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The making of "Draadloos Groningen"

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Period	Main actors	Issues	Outcome
2005/2006	University ICT Strategy Board	Students demand an outdoor WiFi network	€ 1,200,000 Muni wireless is hot! Partners
2006	Stichting Omslag/Stichting ICT@nn	Why aren't there more wireless cities? Role of public organisations?	So called market failure Participative investment
2007	TNO-ICT	Technology issues (UMTS, WiFi, WiMAX) To Do or To Outsource?	WiFi is feasible Model
2007/2008	Project team Draadloos Groningen	Pilot study Services inventory	Governance model Business case Foundation
2008/2009	Foundation/Stratix	European tender procedure	Unwired as partner Current status
2009	Foundation/Unwired	Service Level Agreement	First phase of network in September 2009
Further future	Foundation/Unwired	Initiate new projects	Sustainable network In 2012, why it will work!

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Wireless cities and students

Personally I don't believe that students will use the wireless network to work in the park.

However in Computer World (October 6, 2008):

Wi-Fi helps college students get better grades, survey says

And it's a perk they look for when deciding which school to attend

By Matt Hamblen

Uponca City Oklahoma: wireless automated meter reading, free WiFi	Dallas, Texas: wireless video surveillance
Oklahoma City, Oklahoma: largest Wi-Fi public safety network in the world	Reading, Pennsylvania: wireless video surveillance
Rock Hill SC: wireless meter reading, energy management, public safety, free WiFi	Southlake, Texas: wireless video surveillance
Minneapolis, Minnesota: public access, public safety	Temple and Washington, Georgia: wireless video surveillance
Riverside, California: public access, public safety, traffic management	Granbury, Texas: wireless video surveillance
McAllen, Texas: wireless video surveillance	Gangneung, South Korea: public safety, free Wi-Fi
	Craven County, North Carolina: education

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Role of public organisations

Market failure:

- Telco's do not see enough services
- Services are not developed because of lack of infrastructure

Role of public organisations:

- Create demand ("Anchor tenant")
- Invest in innovation

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First steps

- Internet in public space is of high potential
- Participative investment: public organisations take the lead, market will follow
- Create separate legal identity
- Benefits:
 - Universities: soft
 - Municipality: hard
- First nodes: april 2006!

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Network topology

- Network covers public space in entire city
- Availability issues
 - 7*24
 - Available capacity
 - Peak demand

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Coverage phase 1

- 6 months after signing contract
- Within "Diepenring"
- + Zernike campus



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Coverage phase 2

- 12 months after signing contract
- Within the “ring”
- Some additional area



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Coverage phase 3

- 24 months after signing of contract
- The whole urban area, including Hoogkerk



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Governance model

- Three public organisations as founders
 - Demand bundling for wireless services
 - Create a foundation for execution
 - Act as anchor tenants for commercial organisation that will roll out network
- Room for some smaller anchor tenants
- Commercial partner is selected through European tender procedure

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Characteristics

- City wide
- Public space
 - This is the area where you are allowed to come without trespassing
- WIFI network
- Wholesale model
- Open service model


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Whole sale model

- Commercial partner (only) provides WIFI network with IP protocol as service
 - May also provide other services with transparent tariff model
 - May not refuse others to provide services
- Service providers are the added value of the network

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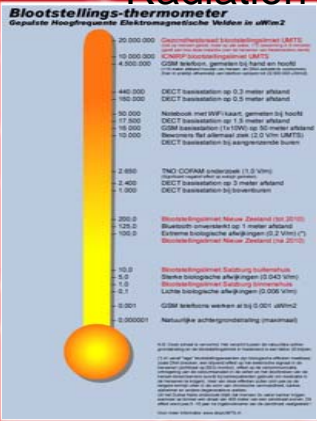
Pilot study



- Show cases
- Publicity
- [Radiation hazard](#)
- Management issues
- Pilot alone was reason (partially) for M€ 1,3 grants

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Radiation hazard



- Small group of people claim that Wireless Groningen will cause health problems
- Aim is to address (inter-)national norms for electromagnetic radiation
- Wireless Groningen alone does not have significant impact on radiation level in the city (1/1000 of current maximum)

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Services (1)

- Internet services
 - By municipality
 - Other organisations in city
- Security
- Healthcare
- Out of office support

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Services (2)

- Sensor networks
 - Underground garbage bins
 - Environment
 - Power/water metering
 - Tracking systems
- Location based services
 - Tailor made information provision
 - Tourism
 - Advertising

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Inventory of municipal services (1)

- Management of objects
 - Traffic light monitoring
 - Energy meter reading
 - Street light management
 - Mobile traffic count devices
 - Vehicle information systems
 - Telemonitoring of subterranean garbage containers
 - Dynamic traffic management

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Inventory of municipal services (2)

- Camera observation
- Mobile enforcing
 - Building inspectors, licenses, ..
 - Fire prevention squad
 - Environmental services
 - Social services
 - Tax inspectors
- Support of mobile work force
 - Maintenance, festivals, outdoor access to office information

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European tender

- Supported by Stratix
- July 2008: pre-selection
 - 4 responses
 - 3 selected
- October 2008: publication of tender
- February 2009: selection of Unwired
- March: award of contract
- April: signing of contract
- In all nine months!

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Service Level Agreement

- Terms are specified (and fixed) in tender document
- Translated to operational procedures
 - Acceptance levels
 - “Penalties”
 - Avoid later misunderstanding
- In the end partnership and trust should prevail

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Unwired

- Investment company
 - USA and NL
- Innovative wireless applications
- Need sustainable show cases
- Copy success stories to other municipalities
- Vendor agnostic

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Why WIFI?

- WIFI uses “free” spectrum
 - Easy access for application builders
 - Attractive business model
 - Draw back: interference from other WIFI networks
- WIFI has large installed base
 - All laptops
 - In Netbooks
 - In PDA’s
- WIFI has more capacity

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Current status

- Contract signed April 15, 2009
- First phase operational October 2009
- Next six months:
 - Fine tune SLA
 - Implement monitoring
 - Connect institutional networks
 - Initiate 10 show case projects



Why Draadloos Groningen will be a succes

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- Draadloos Groningen is not dependant of one service
- Commercial partner has covered 30% of his business model
- Foundation will actively support business development