CISCO SYSTEMS

Connected Communities:
Best Practices for
better Citizen MANAGEMENT

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New Technologies and City projects

Existing innovative City projects have delivered tangible benefits in 3 key areas:

1. IMPROVE SERVICES TO CITIZENS AND ENTERPRISES

2. IMPROVE INTERNAL EFFICIENCY AND REDUCE COSTS

3. DRIVE ECONOMIC DEVELOPMENT

Which New Technologies ?

- **Cisco « Connected Communities » offer is built on sets of New Technologies**

    - **Metro ETHERNET**

        - Backbone, Fiber optics - FTTx

    - **WIRELESS networks**

        - Wireless solutions for mobile agents

        - Wireless solutions to connect devices (video cameras, noise/pollution detectors, distant meter reading, …)

        - Wireless solutions to offer Broadband connectivity to homes or hotspots

    - **IP Technology**

        - Voice over IP, video over IP, building management over IP,…

        - IP Telephony

        - IP Contact Centres

Which solutions ?

	Improve services	Improve Internal Efficiency and reduce costs	Drive economic development
① Public Safety and City Management	★ ★ ★	★	★
② Solutions for Mobile Agents	★ ★	★ ★ ★	★
③ Hotspots, Tourists, Transports	★		★
④ Network convergence		★ ★ ★	
⑤ IP Telephony Usages	★	★	
⑥ Intelligent Contact Centres	★ ★	★	

Solution

① Public Safety and City management	Improve services	Improve Internal Efficiency and reduce costs	Drive economic development
City Video-surveillance	⭐⭐⭐ **Citizens feel safer**	⭐⭐ **24x24, 7x7 surveillance**	⭐ **City attractiveness**
Traffic management	⭐⭐⭐ **Less traffic jam**		
Parking management	⭐⭐⭐ **Respect parking regulation**		⭐ **City attractiveness**
Noise, pollution, flood monitoring	⭐⭐⭐ **Healthier and safer city**		

Solution

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- ## Video-surveillance

  ➢ **Wireless** Cameras, easy to install and move (no street work), using **IP protocol** to enable surveillance and management from anywhere on the IP secure network

  ➢ Helps fight crime, traffic ofenses both by improving detection and providing proofs of evidence

- ## Noise, Pollution, Flood detection, Distant Meter reading
  Wireless sensors provide constant measurement and can send automatic alerts. Wireless meters can be read remotely saving agent's time

Benefits

- ## Reduces criminality

  Westminster (UK): **20%** criminality reduction and strong improvement in Citizen's perception of city streets safety

- ## Improves Police efficiency

  Oct 05, Nîmes (France): 4 criminals arrested thanks to video surveillance
  A camera recorded the aggression of a young woman by 4 men at 0:15 am.
  Police was immediately called and was able to arrest them within 1 hour.
  Thanks to video recording, the victim formally recognized her aggressors and they were sentenced by the justice

- ## IP wireless solutions are very cost effectice

	wired camera	IP wireless camera
Camera	6 000 €	2 500 €
Installation	25 000 €	500 €
Back-office	3 500 €	3 500 €
Telecom costs	13 000 €	0 €
Total	47 500 €	6 500 €

Customer example:
- 86 %

Trends

- <u>Europe</u>: 15 to 40% of public accessible places are under CCTV surveillance

City	% of institutions with cameras in publicly accessible space	Country	No. of open street systems in public space
London	40	UK	Over 500
Oslo	39	Norway	1
Copenhagen	33	Denmark	None
Budapest	28	Hungry	Over 14 in Budapest alone
Berlin	21	Germany	15
Vienna	18	Austria	None

Table 1: *Percentage of publicly accessible space under CCTV surveillance in six European capitals and number of open street systems in each country*

Source: Urbaneye, 2004: 27-34

- <u>Czech Republic</u>: Prague deploys an advanced solution using face recognition
  Prague City has installed 200 cameras connected to a face recognition solution

- <u>Russia</u>: 1 B$ safety budget voted after Ossetia drama
  Moscow voted a 1B$ budget to install safety solutions in schools after the dramatic hostage event in Ossetia

- <u>USA</u>: the video surveillance market is booming
  Recently, Video surveillance cameras sales have become bigger than Alarm systems sales.
  Cities install cameras to fight street criminality and driving offences such as driving pass a red light.

Trends

- <u>France, nov 2005</u>: video-surveillance to fight terrorism and suburbs problems

  France has modified its law to allow video surveillance in every public space such as station, shops, transportations, religious places,… Most spectacular measure: a camera in each of the 4000 Paris buses. Video records must be stored 1 month.

- <u>Paris</u>: 2070 cameras watch the city

  As off January 2004, there were 20 500 cameras out of which a vast majority (18 493) in public places (stations, post offices,…) and 2 070 in the streets.

  This number increases by 1 500 to 2 000 cameras each year.

Solution

② Solutions for mobile agents	Improve services	Improve Internal Efficiency and reduce costs	Drive economic development
Mobility for City managers	⭐⭐ managers more accessible	⭐⭐⭐ + 30% productivity	
Mobility for inspectors (licences and permits)	⭐⭐ more inspections	⭐⭐⭐ + 30% productivity	⭐ City Attractiveness
Mobility for Street Workers	⭐ Better managed works	⭐⭐⭐ +30% productivity better cooperation	⭐ City Attractiveness
Mobility for Parking Attendants	⭐ Less errors	⭐⭐⭐ +30% productivity	⭐ More fees
Mobility for Social helpers	⭐⭐⭐ Immediate answers	⭐⭐⭐ +30% productivity	⭐ Less unpaid

Solution

- **PC or PDA with WI-Fi connectivity allowing agents to perform anywhere:**
  - access to agenda and email, fill and send forms, access office applications and data
  - check plans, existing networks, for example when digging a new hole in a street
  - update cases online, route them to collegues, exchange information between agencies

- **Categories of Mobile workers and usages**
  - Managers (agenda, email)
  - Inspectors (forms, case management)
  - Street workers (case management and access to office data)
  - Municipal Police (alerts, quick exchange of information, take control of videosurveillance cameras,…)
  - parking attendants (forms, send picture of offender,..)
  - Social helpers (access to office applications)
  - …

Benefits
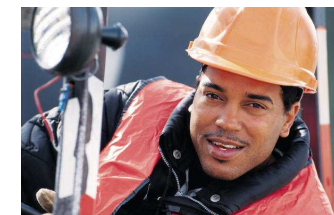
- **Productivity Gains estimation: 10 hours / week**
  A survey done by Dell, completing interviews with 253 individuals in government agencies who are full-time employees and use a PC at least 10 hours a week in their job showed that giving a wireless laptop computer to a Government employee generates a 10 hours/week productivity gain.

- **Office space saving**
  Enabling civil servants to perform their task anywhere reduces the need for office space often limited and expensive in local governments. Westminster city council measured that street based employees (1/3 of total employees) spend in average 3 hours / day in the office with no other added value than having access to office tools.

- **Enables cross-agency cooperation**
  For example, while performing a health inspection, the health officer can notice something else and send an email to another part of the council.

Trends

- ## Westminster (UK): parking attendants go mobile
  255 parking attendants have WI FI enabled PDA allowing them to instantaneously send the fines and a photo of the car to the central application. When car owner goes on the web to pay his fine, all necessary information is up to date.

- ## Nîmes (France): public light management
  the agent in charge of checking public lights (called 'the owl") has a wireless laptop in his car allowing him to report any defect online. His car follows an itinerary piloted by GPS control according to the way the lights are connected together

- ## Besançon (France): outdoor market management
  Outdoor markets require management of selling spaces. This is now done on PDA. Municipal agents have need trained 1 day on the application.
  For the city, this application modernises the way the outdoor market is managed, improves the accountability and reduces the amount of cash thanks to e payment facilities. The application generated a cost saving of 1 600 € per year.

- ## CG Allier (France): PDAs for elected bodies and managers
  This project promotes mobility tool usage for better communication and cooperation between town councils

Solution

③ Hotspots, Tourists, Transport	Improve services	Improve Internal Efficiency and reduce costs	Drive economic development
Hotspots	⭐ Connect anywhere		⭐ City Attractiveness
Museum, City guided visit	⭐⭐ Personalised visit		⭐ City Attractiveness
Location based Services	⭐⭐ Helps and informs tourists		⭐ City Attractiveness
Mobility for Municipal Transports	⭐⭐ Better Traveller Information	⭐ Safety, statistics, optimisation	⭐ City Attractiveness

Solution

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- **Hotspots**

  ➢ **Wireless access points**
  allowing any individual with a WIFI enabled device (laptop, PDA,…) to be connected to the Internet

  ➢ **City role and benefits**

    ➢ By deploying access points, a city establishes a wireless infrastructure that can be used both by citizens or tourists and by city employees for mobility applications

    ➢ By organising service provider competition over its wireless infrastructure, a city ensures that citizens will get attractive prices for getting access to the Internet

    ➢ Wireless access points allow a city to bring Broadband to homes not covered by operator's offers, helping to bridge the digital divide

Solution

Accessing zone specific content

- ## Tourists Solutions

  ➤ **Information « Push » according to localisation**
  when entering into a geographical zone, PDA displays information relevant for the location (description of a monument, information about shops nearby,…)

  ➤ **Practical Information and interactive street map**
  Finding a restaurant, a cinema, an administration service, the post office, a doctor, and be guided to there from where we are

WLAN Hotspot

| No reception, no services | Services appear at zone entering | Services disappear |

Solution

- **Mobility for municipal transports**

  ➢ **Video surveillance in buses**

  Passengers and driver's safety

  ➢ **Information screens in buses and at bus stops**

  Delivers information about next bus arrival time, connections, traffic perturbations, and broadcasts news for passenger distraction …

  ➢ **Bus position follow-up, load measurement**

  Allows to have interactive information and statistics to optimise bus management

Antenne WiFi

Benefits

- ## Answer Citizen's expectations
  citizens wish to remain "connected" anywhere and anytime

- ## City attractiveness and image
  Offering advanced technologies delivers a image of a modern city with practical facilities, which attracts enterprises, citizens and tourits

- ## Culture accessibility
  Guided visits on PDA offer personalisation capacities allowing for national language support or application customisation according to visitor's age, interest centres or available time

- ## Development of local economy
  Context aware information push allows to people walking close to a shop to receive adds and information about that shop on their PDA or other wifi device

Trends

Cisco.com

- **Amsterdam: Timespots, le PDA pour les touristes**
  Amsterdam city has granted a loan to NIKA productions, to allow them to test a tourist application on a PDA equipped with a GPS and a WIFI connection.
  Every large city struggles for attracting tourists, Amsterdam hopes to have a competitive advantage with this project

- **Vézelay (France): I-Géovisit from « Vézelay Interactive » project**
  Tourist multimedia guide on a WI FI enabled PDA delivering information (text, video, sound, image) depending on the visited place. These PDAs are rented at the tourist office and uses the WIFI infrastructure deployed in the village.

- **Cities having Video-surveillance in buses or metros: (April 2005)**

  France Annecy, Angoulême, Bordeaux, Caen, Lille, Marseille, Montbéliard, Nice, Orléans, Paris, Poitiers
  Portugal Refer National Portuguese
  Spain GIF (Gestor de Infraestructuras Ferroviarias), Tenerife Metro
  Switzerland Lausanne Métro, Rhätische Bahn
  USA New York City Subway

  …

Trends

- **Top 10 cities with Wi-Fi access locations worldwide**

City	Number of Hotspots
London	1,188
Tokyo	873
New York	822
Paris	762
Singapore	573
São Paulo, Brazil	495
Hong Kong	469
Chicago	415
Berlin	408
San Francisco	381

SOURCE: JiWire.com, March 1, 2005

Solution

Cisco.com

④ Network Convergence	Improve services	Improve Internal Efficiency and reduce costs	Drive economic development
Voice over IP		⭐⭐⭐ **Less communication costs**	
Video over IP		⭐⭐⭐ **Virtual meetings**	
Connected Real Estate over IP		⭐⭐⭐ **simplification**	

Solution

- ## Voice over IP

  ✓ Free communications inside administration IP network

  ✓ Network maintenance costs reduction (single network to maintain instead of 2 or 3 – voice, data, video)

  ✓ simplification of office moves

- ## Video over IP
  Videoconference over the IP network

- ## Building management
  The IP network can transport logistics information and control for managing building heating, air conditioning, lighting, access control, alarms, lifts, etc..
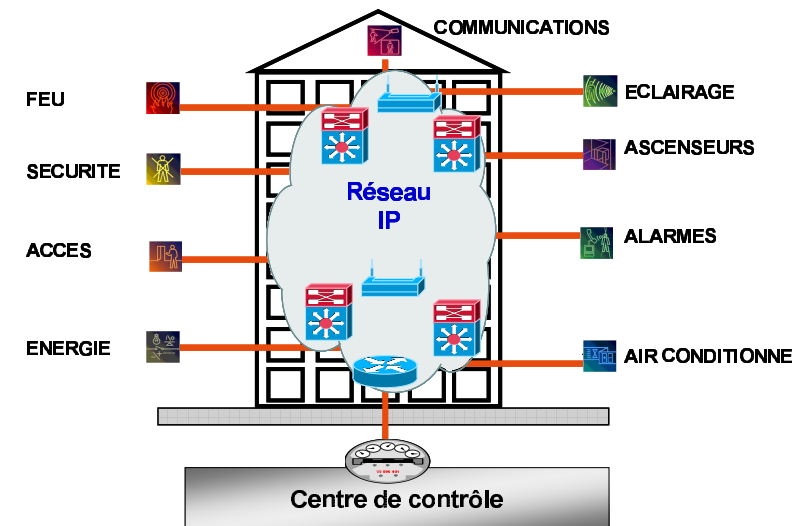
Benefits

- ## Communication costs reduction
  Every intra administration call is free

- ## Network maintenance cost reduction
  Maintaining a unique network instead of 2, 3 or even more (adding dedicated networks for building management) saves effort and complexity

- ## Office moves simplification and cost effectiveness
  No need to change network settings when employees move from one office to another

Coût d'un déménagement (EUR)
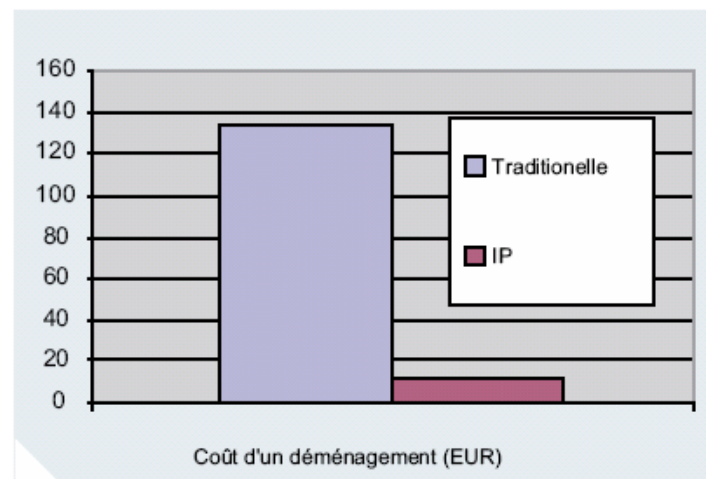
Trends

- **A recent study shows that one third of mobile phone calls are made from home or the office. Handling these calls by Voice over IP would save a lot of money**

- **French customer: a 2 years ROI**

  A French city recovered 230 000 euros after 2 years on the 250 000 euros invested in an IP telephony solution in 2003. The solution includes 1000 IP telephones disseminated in 20 different buildings, some of them being 45 km away.

Solution

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⑤ IP Telephony Usages	Improve services	Improve Internal Efficiency and reduce costs	Drive economic development
Mobility, virtual teams	⭐ Easier to reach correspondent	⭐ Resource sharing	
Productivity applications		⭐ Time managements, info brodacasting,…	
Features for impaired users		⭐ Impair agent productivity	⭐ Inclusion
Teleconferences, videoconferences		⭐⭐ Less travelling between offices	
First level of computerisation for agents having no access to technology yet	⭐ Empowered employee	⭐ Better efficiency AND simplicity of use	

Solution

- **Enables agent mobility and virtual teams**

  ✓ Dislike traditional telephones, an IP telephony is not related to a telephone number, any IP telephone can be used by anybody, association to a given telephone number is made on the telephone. By entering his userid/password, a user personalises the IP Phone with its telephone number and all his setting (address book, call redirection, etc…)

  ✓ IP telephones allows advanced call redirection rules according to agenda and/or to caller:
    - If I am in a meeting then go to my mailbox
    - If my boss calls, IP phone rings first, then mobile phone, then home phone…

  ✓ A PC can become an IP Phone with Cisco IP Communicator software, allowing to call on Voice over IP anywhere you find an Internet access

  ✓ IP Phones can also be wireless

Solution

- **Supports productivity applications**

  ✓ Presence and Time management

  ✓ Information messages broadcast

  ✓ Display of caller contextual information (from a caller database)

  ✓ Teleconferences (Meeting Place) to enhance government employees training on new laws, regulations, processes and tools

Examples:

  ✓ Timestamp children entry and departure in a creche to automate bill production and have an up-to-date list of present children

  ✓ IP telephone in a building attendant home allowing better case and requests management

Solution

- ### Solutions for Visually Impaired and Blind users

  - ✓ Tactile discernable keys

  - ✓ Cisco Unity provides ability to listen to email via Text-to-Speech

  - ✓ IP phone functions can be activated by voice rather than keys or screen menus

- ### Solutions for Hearing Impaired and Deaf Users

  - ✓ Coupling of the handset to a Hearing Aid

  - ✓ Text Telephone can be interface to Cisco IP Communication Solution using any analog gateway

  - ✓ IP Phone can be associated to a web-cam allowing video conferencing

Benefits

- **From a survey of 100 organizations using IP Telephony**
Sage Research & BCR July 2003

| IPT Benefit	Savings
Improved remote government employee productivity	4.3 hrs per remote worker per week or 28 days per year
Improved telecommuter productivity	5 hours per week, or 33 days per year
Reduced travel expenses for IT	13 hrs / month / IT employee; 19 days per year
Faster moves adds changes (MACs)	1.5 Hours per move.
IT and end-user productivity benefits because features are easier to use	5.5 hours per week per IT employee involved with phone support
Easier MAC process for employees	3 more moves per year
Less telephone tag for all employees	3.9 hrs / week / employee or 25 days per year

Benefits

- **Enables to share resources across agencies, optimises and simplifies office space management**
  IP Telephony mobility allows people to work in any location and still get there calls. Agents cann thus answer citizen calls from any office and even any place with Internet access (with softphone application on their PC)

- **Offers a first level computerisation to agents with no PC**
  IP telephones have a processor and can thus run simple applications such as time management. Users need very little training to use them.

- **Better answer to citizens' calls**
  As IP phones and PCs share same network and protocol, they can easily share information and work in cooperation.
  Example: caller context display on the IP phone, from a PC based caller database. This function allows answering agent to see information such as caller name, caller history of calls before answering the call

- **Provide comfort and productivity features to impaired agents**

Trends

- ## IP Telephony is a strong trend

Worldwide PSE Line Shipments by Technology Type
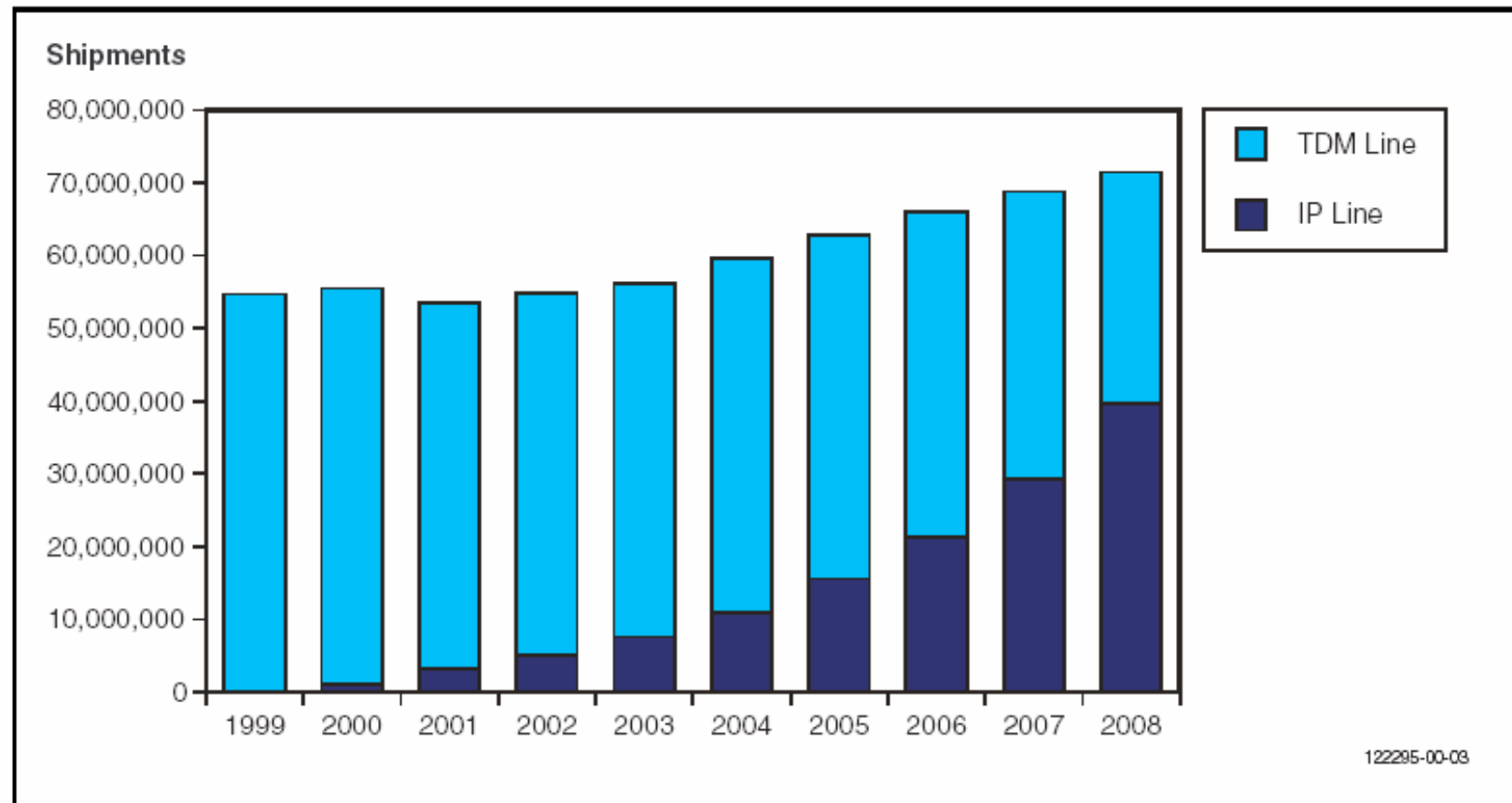
Source: Gartner Dataquest (August 2004)

Solution

⑥ Integrated Contact Centres	Improve services	Improve Internal Efficiency and reduce costs	Drive economic development
IP Contact Centre	⭐ ⭐ Intelligent routing of requests	⭐ automation	
Shared services	⭐ Availability of scarce resources	⭐ ⭐ Cost and workload sharing	

Solution

- ## Unified management of all sorts of calls
  Voice, email, internet, fax
  Agent can switch from one media to another without losing track of the case he is working on

- ## Automated routing of each call
  Calls can be routed to different agents according to day in the week, time, holidays, caller id, called id, number of calls waiting, call priority, …

- ## Coupling with Internet
  web pages sharing, chat, remote control of citizen PC to help him fill a form or perform an e-procedure…

Solution

- ## « N11 » type call centres

  ➢ Widely deployed in the States, « N11 » projects intend to provide unique and easy to remember numbers to citizens for different kinds of calls:
  - 911: emergencies (police, firemen,…)
  - 311: city logistics (hole in the street, defect lamp pots,…
  - 511: transports
  - 211: health

  These numbers allow faster responses and quicker actions from the concerned staff

  ➢ At a City or group of city level, a unique number for all administration calls is very practical for citizens. This requires a team of people answering calls and routing them to appropriate agents. This team can be created as a shared service between several cities to reach critical mass of citizen calls.

Benefits

- **Removes burden from agents by answering straight forward questions (represents 70% of the calls) and forwarding only calls requiring specific knowledge**
  Dedicated personnel can handle straight forward question such as opening hours or documents required to establish an identity card. By training this personnel to deliver standardized and homogeneous answers, the city improves rapidity and reliability of its answers.

- **Reduce costs by encouraging citizens to use the Internet for their requests**
  1 call = 4,60 € / 1 Internet transaction = 0,20 €
  Thanks to voice/data integration, an agent can answer to a citizen call using the Internet or can encourage a citizen to perform an e-transaction by helping him find his way on the administration portal and use the existing e-procedures

Trends

AUDIT SCOTLAND

- **Audit done in Scotland on 30 local authorities (may 2005)**

  - ➤ 65% to 85% of citizens' calls are not answered !
    (beside opening hours or agent not available)

  - ➤ 73% calls are qualified "simple to answer" and could be handled by non specialised staff

- **Canada has deployed a national solution: "1 – 800 – O Canada" handling 1,4 millions calls per year**

  - ➤ **30 % calls receive an immediate answer**

  - ➤ **63 % calls are forwarded to specialits**

  - ➤ **7 % calls are redirected to web sites**

  Average call duration is 3,2 minutes

CONCLUSION

- **Wireless and IP Technologies are not hypes or just another technical tool**

- **They are KEY ENABLERS for changing the way we Work, Live, Play and Learn.**

- **Cities can leverage these New Technologies to**

  - ➤ **Improve services to citizens and enterprises**

  - ➤ **Improve internal efficiency and reduce costs**

  - ➤ **Drive economic development**