means that in the ***next 10 years the city administration*** will have lesser resources to count on, this means to reshape budgeting and priorites.

Pain 3: maintain a quality of services

At the same time, the same amount of local operators will have to care about more people with new requestes. This is due to the fact that an average healty person could suffer of side deseases like ***light dementia or pre-alzheimer or light cardiac*** pathologies. Furthermore, people will suffer from a pathology with no cure in the contemporary medical prescriptions: **loneliness**.

Pain 4: extend services without extending the costs

Is finally sustainable a figure in which as the resources remain the same is also possible to extend the number of assisted population?

Other complexity factors on the field

Complexity factor 1: language

lorem

Complexity factor 2: digital divide

lorem

Complexity factor 3: geographic landscape

lorem

Complexity factor 4: number of actors

Bolzano as a global trend: a challenge for more than one city

For Europe and many other countries around the world, the ongoing demographic development has significant socio-economic implications: in the future, there will be more older people in absolute as well as relative terms; there will be considerably more very old people and thus likely to be in need of greater levels of support; there will be fewer family carers providing informal support; and there will be a smaller productive workforce to contribute to the creation of economic wealth in general and to the financing of health and social services in particular.

During recent years, the social and economic challenges connected to these developments have received increasing policy attention, and the potential offered by Information and Communication Technologies (ICT) to provide new solutions has begun to receive a lot of attention.

The Bolzano pain points

- **growth of a "healthy" aged community**
- **few budget and resources**
- **maintain a quality of services**
- **extend services without extending the costs**
- **language**
- **digital divide**
- **geographic landscape**

All these elements are systematic and mainly location-independent

Is technology a mean to address solutions in the long term?

ICTs are seen to present an opportunity for a ‘win-win-win’ outcome, wherebycneeds of older people are met in a high quality manner, the costs of providing care and support are maintained at manageable levels for society, and new market opportunities open up for ICT-based products and services.

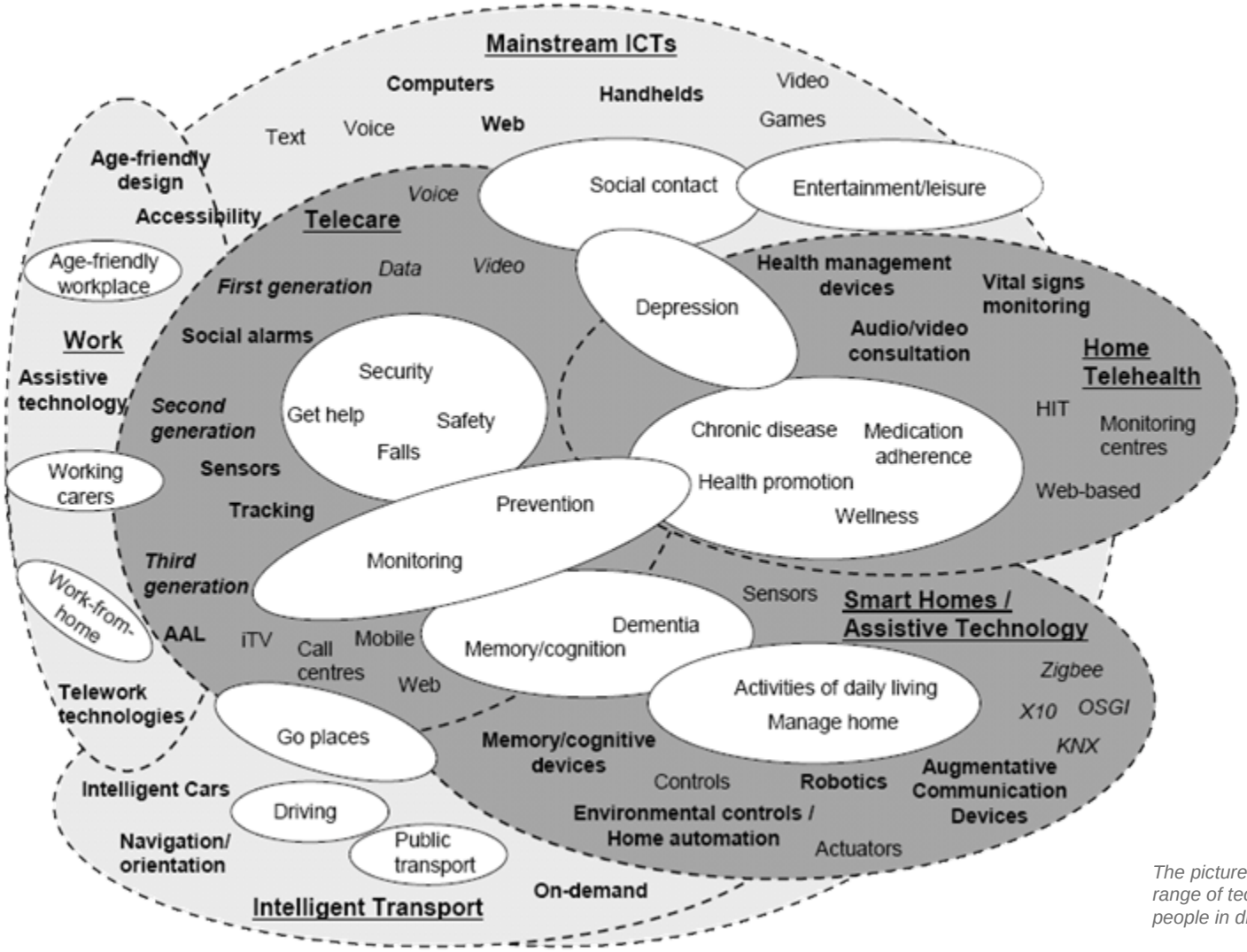
However, as highlighted in the EU Commission’s action plan, “the market of ICT for ageing well in the information society is still in its nascent phase, and does not yet fully ensure the availability and take-up of the necessary ICT-enabled solutions” (COM((2007)) 332 final, p.3).

The potential offered by technology also extends to other domains, including more general social inclusion of older people in everyday social life and support for active ageing in the context of work/employment.

But technology is not enough.

Source: ICT & Ageing, European Study on Users, Markets and Technologies, Final report , January 2010 www.ict-ageing.eu

Spectrum of needs and technologies

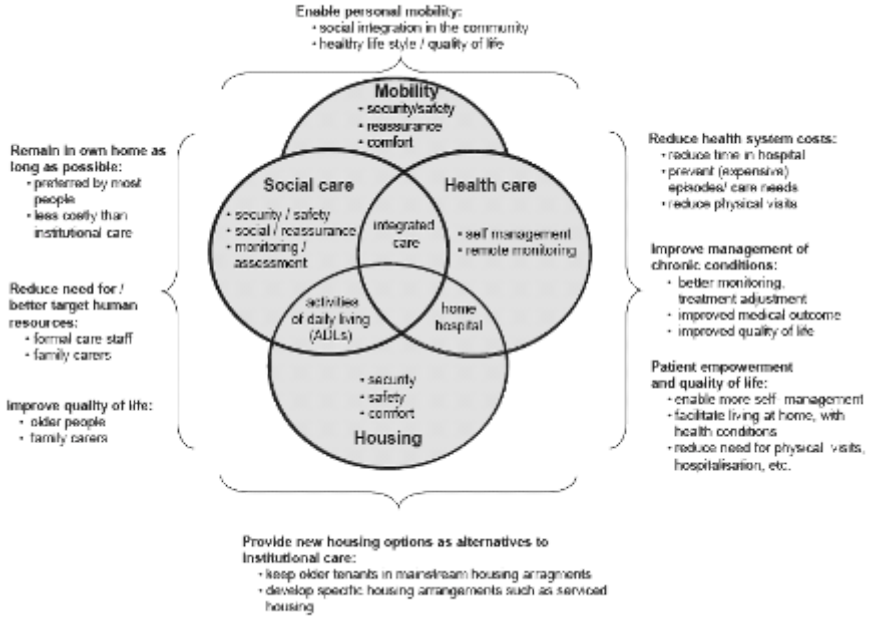


The picture presents an overview of the broad range of technologies that can help support older people in different aspects of life.

Source: ICT & Ageing, European Study on Users, Markets and Technologies, Final report , January 2010 www.ict-ageing.eu

The actual care picture framed in core needs

To be completed



Source: ICT & Ageing, European Study on Users, Markets and Technologies, Final report , January 2010 www.ict-ageing.eu

Fundamentals of Smarter Care: telecare

Telecare is the remote monitoring of real time emergencies and changes in the lives of individuals with care and support needs in order to manage the potential risks associated with independent living. Telecare consists of various sensors placed around the home linked to a system that allows the user to be supported by an external monitoring centre, with further links through to health and social care professionals, and other support services.

Uniquely among care and support interventions, telecare can prevent or delay both the need for care, and the financial and personal costs of care provision:

→Telecare can prevent or delay the need for more complex interventions or deterioration in a person's condition;

→Telecare can be a more cost effective option for meeting care needs, potentially reducing the need for formal care;

→Telecare can also reduce the burden on informal carers.

→Telecare has also been shown to improve the quality of life of users, providing reassurance and peace of mind.

Source: Telecare Ready: Creating a universal entitlement to telecare, James Lloyd, June 2011, www.strategicsociety.org.uk

Telecare, more than devices: the philosophy of dignity

Telecare comprises **more than simply sensor devices placed in a person's home**. It is the remote monitoring service that uses data collected by these sensors that enables successful interventions, whether involving health and social care professionals, social workers or family members.

The effectiveness of telecare therefore relies not just on the sensors in a person's home, but also the quality of the remote monitoring, how information is sifted and processed, and how this is integrated with health and social care services, and informal care provision.

For individuals, telecare support may enhance dignity and independence as it reduces the need for people to be "checked on" by family and care workers.

The UK Department of Health has noted that **telecare is "as much about the philosophy of dignity and independence as it is about equipment and services**

Dif you know?

A survey of telecare users carried out for the Scottish Government found that around 60% felt that their current quality of life was either "a bit better than it used to be", or "much better than it used to be" compared with the situation before their telecare service was installed. Around one third reported that quality of life was "about the same" and less than 5% said that their quality of life was "worse than it used to be".

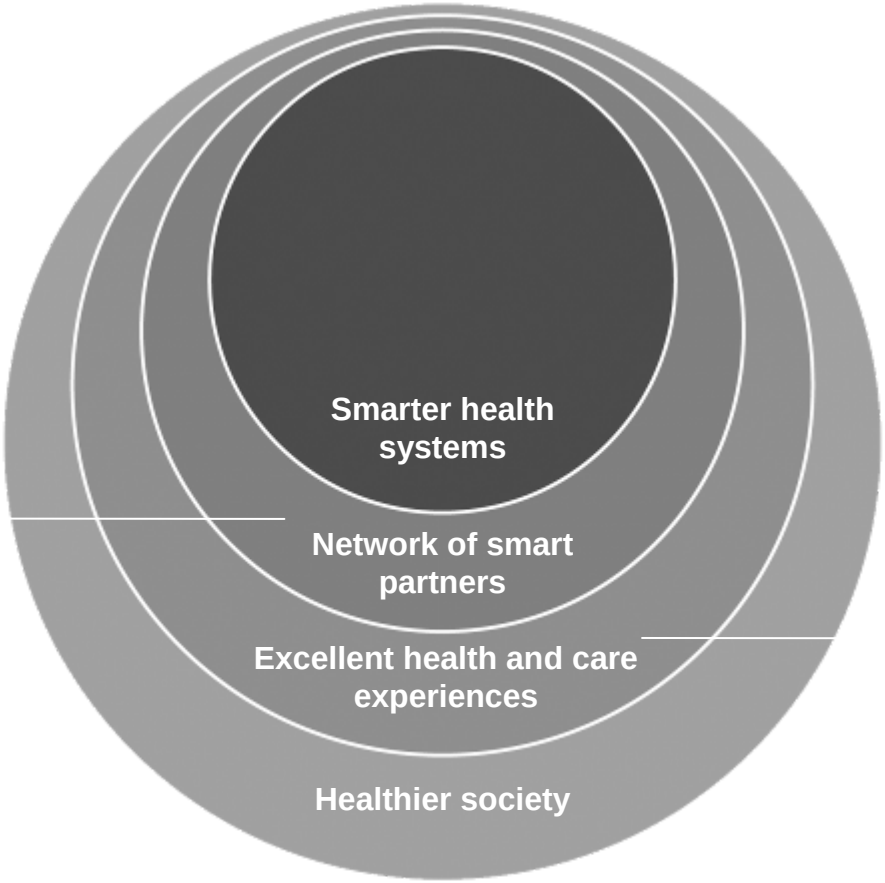
Source: Telecare Ready: Creating a universal entitlement to telecare, James Lloyd, June 2011, www.strategicsociety.org.uk

chapter 2
towards a “smarter care”

“a blend of mobility, telecare, social care and smart buildings with people in the center”

A smarter health&care system forges partnerships in order to deliver better care, predict and prevent disease and empower individuals to make smarter choices.

- Hospitals
- Clinics
- Academic centers
- Public/private insurance
- Pharmaceuticals
- Individuals
- Employers
- Public health
- Government



- Optimal patient care
→Individual wellness
- Cost savings
- Increased efficiency
- Patient education
- Performance measurement
→Enhanced communication
→Prevention

The way to Smarter Care, starting from people

While designing a conteporary and sustainable solution togheter with the team of the City of Bolzano it come out quite clearly to all of us that a traditonal approach to address and solve vertical needs was insufficent.

Focusing on user profiles and needs and matching them with the City pain points it was quite clear that the approach had to be horganic, systemic, far wider than related to a simple technological issue and affecting different layers of the administration.

Care projects are multidimentional while related to one main complex dimension: people.

In this type of projects people have to be seen from four main perspectives:

1) ***The person who need care***
2) ***The person who give care***
3) ***The person related to the one who need care***
4) ***The broad audience***

See detail in chapter 3&4

Humans are complex

Human needs are complex are not necessarily easily met through simple ‘technological fixes’; provision of human services (social and health) involve many ingredients, only some of which can be supported by the types of functionality provided by technology. There is the risk that too much technology push’ might result in inappropriate application and negative outcomes, to the detriment of those immediately concerned as well as to the longer-term prospects for the market. On the other hand, there may be a continuing tendency for some social care professionals to be overly negative towards the application of technology in human services, delaying or blocking innovations that can provide truly positive benefits for older people and their carers.

Putting people at the center shape the scenario

This clearly address the solution in an “holystic” approach where dimensions are:

- ***Awaring the community***
- ***Assessing the physical environment***
- ***Training to the full panel of people involved (see before)***
- ***Technology (which is related to telecare, mobility, building)***
- ***Running up maintenance and management***
- ***Continuing caring***

- ***Awaring the community***
  lorem ipsum dolor
- ***Assessing the physical environment***
  lorem ipsum dolor
- ***Training to the full panel of people involved (see before)***
  lorem ipsum dolor
- ***Technology (which is related to telecare, mobility, building)***
  lorem ipsum dolor
- ***Running up maintenance and management***
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- ***Continuing caring***
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The way to Smarter Care, an holystic approach

Although the market is still in its early stages it may be that quite separate markets for telecare, home telehealth and smart homes/assistive technologies are likely to persist for some time to come in many countries. There will be a need for a lot more exploration and development of integrated models of social, health and housing provision before integrated ICT-based services can be implemented. It may also prove to be the case that the needs of many people will be quite well met in such a demarcated service provision and market environment.

For example, many more older people will develop chronic diseases (and thus potentially need/be interested in home telehealth) than will be likely to need/accept social care services like telecare (as far as can be projected from current take-up rates for social alarms, for example).

On the other hand, closer integration of telecare and smart home/assistive technology markets may be more promising. Already there is considerable overlap/integration of such services in some countries (assistive technologies being provided by the social care system, for example).

There is also the logical overlap, in the sense that smart homes systems incorporate many of the elements of telecare, with the only difference being the local area networking of smart homes and the wide area networking of telecare.

Another important dimension here is the evolving concept of 'housing-with-care', where dedicated housing (sheltered housing or service flats) for older people is increasingly being viewed as a focal point for integrated delivery of social (and sometimes health) care. This sector is already proving to be a lead market for telecare and/or smart home/assistive technologies and, as will be discussed in section 3.2.3, is a potentially very sizable market in many European countries.

Source: ICT & Ageing, European Study on Users, Markets and Technologies, Final report , January 2010 www.ict-ageing.eu

The way to Smarter Care, keywords

Separate the 'hype' from the reality

On the surface, at least, many of the innovations in this field appear, 'self-evidently', to have a high utility value for meeting the needs of older people and of the ageing society more generally. This can sometimes lead to a tendency to see the problem as one of only needing to spread the message in order for widespread deployment and market development to take-off.

The reality, in fact, seems quite different - even in countries where there has long been awareness of what ICTs can offer and a high receptiveness towards ICTs, full embedding and mainstreaming of existing products and services has often been slow. This raises the question of whether the apparently 'self-evident' utility value is in fact always really the

case

Ethic

There are also a variety of ethical concerns that have important relevance for deployment and market

development in this field and the ethical dimension must be given a high importance on the policy

agenda.

Ethical considerations arise not just at the level of individual technology installations (where issues of personal privacy, dignity, consent and so on are paramount) but also at the more macro level of steering and shaping developments in the 'win-win-win' space, so that all interests are properly addressed.

Source: ICT & Ageing, European Study on Users, Markets and Technologies, Final report , January 2010 www.ict-ageing.eu

The way to Smarter Care, keywords

Mobility

The technological focus of the Bolzano project is mainly on applications that have particular relevance for the services that can support independent living and homecare for older people.

Although needs of older people in this domain are very heterogeneous, they can be grouped in a manner that maps loosely to the three main ‘market’ segments that typically structure the service delivery landscape in Europe – social care, health care and housing.

A new, cross-cutting element that is, at least in principle, enabled by technological developments concerns provision of services and supports on a mobile basis both to end users and caregivers.

Budgeting

The EU has a key role to play in helping the emergence of an appropriate path, guided by the

fundamental tenets of the European 'social model'.

Finally, and crucially, the development of EU policy in this field needs to be based on a good understanding of the reality of the current situation across the Member States. Interesting, successful and/or highly publicised innovations and initiatives tend to gain a lot of attention, but may not necessarily reflect the realities on the ground as regards incorporation of ICTs for ageing well within the mainstream health and social care services across Europe. Appropriate and effective EU policy needs to be underpinned by a solid benchmark appraisal of the current situation, and the current study is expected to provide an important contribution in this regard.

Source: ICT & Ageing, European Study on Users, Markets and Technologies, Final report , January 2010 www.ict-ageing.eu

The way to Smarter Care, keywords

Training

To be completed

Involving

To be completed

Smarter Care, drivers vs. inhibitors

DRIVERS

GLOBALIZATION
Global competition limiting care spend

CONSUMERISM
More knowledgeable, demanding citizens

CHANGING DEMOGRAPHICS AND LIFESTYLES
Aging and overweight populations

DISEASES THAT ARE MORE EXPENSIVE TO TREAT
Increased prevalence of chronic conditions around the world

NEW TECHNOLOGIES/TREATMENTS
Advances revolutionizing risk assessment, diagnosis, and treatments

INHIBITORS

FINANCIAL CONSTRAINTS
Pool of funds for healthcare is not limitless

SOCIETAL EXPECTATIONS/NORMS
Is a service a “societal right” or market service?

LACK OF ALIGNED INCENTIVES
No or little incentives to collaborate, transform

Resistance to change among professionals and users

technological developments in the nature of telecare

chapter 3
The project “abitare sicuri”

Target in scope

- **The project is aimed at:**
  - the elderly living at home and not in need of continued assistance;
  - the relatives of the elderly people who want to know their loved ones are safe at home.

- **The target group is a sample of 30 elderly people of which:**
  - 15 have been equipped with a touch screen based tele-monitoring and tele-care service in their homes called "Evoline":
  - the other 15 have been provided with a tele-monitoring and mobile tele-assistance service.

- All 30 homes are being equipped with an air quality and environment monitoring system.

3.1 Users and users needs

"The target: from 65+ with just a lot need for personal care"

3.2 Scenario, the actors on the field

“Caretakers, social services,voulounteers”

3.3 Comunicating the project

“vox populi”

Marketing collaterals

Video

http://vimeo.com/15419994
http://vimeo.com/15402020

3.4
Involving the target

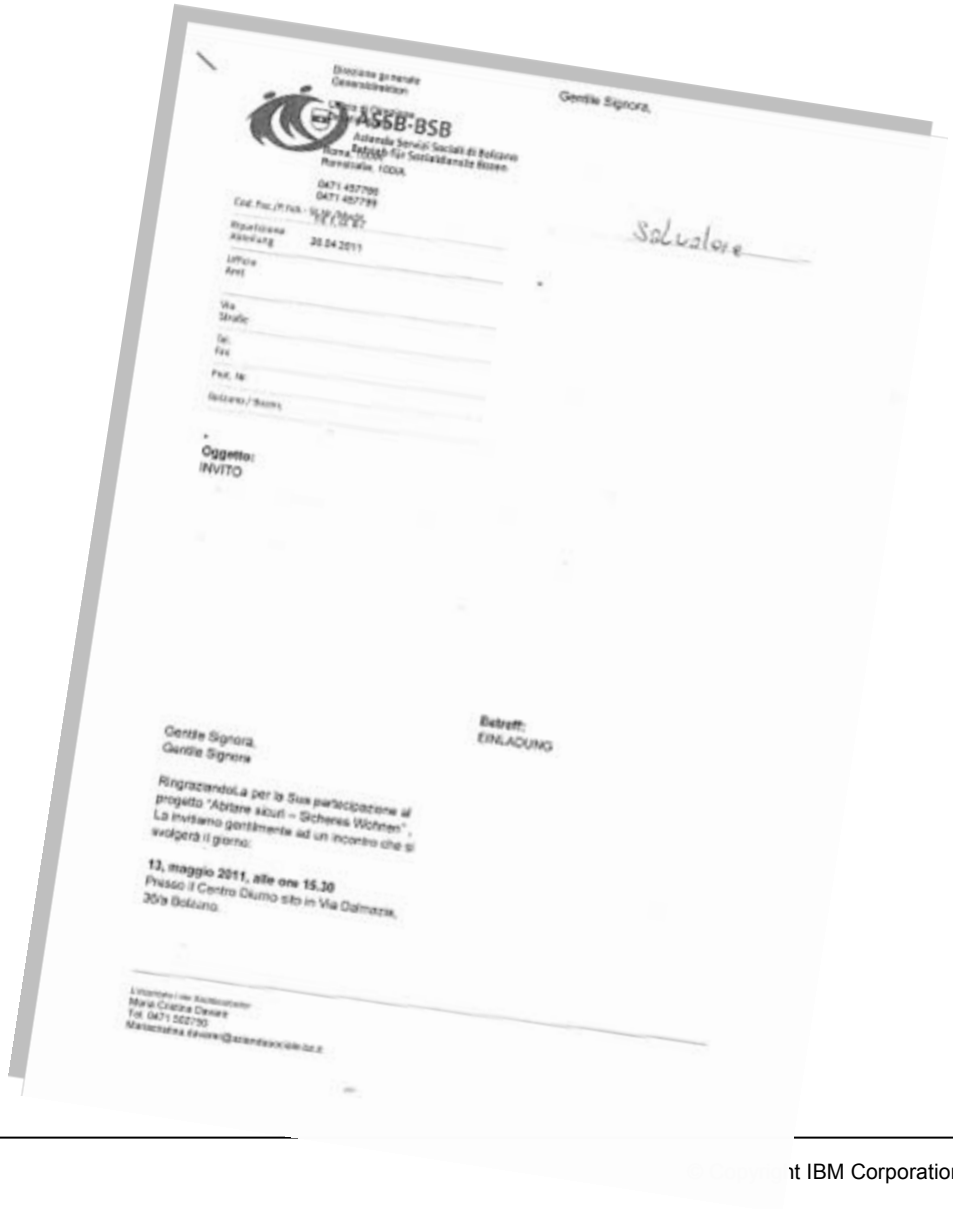
Be part of the game, explain, play, interact

Recruiting the users presso via Vinkler





Outcome/Educating on pain identification and lifestyle

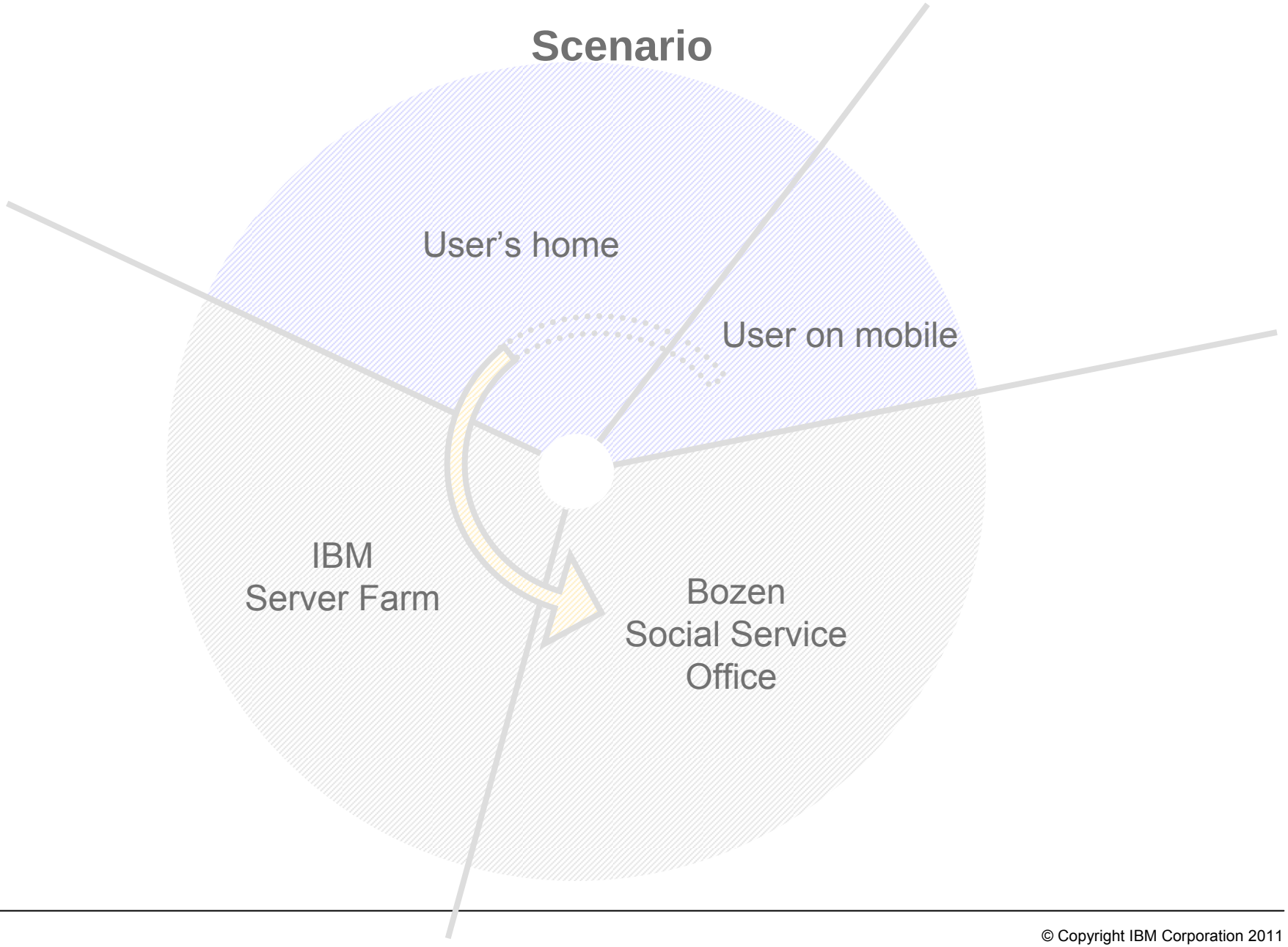


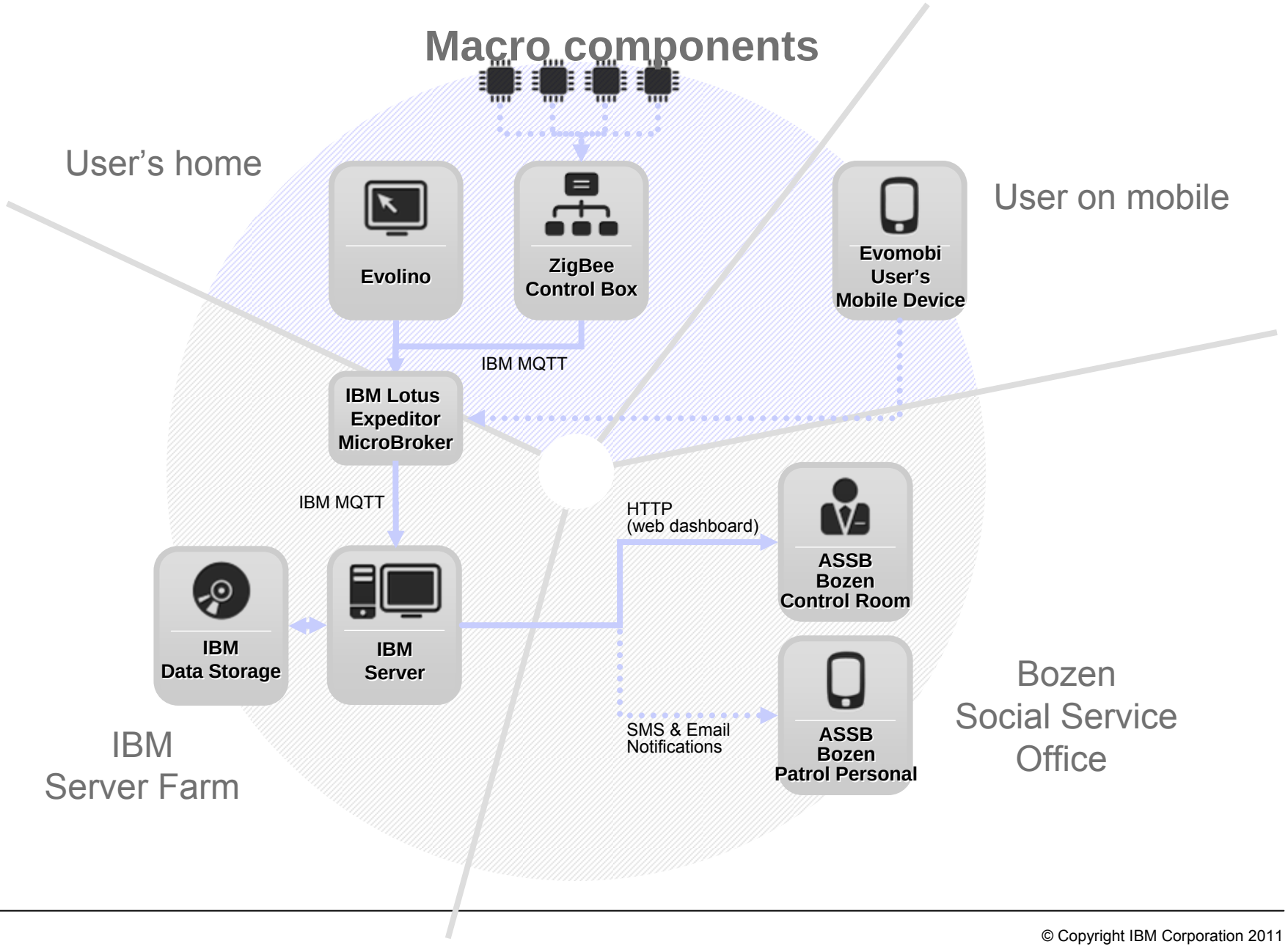
3.5 functionalities: monitoring

3.6 functionalities:improving ability

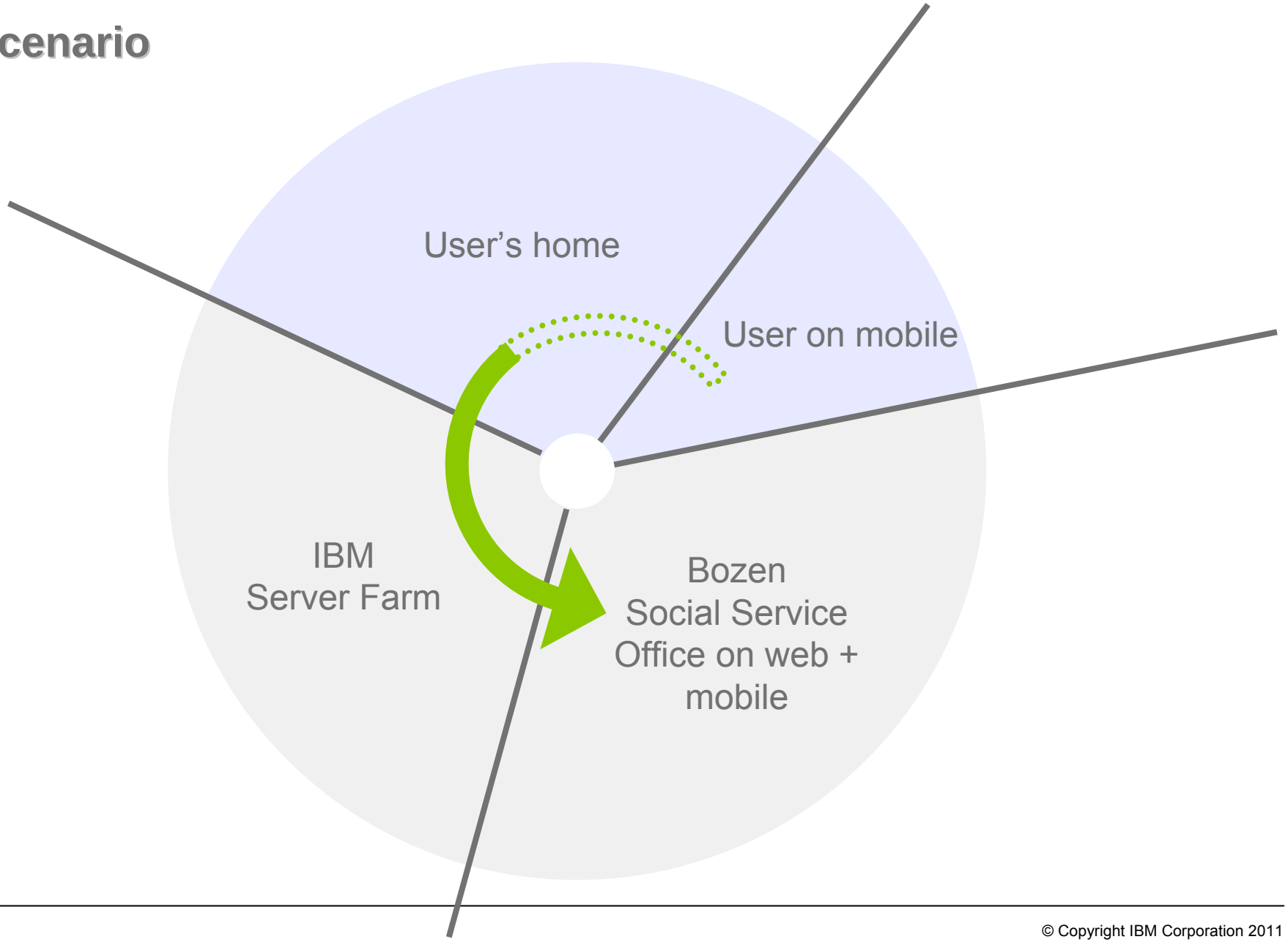
3.7 functionalities: mobile

3.8 Tehcnical picture





Scenario



Sensors

PPM Technology (large)

Libelium Waspmote (small)

Eurotech Custom Sensors (small)

Smoke CO CO2
Methane Temperature
Humidity Water Leak

Each sensor provider uses their own data format

Zigbee

Gateway

GuruPlug
(small, cheap & excellent)

Acer Revo

Eurotech Helios
(industrial but pricey)

J9 Java & OpenJDK
MQTT
Zigbee comms over USB

- Sensor data reduction
- **Data normalisation**
- Basic filtering

MQTT

Server

Augmented Reality Browser

Live Home Status

Web Dashboard

Micro Broker /
MQ + MQTT

DB2
Sensor Data

UIF
notification

Mobile
Dashboard

Email
Gateway

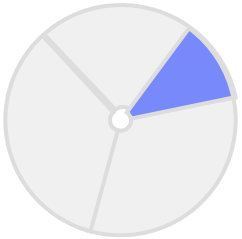
Web
Dashboard

SMS
Gateway

WebSphere Application Server

Reporting & Predictions
Work in Progress!

TeleCare



- Provide help for “mobile” users, push request for feedback, act as reminder.

Dedicated user friendly mobile devices (touch screen) providing:

- check list activities
- helping remember specific activities
- provide exercise to test memory
- collect health data (blood pressure, weight …)

It will provide data to the health central location of the Azienda Servizi Sociali di Bolzano

Supported by:

Dr.Hein

IBM Business Partner

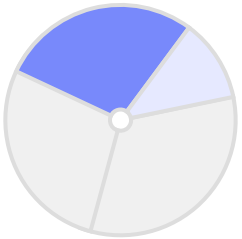
TeleCare

- Provide help and assistance to home users

Dedicated or sharable (via smartcard) user friendly devices (touch screen) usable to:

- Execute customized exercise (physical/mental)
- Record data and video of the tests
- Interact with a doctor via Videoconference (not active in his phase of project)

It will provide data to the health central location of the Azienda Servizi Sociali di Bolzano



Supported by:

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IBM Business Partner

IBM Smarter Building main set

- The sensors and the concentrator for the home's user:
- Actual measurements are smoke, gas, water and CO2

Huawei E5
Wireless modem
3G

Eurotech Helios
zig bee control box
& Edge Controller

Zigbee

PPM Technology
Air Quality Zigbee unit sensor units
Smoke,water, CO, CO2, natural gas, temperature

Helios Gateway running:
- IBM J9 Java and OSGi
- IBM MQ Telemetry Transport (MQTT) for secure and reliable transmission of sensor data.
- Zigbee communication with sensor units

Supported by:

IBM Lotus. software

EUROTECH GROUP

HUAWEI

acer

IBM Smarter Building extended

- We used the test bed to put in place different type of technologies professional/consumer technology and evaluate the most cost/effective solution

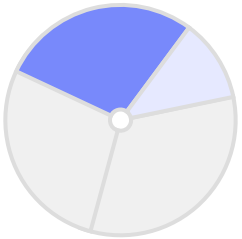
PlugPc Guruplug
concentrator

wifi

Zigbee

DIY Kyoto Wattson
Energy consumption monitor

Libelium Waspmote
Air Quality Zigbee unit sensor units
Smoke,water, CO, CO2, natural gas, temperature



Supported by:

IBM Lotus. software

xemtec

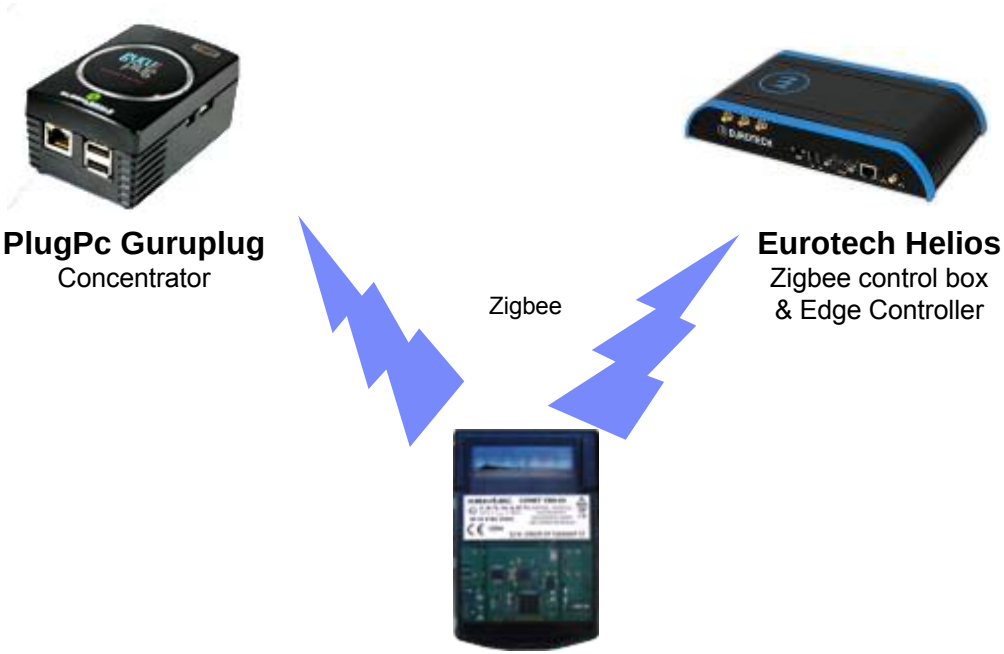
WATTSON.

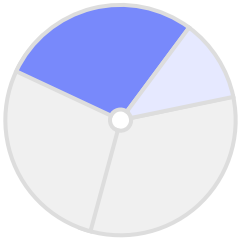
libelium

GLOBALSCALE TECHNOLOGIES, INC.

IBM Smarter Building: monitoring through water usage behavior

- The project has been extended to include water consumption profiling. Based on the users “water consumption signature” the system will aim to detect potential problems such as inactivity and dehydration risk.





Supported by:

IBM Lotus. software

xemtec

WATTSON.

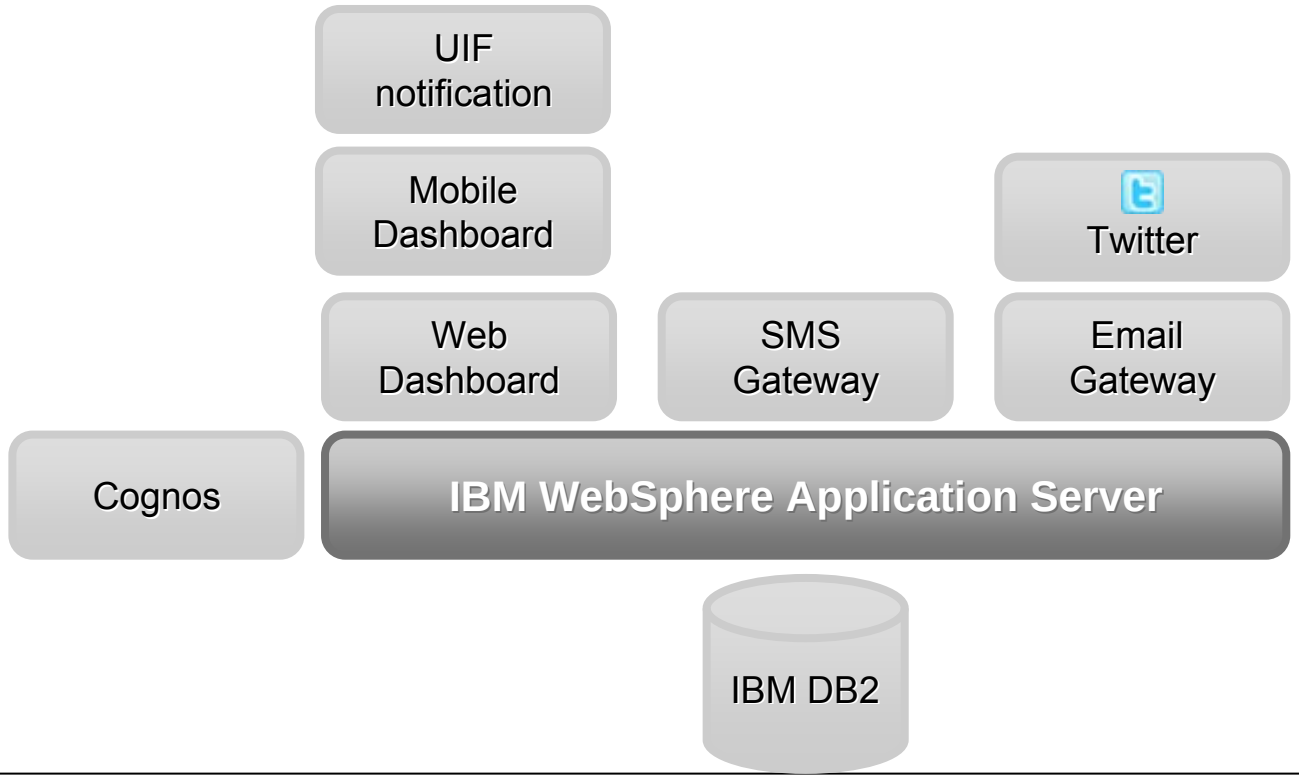
libelium

GLOBALSCALE TECHNOLOGIES, INC.

IBM Smarter Monitoring

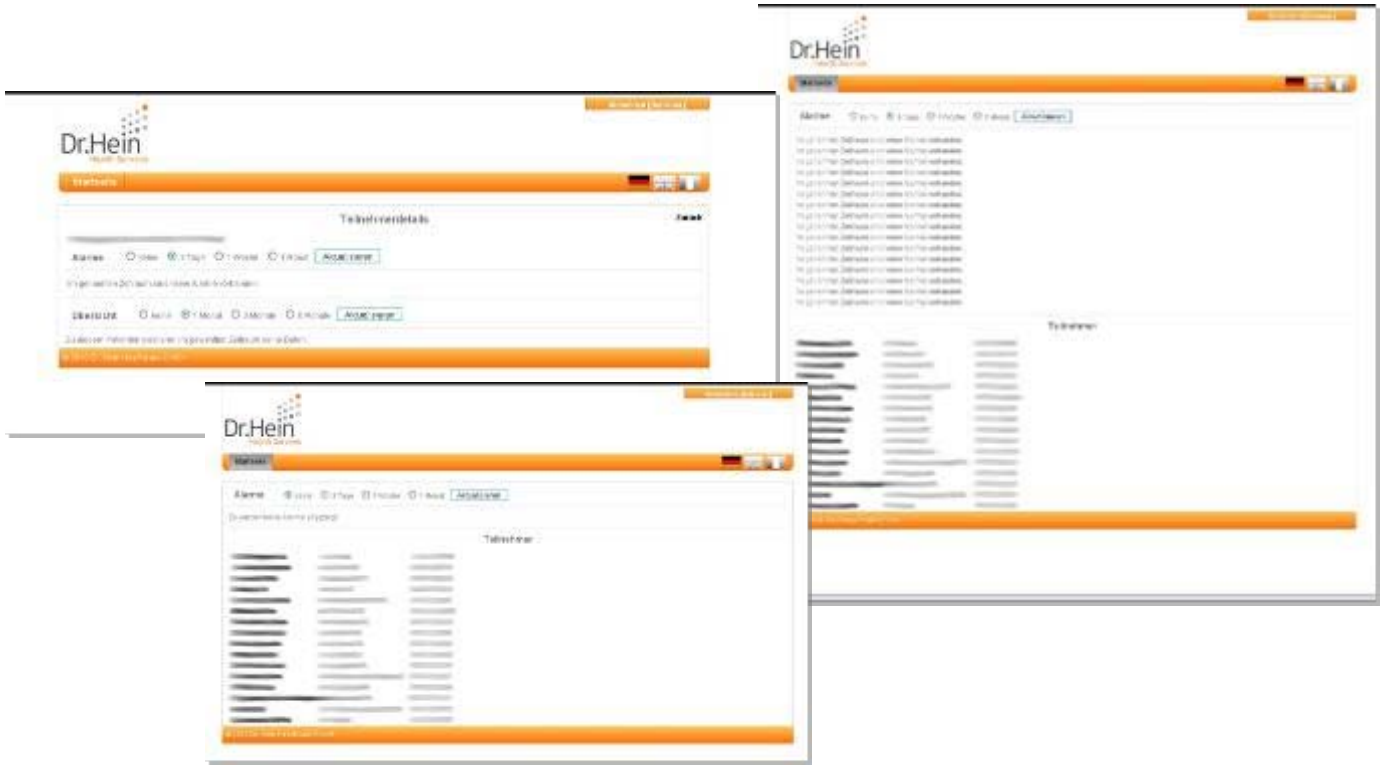
- The “back office” architecture to provide on-line monitor (dashboard), notification of events and collect data for analysis

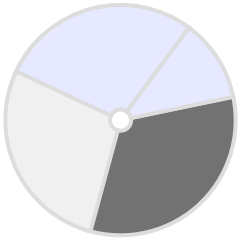
Supported by:



Telecare control

- View of historical health data (and offline video) collected from the home/mobile devices using a PC or mobile device via Internet with Web access





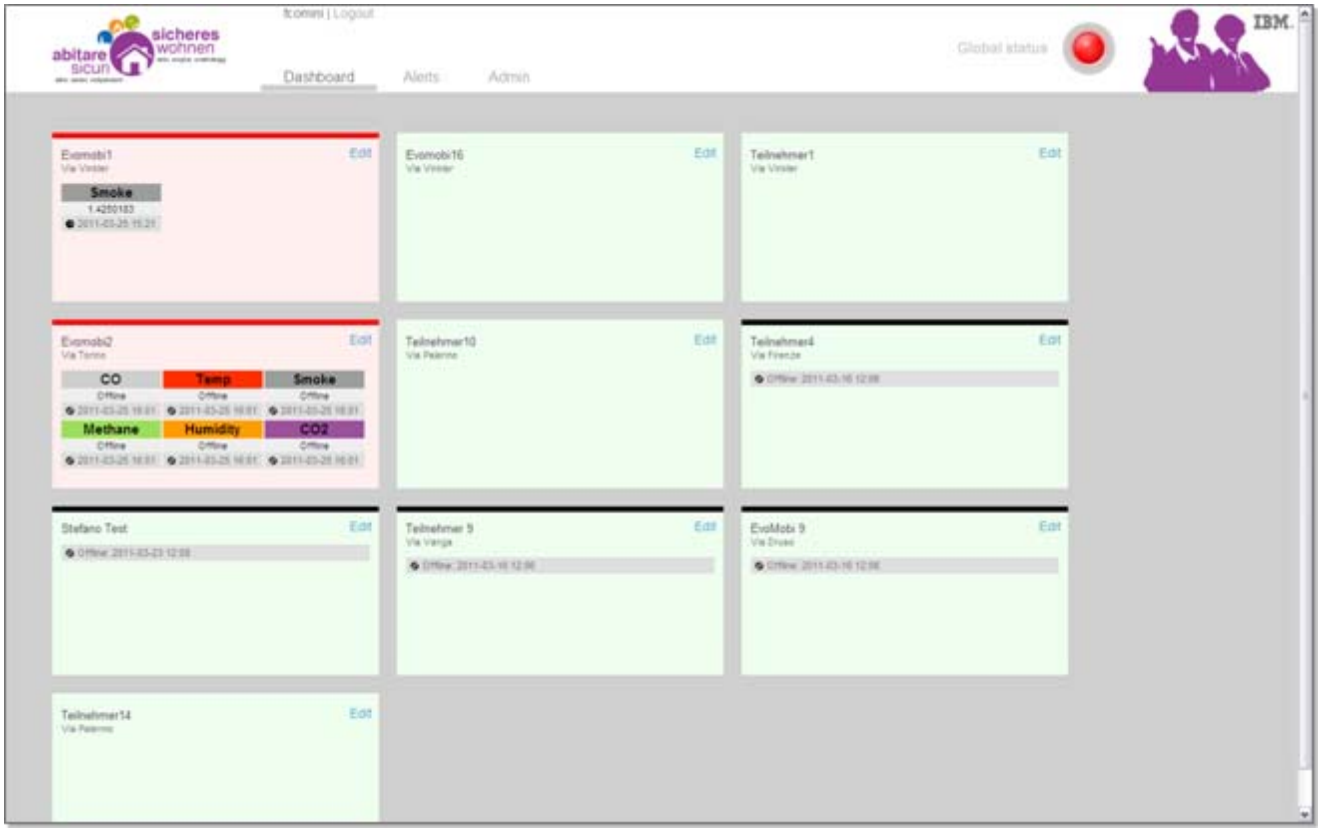
Supported by:

Dr.Hein

IBM Business Partner

IBM Web Dashboard

- On line view of current situation of the “environment” accessible from a PC or mobile device via Internet with Web access



Supported by:

IBM Mobile Dashboard

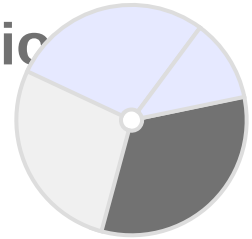
Alerts and information also available with an “augmented re
mobile dashboard application for workforce

Supported by:

WebSphere software

IBM DB2

IBM Universal Inbox Frame (UIF) notificatio



Alerts and information also available with a unique notification system for mobile devices developed by IBM. It allows end users to interact with data and alert in a simply, light and intuitive format.

Supported by:

WebSphere software

IBM DB2

Hardware progress from beginning to end

Outcome/Our research brought to a downsizing/downcosting

09/2010 **06/2011**

sensors

Energy savvy

Avoid installation

Plug&play

Remote locations

Based on needs (rotation of hw)

accentrators

Outcome

…Gimme something new to interact with, I'm bored!

…Relatives!…

…Don't touch my tv!…

…Someone there for me….

…partnership…

chapter 4
Outcome and business case

Feedback collections global schema

Type	Source	qualification	What	format	Comment/what to sort out
data	sensors	all	the whole flow of data from beginning to end	excel	prove the efficiency of the system, this to monitor the down of the service if any, for how much time, caused by what, etc
data	sensors	false positive	the data that give us an alert	excel	compare the alter with the real situation to see if it was a real alter or a false one
data	sensors	CO2 vs. number of people	the Co2 out of range data in normal condition	excel	Ex: tell how many people were in the room (formula to make this understandable/applicable)
data	sensors	data vs. other parameters	see if internal data crossing (ex. co2 and temperature) have a meaningful interaction	COGNOS	Convergence of mashp up data
data	sensors	data vs other paramters	see if internal & external data crossing (ex. co2 and rainy day) have a meaningful interaction	COGNOS	Determine which source of external data
data	Sensor+evolino	data vs. evolino	see if internal & dr hein data crossing (ex. co2 and mistakes in dr hein exercises) have a meaninful interaction	COGNOS	Determine data crossing
Data	evocare	Exercices, presence, performances	Single user perfomance/global performance	Excel	Stream of performance, show improvement/aggravation
Data	evomobi	Response, presence, perfomances	Single user perfomance/global performance	Excel	Stream of perfomance, show improvement/aggravation
words	End users	beginning vs.end	Questionaire	Word/excel	
words	relatives	Beginning vs end	Questionaire	Word/excel	
Words	Staff	Beginning vs end	Questionaire	Word excel	
Words	staff	Personal feedback	Interview	Video	

Business case global schema

ID	area	Type	format	Comment/what to sort out
1	technology	Real costs	excel	The cost of the pilot as-is ex post
2	technology	Forecast cost	excel	The cost of the evolved technology is the pilot would be put in place from now (evolution on hw & sw)
3	Model 1/ Technology vs. actual type of service based on forecasted users	Forecast cost vs. number of users	excel	The cost as is based on a potential number of users (must be indicated by Comune) as if the Comune would like to implement the service on a specific target user group
4	Model 2/on demand	cost for on demand service	excel	The cost is based on a certain number of set “plug and play” to be given to users for a certain time.. The cost is pay-per-use.
5	Model 3/relatives	Cost for services included realtives	excel	The cost is based on a certain number of set “plug and play” to be given to users for a certain time. The cost is monthly fee payed by relatives
6	Model 4/on buildings	Potential cost for on demand service	excel	The cost is relative to instrument a new building and keep the infrastructure costs

a/questionaire comparison in vs. out

2/questionaire comparison in vs. out

Telecare is the remote monitoring of real time emergencies and changes in the lives of individuals with care and support needs in order to manage the potential risks associated with independent living. Telecare consists of various sensors placed around the home linked to a system that allows the user to be supported by an external monitoring centre, with further links through to health and social care professionals, and other support services.

Uniquely among care and support interventions, telecare can prevent or delay both the need for care, and the financial and personal costs of care provision:

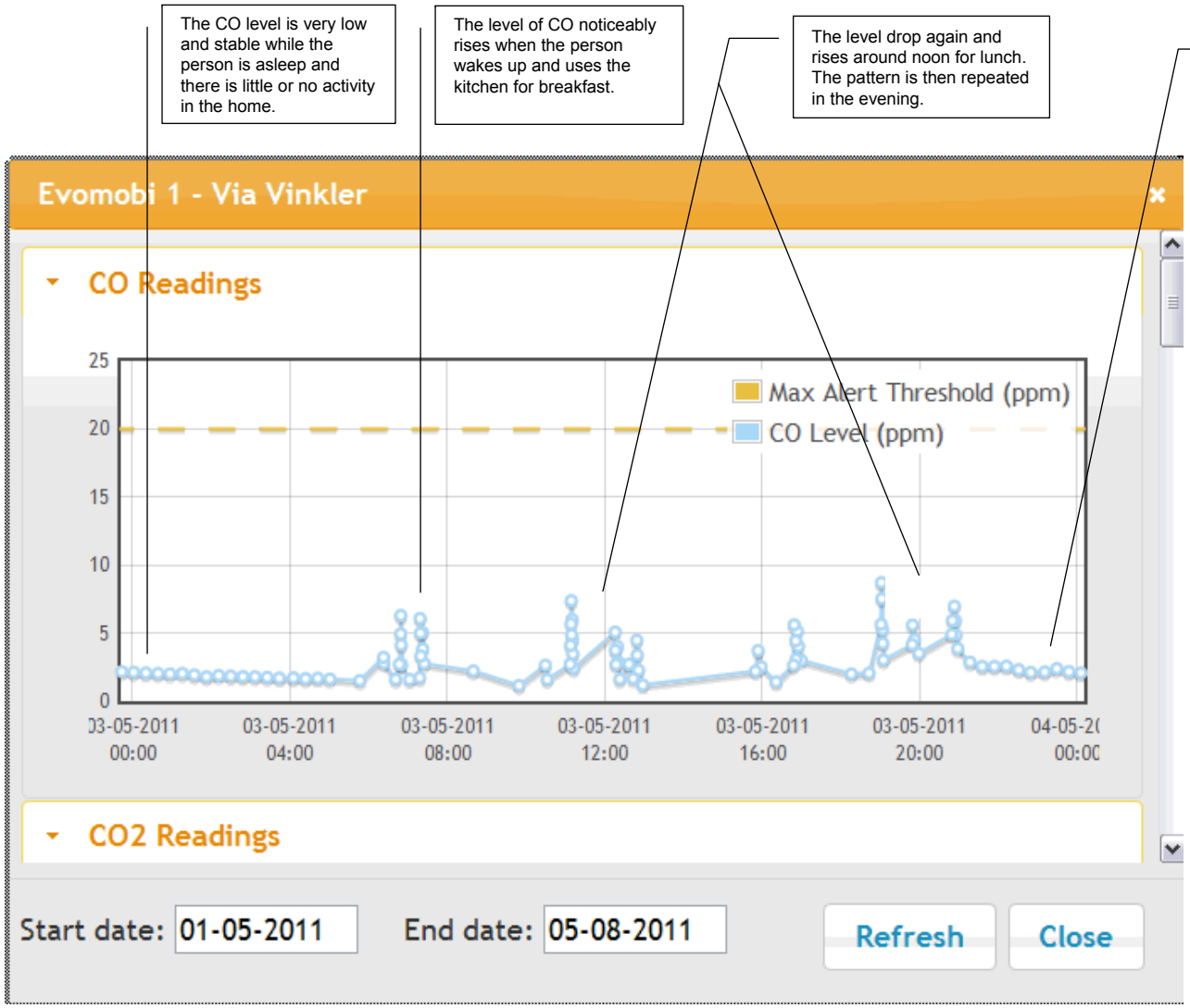
→Telecare can prevent or delay the need for more complex interventions or deterioration in a person's condition;

→Telecare can be a more cost effective option for meeting care needs, potentially reducing the need for formal care;

→Telecare can also reduce the burden on informal carers.

→Telecare has also been shown to improve the quality of life of users, providing reassurance and peace of mind.

Data outcome #06: how to monitor health status through C02



The graph shows a correlation between the home occupant's sleep pattern, their daily routine and the safe level of carbon monoxide (CO) within their home.

Having regular scheduled meals prove that the user is active and in good and healthy shape; He/she shows no loss of appetite.

A missing reading or an irregular behaviour can show potential stomach diseases or digestive distrubances

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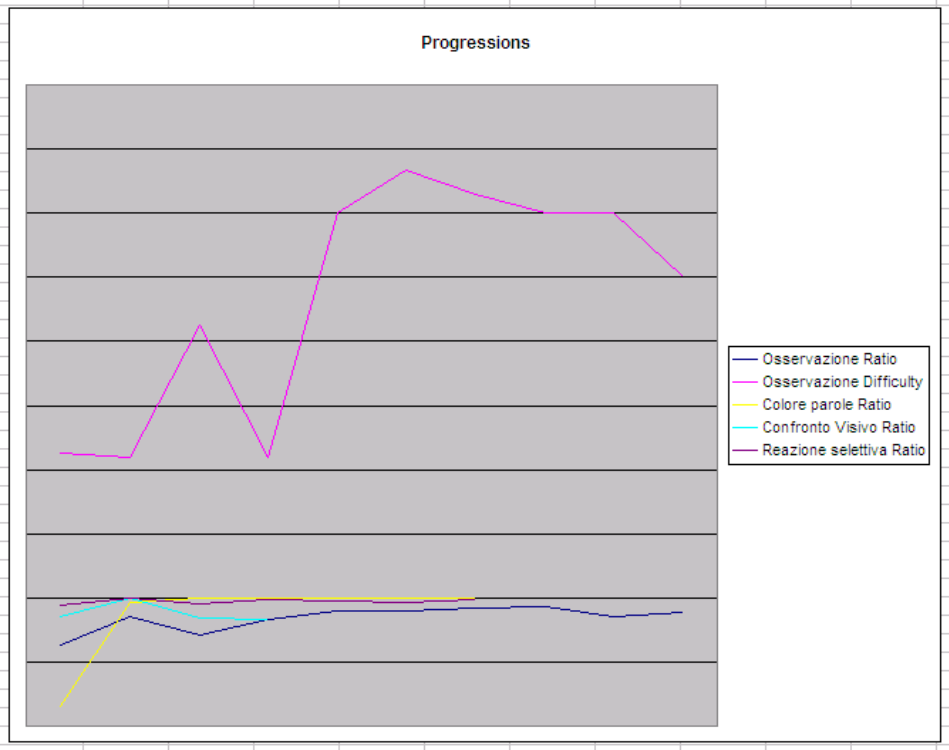
	F	G	H	I	J	K	L
1	**Duration:**	**Correct Answers:**	**Wrong Answers:**	**Ratio:**	**Speed (ms):**	**Difficulty Level:**	**Comment:**
2	8.51	21	12	63,6%	-	2,125	-
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	Weekend
5	-	-	-	-	-	-	Weekend
6	-	-	-	-	-	-	Not trained
7	8.30	35	6	85,4%	-	2,100	-
8	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-
10	6.46	6	1	85,7%	-	3,286	-
11	-	-	-	-	-	-	Not trained
12	8.21	29	12	70,7%	-	3,125	-
13	1.15	-	-	-	-	-	-
14	-	-	-	-	-	-	Weekend
15	-	-	-	-	-	-	Weekend
16	1.42	4	21	16,0%	-	-	-
17	5.09	47	3	94,0%	1344	1,000	-
18	1.17	-	-	-	-	-	-
19	8.34	34	7	82,9%	-	2,100	-
20	-	-	-	-	-	-	-
21	0.18	1	0	100,0%	-	2,000	-
22	5.11	95	0	100,0%	1292	1,000	-
23	0.52	24	1	96,0%	-	-	-
24	8.37	27	3	90,0%	-	4,000	-
25	-	-	-	-	-	-	-
26	-	-	-	-	-	-	Weekend
27	-	-	-	-	-	-	Weekend
28	0.45	25	0	100,0%	-	-	-
29	5.05	100	5	95,2%	1226	1,000	-
30	8.22	34	4	89,5%	-	4,333	-
31	-	-	-	-	-	-	-
32	6.15	22	4	84,6%		2,808	-
33	-	-	-	-	-	-	-
34	0.38	25	0	100,0%	-	1,000	-
35	5.02	108	2	98,2%	1366	1,000	-
36	8.37	33	3	91,6%	-	4,143	-
37	0.31	-	-	-	-	-	-
38	-	-	-	-	-	-	Weekend
39	-	-	-	-	-	-	Weekend
40	0.33	25	0	100,0%	-	-	-
41	5.08	107	3	97,3%	1425	1,000	-
42	8.39	39	3	92,9%	-	4,000	-
43	-	-	-	-	-	-	-
44	-	-	-	-	-	-	Not trained
45	0.36	25	0	100,0%	-	1,000	-
46	5.03	106	4	96,4%	1372	1,000	-
47	8.26	36	6	85,7%	-	4,000	-
48	1.57	-	-	-	-	-	-
49	-	-	-	-	-	-	Weekend
50	-	-	-	-	-	-	Weekend
51	-	-	-	-	-	-	Not trained
52	8.51	39	5	88,6%	-	3,500	-
53	-	-	-	-	-	-	-
54	-	-	-	-	-	-	-
55	6.14	15	3	83,3%	-	4,200	-
56	0.39	25	0	100,0%	-	1,000	-
57	5.01	109	1	99,1%	1328	1,000	-
58	-	-	-	-	-	-	-
59	-	-	-	-	-	-	-



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	A	B	C	D	E	F
1	**Date:**	**Question:**	**Answer:**	**Comment:**		
2	09/02/2011	Da non dimenticare: oggi pomeriggio si svolge l´incontro fisso su "Abitare Sicuri".	-	Notice		
3	09/02/2011	Come ha dormito questa notte?	bene	-		
4	10/02/2011	Prego inserisca il Suo ultimo valore della glicemia.	120	-		
5	10/02/2011	Quanto ha bevuto oggi?	-	no data		
6	11/02/2011	Come si sente oggi?	bene	-		
7	11/02/2011	Ha fatto attività fisica oggi?	fare una passeggiata	-		
8	12/02/2011	Come ha dormito questa notte?	bene	-		
9	13/02/2011	-	-	Weekend		
10	14/02/2011	Prego inserisca il Suo peso attuale	70 kg	-		
11	14/02/2011	Quanto ha bevuto oggi?	1-2 l	-		
12	15/02/2011	Ha fatto attività fisica oggi?	lavoro casalingo	-		
13	16/02/2011	Come ha dormito questa notte?	bene	-		
14	16/02/2011	Da non dimenticare: oggi pomeriggio si svolge l´incontro fisso su "Abitare Sicuri".	-	Notice		
15	17/02/2011	Prego inserisca il Suo ultimo valore della glicemia.	100	-		
16	17/02/2011	Quanto ha bevuto oggi?	1-2 l	-		
17	18/02/2011	Ha fatto attività fisica oggi?	fare una passeggiata	-		
18	18/02/2011	Come si sente oggi?	bene	-		
19	19/02/2011	Come ha dormito questa notte?	bene	-		
20	20/02/2011	-	-	Weekend		
21	21/02/2011	Prego inserisca il Suo peso attuale	105 kg	-		
22	21/02/2011	Quanto ha bevuto oggi?	1-2 l	-		
23	22/02/2011	Come si sente oggi?	bene	-		
24	22/02/2011	Ha fatto attività fisica oggi?	lavoro casalingo	-		
25	23/02/2011	Da non dimenticare: oggi pomeriggio si svolge l´incontro fisso su "Abitare Sicuri".	-	Notice		
26	23/02/2011	Come ha dormito questa notte?	bene	-		
27	24/02/2011	Prego inserisca il Suo ultimo valore della glicemia.	113	-		
28	24/02/2011	Quanto ha bevuto oggi?	1-2 l	-		
29	25/02/2011	Come si sente oggi?	bene	-		
30	25/02/2011	Ha fatto attività fisica oggi?	lavoro casalingo	-		
31	26/02/2011	Come ha dormito questa notte?	bene	-		
32	27/02/2011	-	-	Weekend		
33	28/02/2011	Prego inserisca il Suo peso attuale	102 kg	-		
34	28/02/2011	Quanto ha bevuto oggi?	< 1 l	-		
35	01/03/2011	Come si sente oggi?	bene	-		
36	01/03/2011	Ha fatto attività fisica oggi?	lavoro casalingo	-		
37	02/03/2011	Da non dimenticare: oggi pomeriggio si svolge l´incontro fisso su "Abitare Sicuri".	-	Notice		
38	03/03/2011	Prego inserisca il Suo ultimo valore della glicemia.	85	-		
39	03/03/2011	Quanto ha bevuto oggi?	-	no data		

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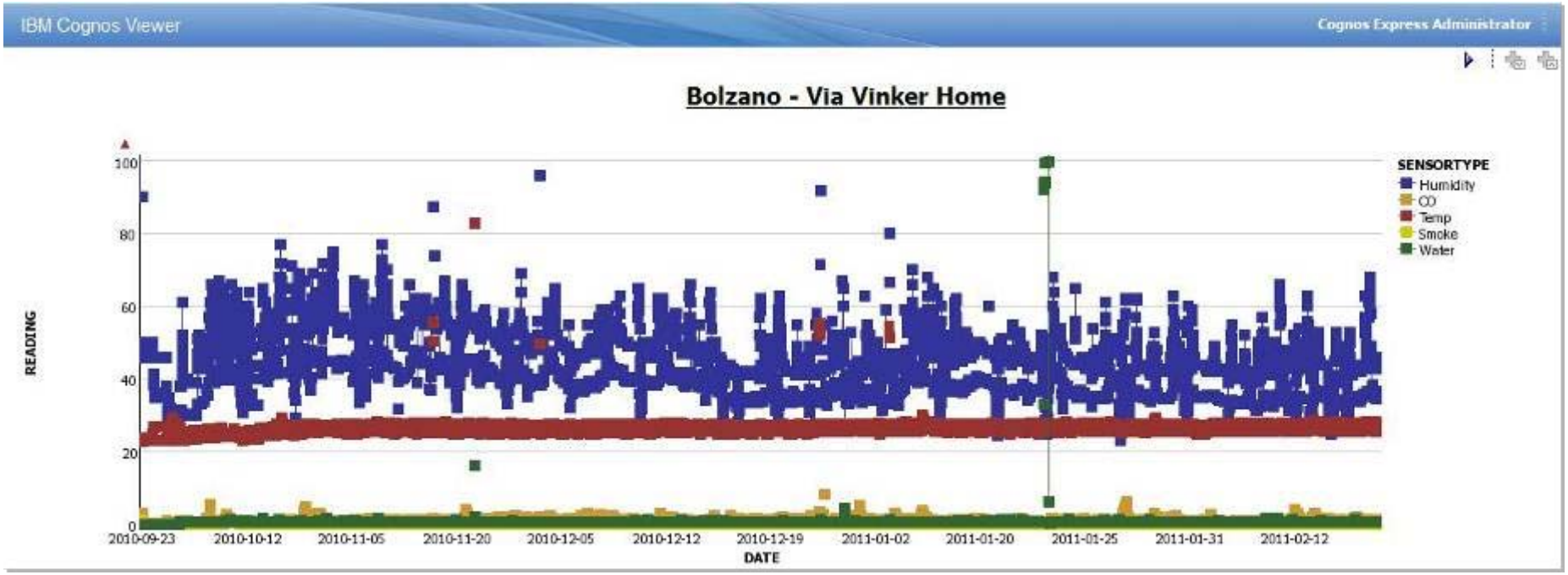
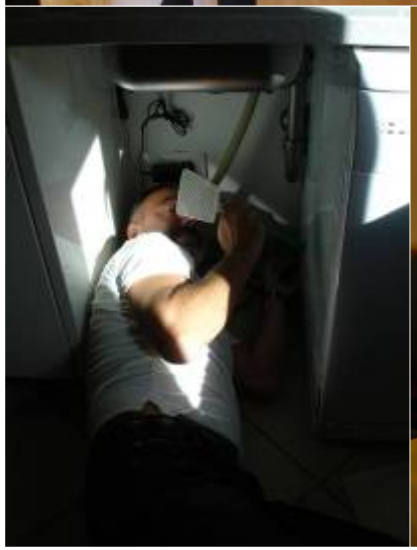
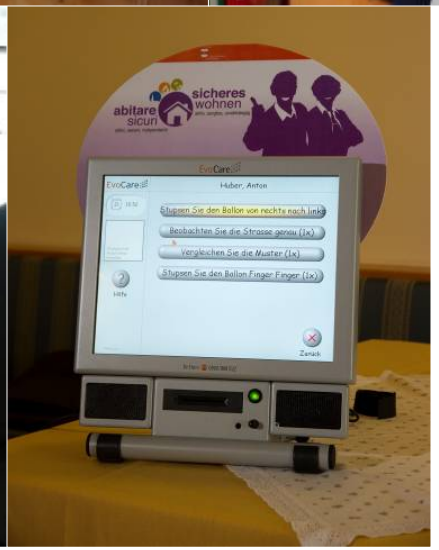


chapter 5
Conclusions

merci / thanks / danke / grazie / gracias / obrigado / takk

Installing the Smarter Planet….



User location in the city

- Map of monitored homes in the Bolzano territory

end

“thank you”