



# Smart metering area and smart controlling system for performance assessment at SEDIF

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› Wsmart – Amsterdam 2017

**Bérengère SIXTA**

Head of IT department and  
water loss management  
program



**SEDIF**

SERVICE PUBLIC DE L'EAU

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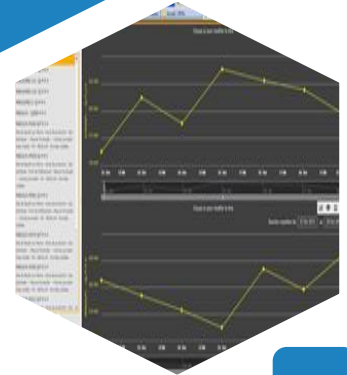
SEDIF : the water authority

Water loss management program : main issues

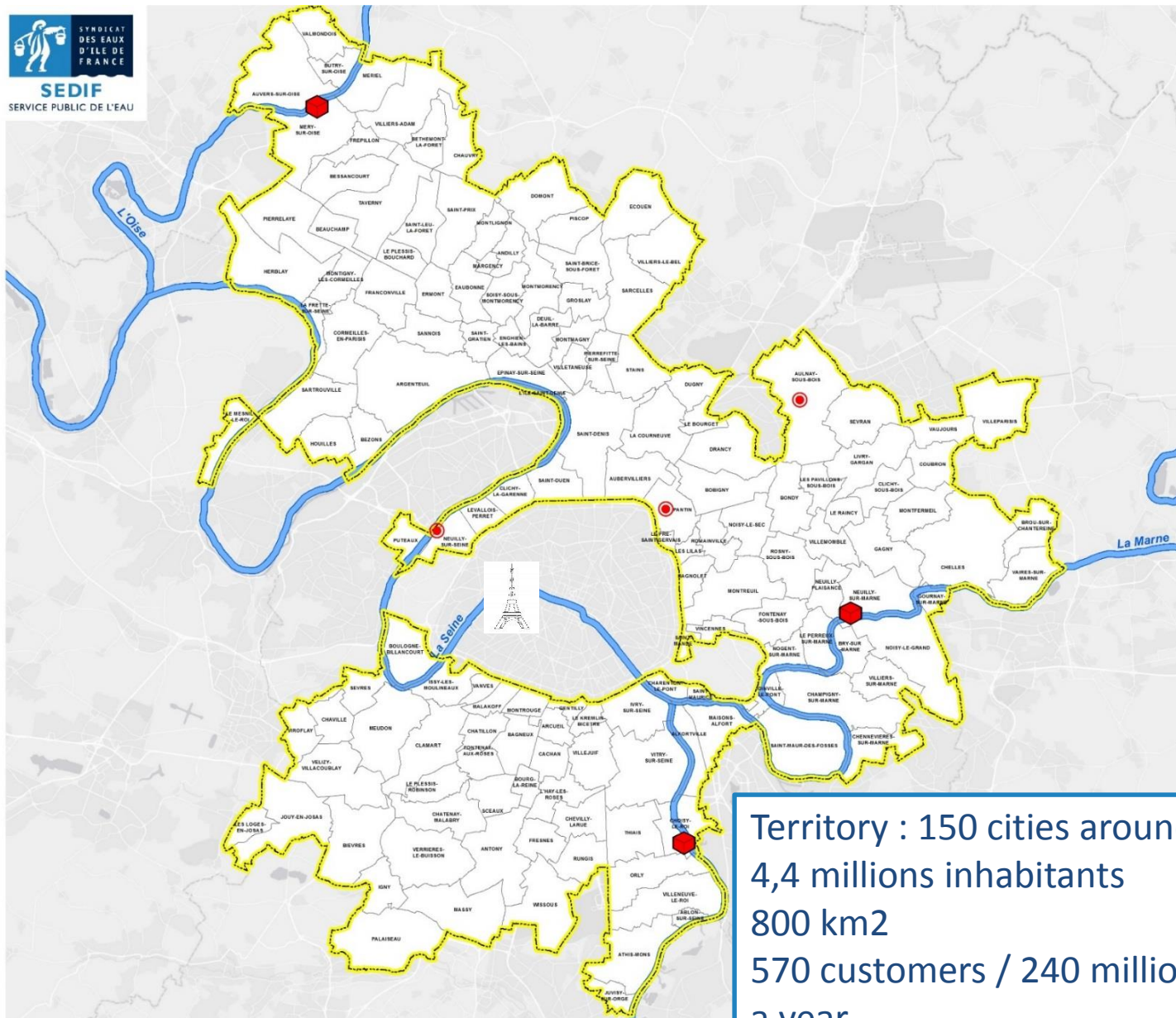


Implementing DMA : a mathematical process

Smart monitoring system : an assessment performance tool



# SEDIF : the water authority



Territory : 150 cities around Paris  
4,4 millions inhabitants  
800 km<sup>2</sup>  
570 customers / 240 millions m<sup>3</sup>  
a year

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SEDIF – DMA and smart monitoring system



# SEDIF : the water authority

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SEDIF – DMA and smart monitoring system

**SEDIF is charged with the provision of drinking water services by cities members**

- **decides upon corporate strategy (management model, territory, target related to sustainable development, etc...)**
- **sets tariff structure and service level**
  - ensures continuity of service
  - ensures sustainable financing and budget allocation
- **is owner of infrastructure :**
  - asset management, investment planning and capex implementation
  - Investments : 125 M€/yr



# SEDIF : the water authority

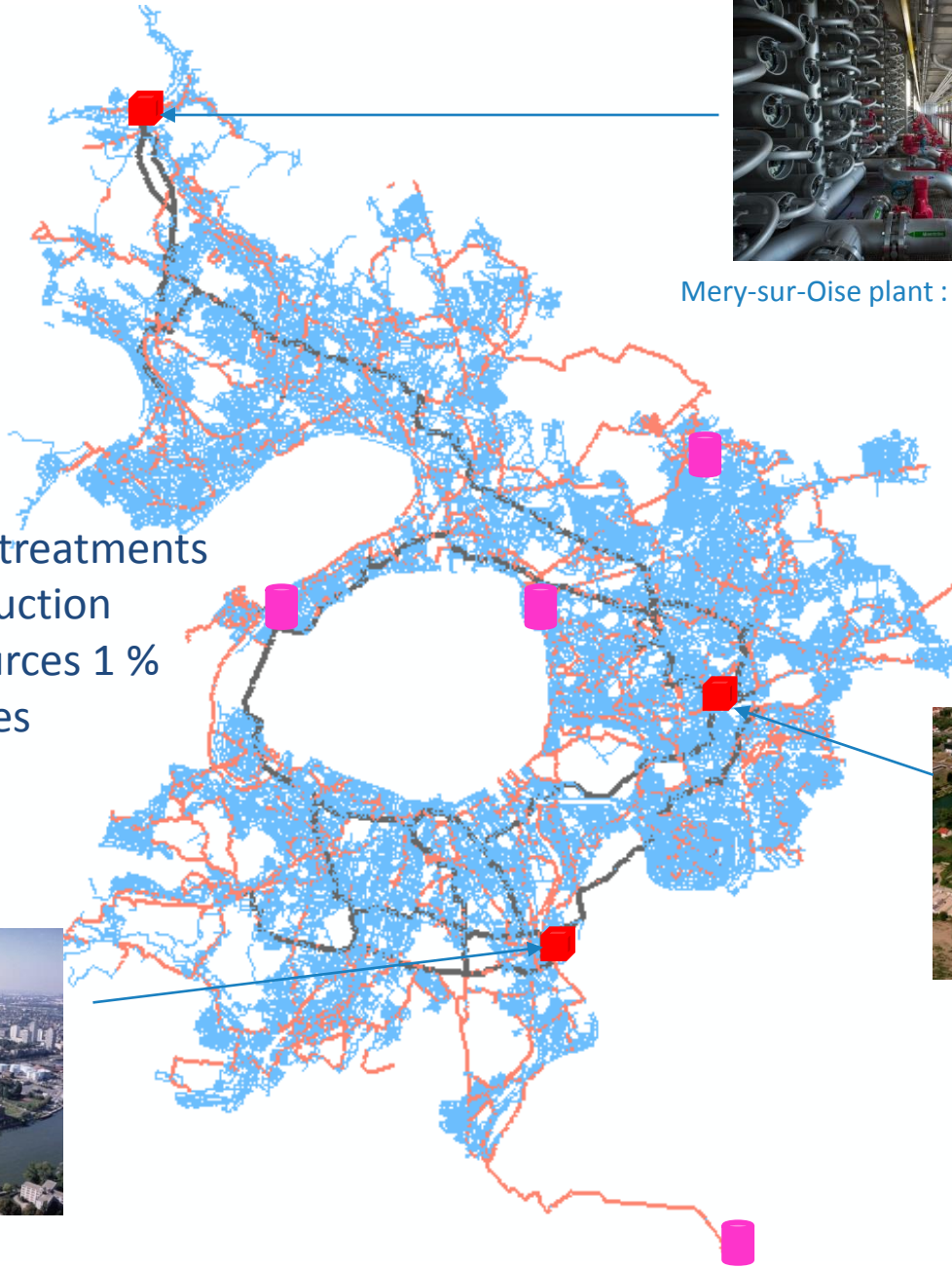
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SEDIF – DMA and smart monitoring system

- 3 surface water treatments plants : 99 % production
- 4 well water sources 1 %
- 8,800 km of pipes
- 750 000 m<sup>3</sup>/d



Mery-sur-Oise plant : nanofiltration



Neuilly –sur-Marne



Choisy-le-Roi plant

# Water loss management program : main issues

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Performance network :  
87,5 %

Non revenue water on network :  
34 millions m3 / y

According to IWA : UARL = 18  
millions m3

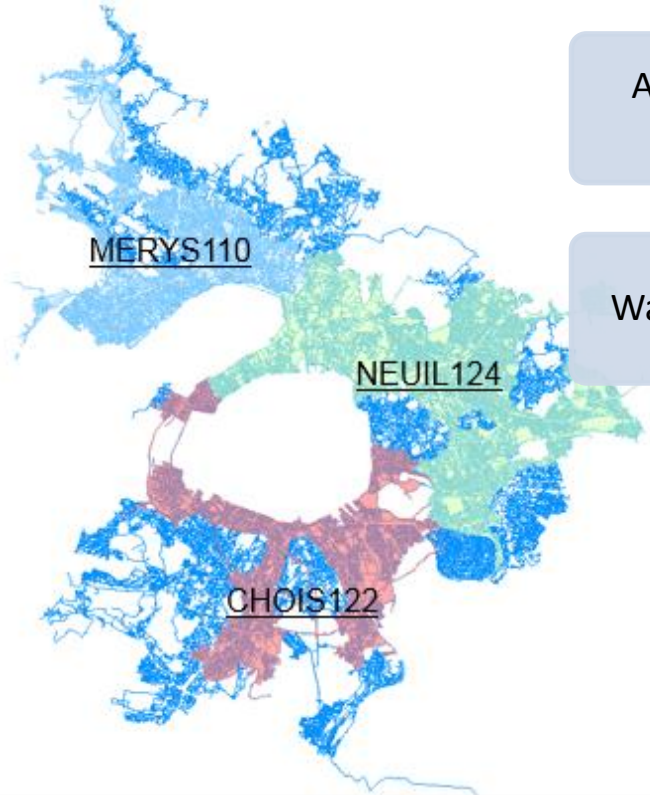
Wanted : About 8 millions m3/y

3 mains sub-networks

More than 1000 km by sub-  
network

Big water leak real time detection  
impossible

Creating about 100 DMA  
connected to smart monitoring  
system



# Implementing DMA : a mathematical process

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## ◦ Problem optimization and issues

- Reduce number of nodes
- Find a way to connect nodes to create homogeneous area according to
  - Night flow < 125 m<sup>3</sup>/h
  - Network resilience : capacity to maintain pressure on network
  - Quality of water



Hydraulic model



Mathematic graph



Simplified graph

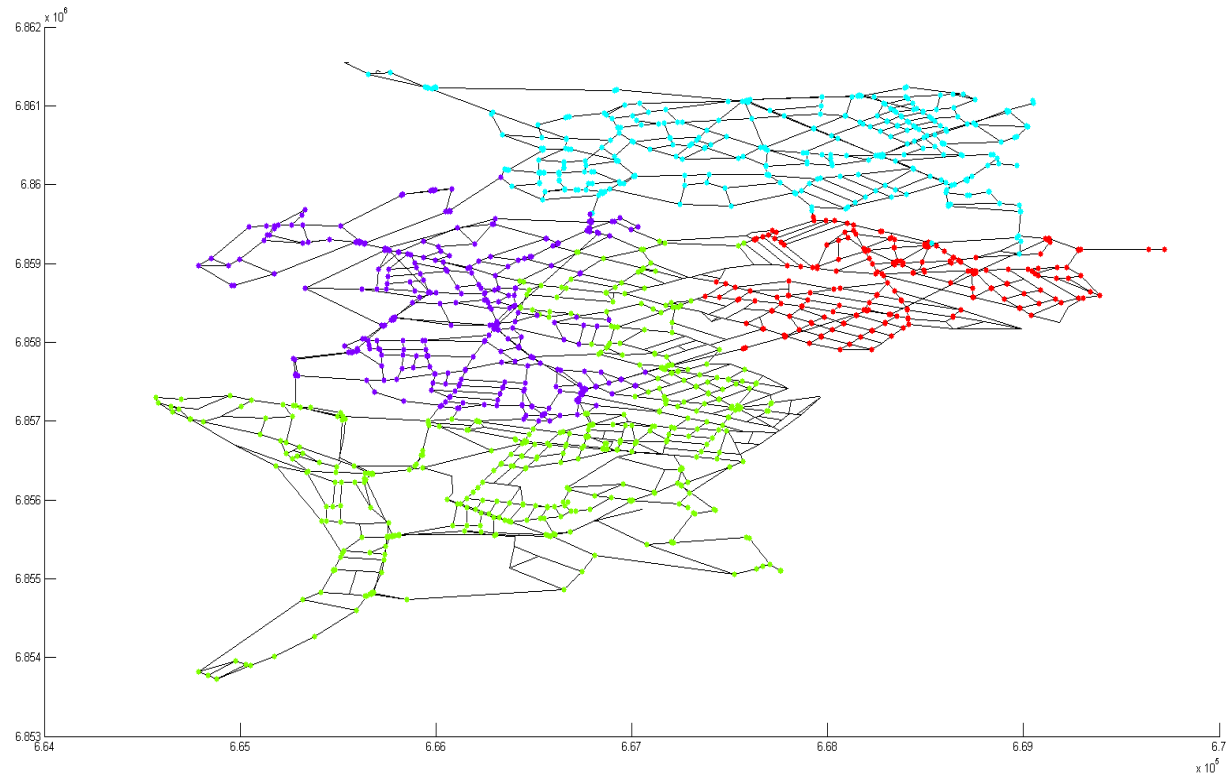


Automatic control

# Implementing DMA : a mathematical process

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Example of results





# Implementing DMA : innovative technology

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Pressure reduction



Micro-turbine installation to provide sensors and flow meter with electricity for real time transmission



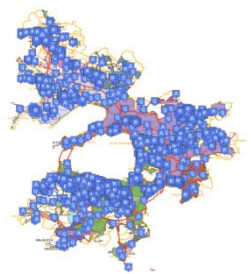
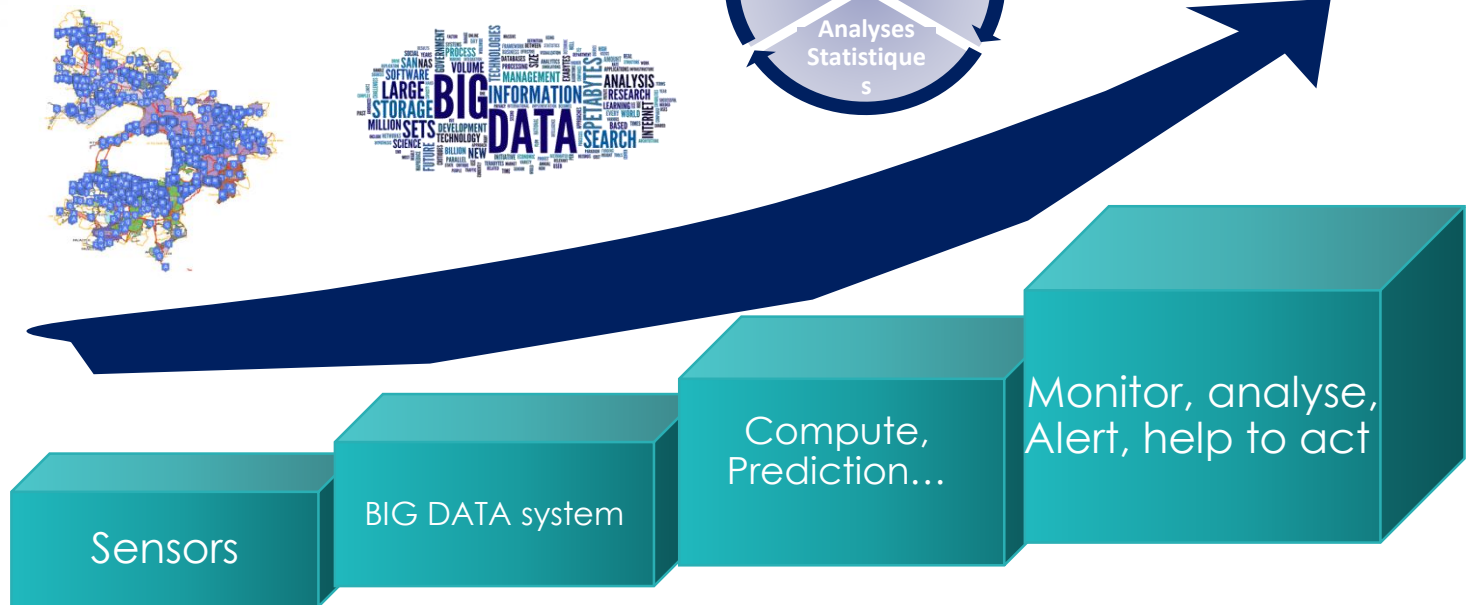
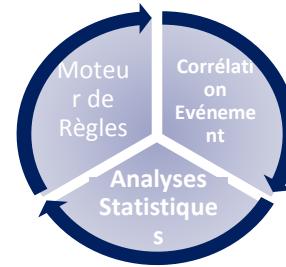
Monitoring pressure



By adding pressure sensors



# Smart monitoring system : ServO



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## Network monitoring :

Pression, flow, quality and leak detection

## Prevent risks:

Prevent from abnormal situation, crisis management

## Performance assessment

Compute and monitor Performance indicators to adjust operation



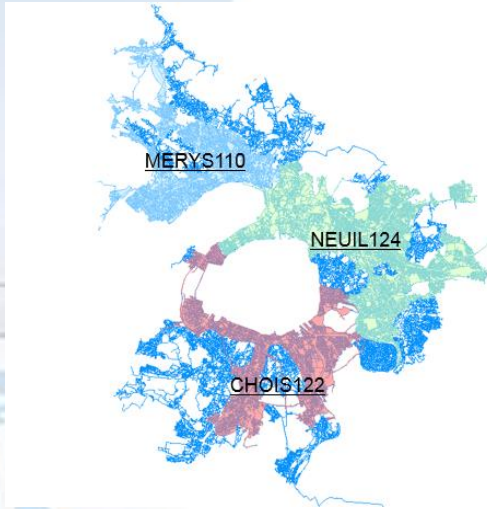
A glass of water with a blue logo on the left side of the slide. The logo depicts a stylized figure holding a staff or pole. The glass is partially filled with water and has a blue shadow behind it.

**Thank you for your attention**

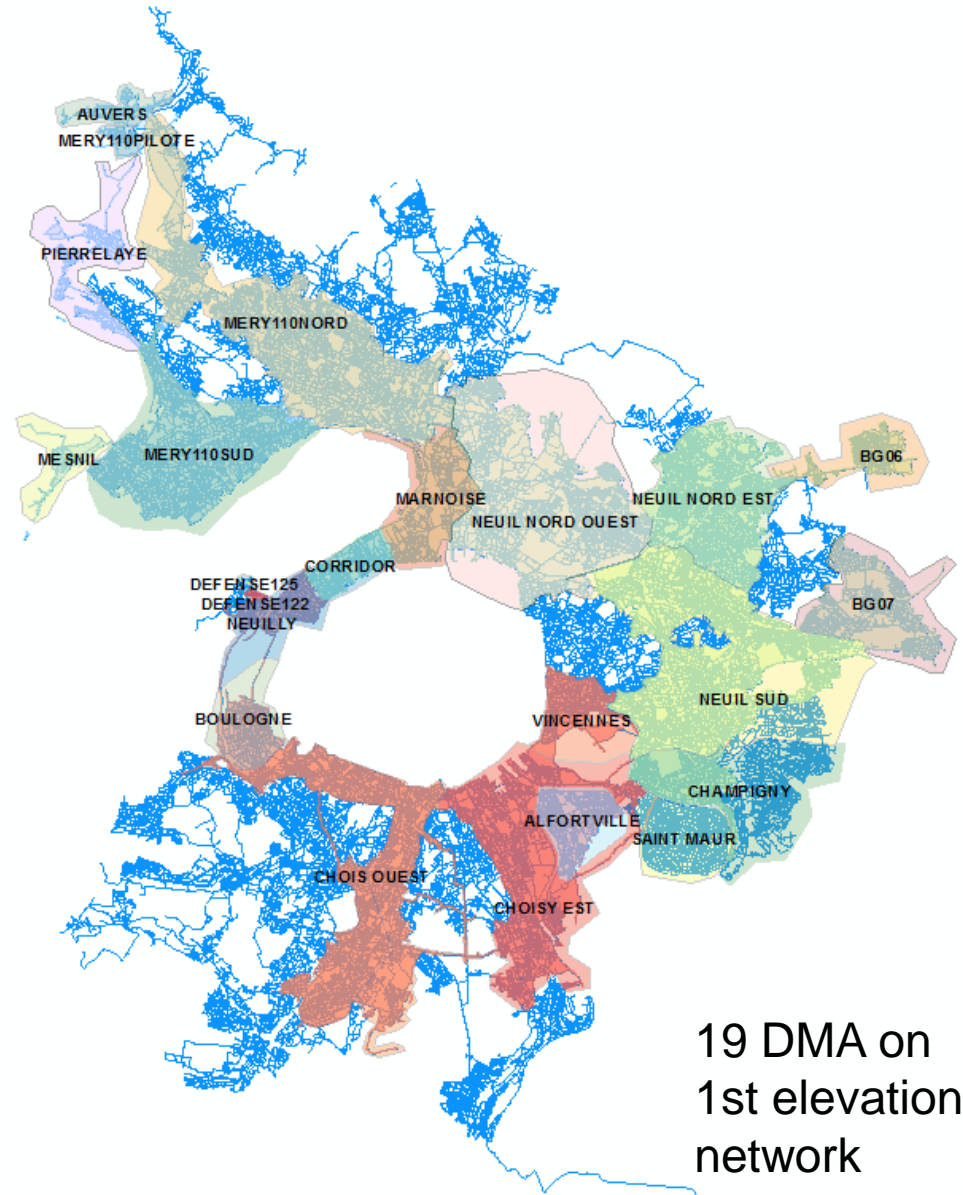
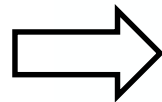
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# First sectorization : 19 DMA Added



3 elevations



19 DMA on  
1st elevation  
network