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Dipartimento
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SUPSI Project

AquaProTi

Smart waterworks

ICT « digitalisation » for efficient resource management

Bruno Storni

Swiss US Innovative Energy Days 2019 San Antonio Texas



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Smart water -> Smart Cities

majority of World population live in large cities

exposed to increasing Water stress situation

population increase -> larger water demand

limited water resources

climatic changes

-> irregular water supply

a Solution ICT or Smart water



Waterworks management challenges

State of most waterworks : **buried old pipes networks leaks**

Non Revenue Water (leaks, counter errors, self use, etc.)

In Switzerland declared NRW 20% (leaks estimated 13%)

Inefficient Tariffs : no or low causality for consumer not
interesting , wasting water



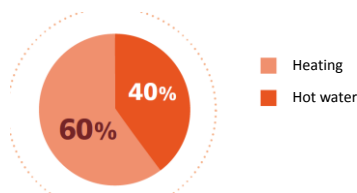
Waterworks management challenges and opportunities

High energy intensity in water

Pumping , consumer hot water use

Sewage treatment

Embedded energy in Water



Energy consumption in modern house



Waterworks management challenges and opportunities

Leaks represent a high risk for water quality

Situation of underpressure could introduce (suck)
contaminated water

Protect Drinking Water Quality -> eliminate leaks

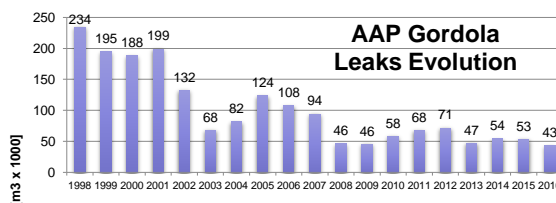


AquaProTI Applied research project

Baseline Gordola Municipal Water Supply Utility Project:

>15 years of stepwise improvements

leaks reduction and consumer sensitivation



Next step adopt more ICT : smart meters, internet of things



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Smartmeters

More accurate

On line communication (wireless technologies)

On line leaks monitorings

Dynamic Tarifs (causality) Peak and band consumption
reduction

Internet of things (sensor network), on line data analytics

**microelectronics for sensors , communication , etc
growing High tech market, reduce cost**



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Internet of things technology is off shelf and affordable

**SIIH 2017 Challenge on Social Innovation in Preventative Health in
Human Settlement in South Africa**

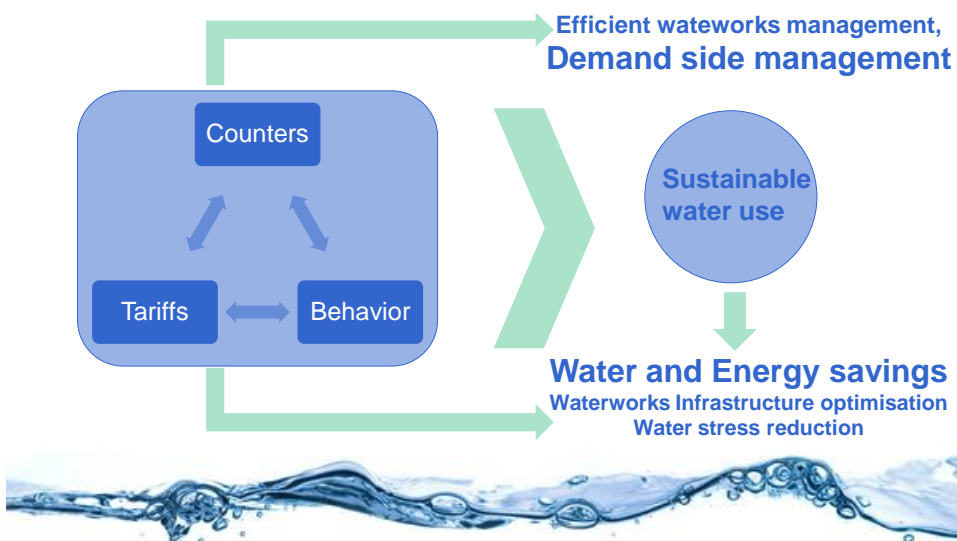


SUPSI Project

Clean Water Management

Improving drinking water quality by elimination of contamination
risks and water losses providing sufficient and clean water for
human settlements in South Africa by technological innovation,
best practices and personnel training for managing drinking water
supply infrastructure





Smartmeters

Sensor Wireless communication

Cellular network

Cloud computing

Web

Data Analytics

integrate and apply them Clean Water 4.0

it's all there..... Just use it



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