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## Tool presentation, choice of technology, man-machine interface, business opportunities and prospects





1. Introduction
2. Man-machine interface
3. Knowledge system « Sync'flow »
4. SyGEMe technology
5. Business opportunities
6. SyGEMe and its functions
7. Prospects



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## 1. Introduction



- Switzerland is the water reservoir of Western Europe. Precipitation is twice higher than EU average the

- A growing water demand and climate change create additional challenges for water management





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## 1. Introduction



- Regional disparities and unequal availability are other challenges in the management of alpine water

- Some regions have to use technical solutions and consequent financial resources to ensure service quality and security in the quantity of water





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## 1. Introduction

SyGEMe innovations are:

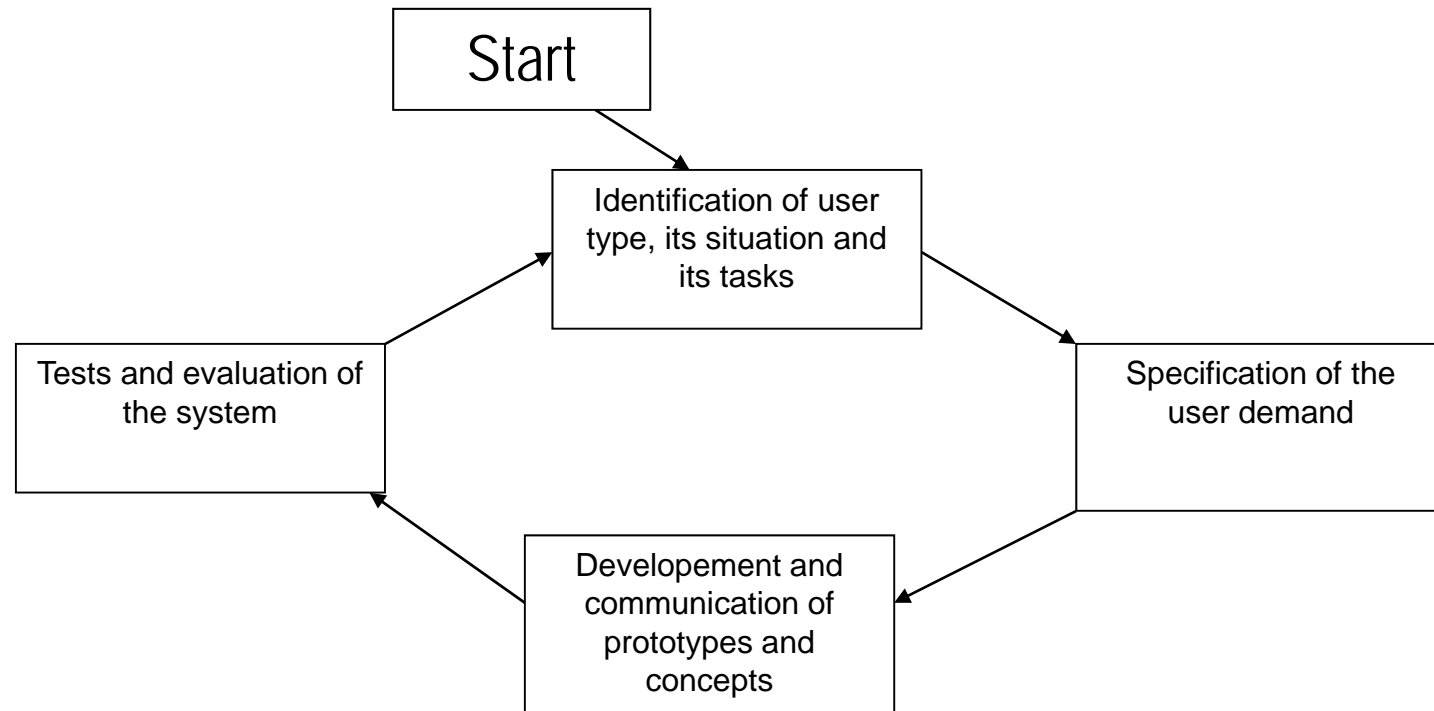
- integration of dynamic telemetry data and a management knowledge system on a Geographic Information System
- the possibility of managing scalable network with a modular web application and configurable online
- an approach focused on services
- integration of software engineering with the use of a system of knowledge management and filled by the experience of operators
- a new development methodology for all aspects of the network.



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## 2. Man-machine interface

The approach focuses on the user:







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## 3. The knowledge system « Sync'flow »

The knowledge system is based on the 3 usual components :

- a fact base that stores all the findings and underlying tasks,
- a base of rules modeling a set of use cases specific to the behavior of the water supply network,
- an inference engine able to apply the rules entered in order to produce reports and to provide to users potential tasks to solve the problem.

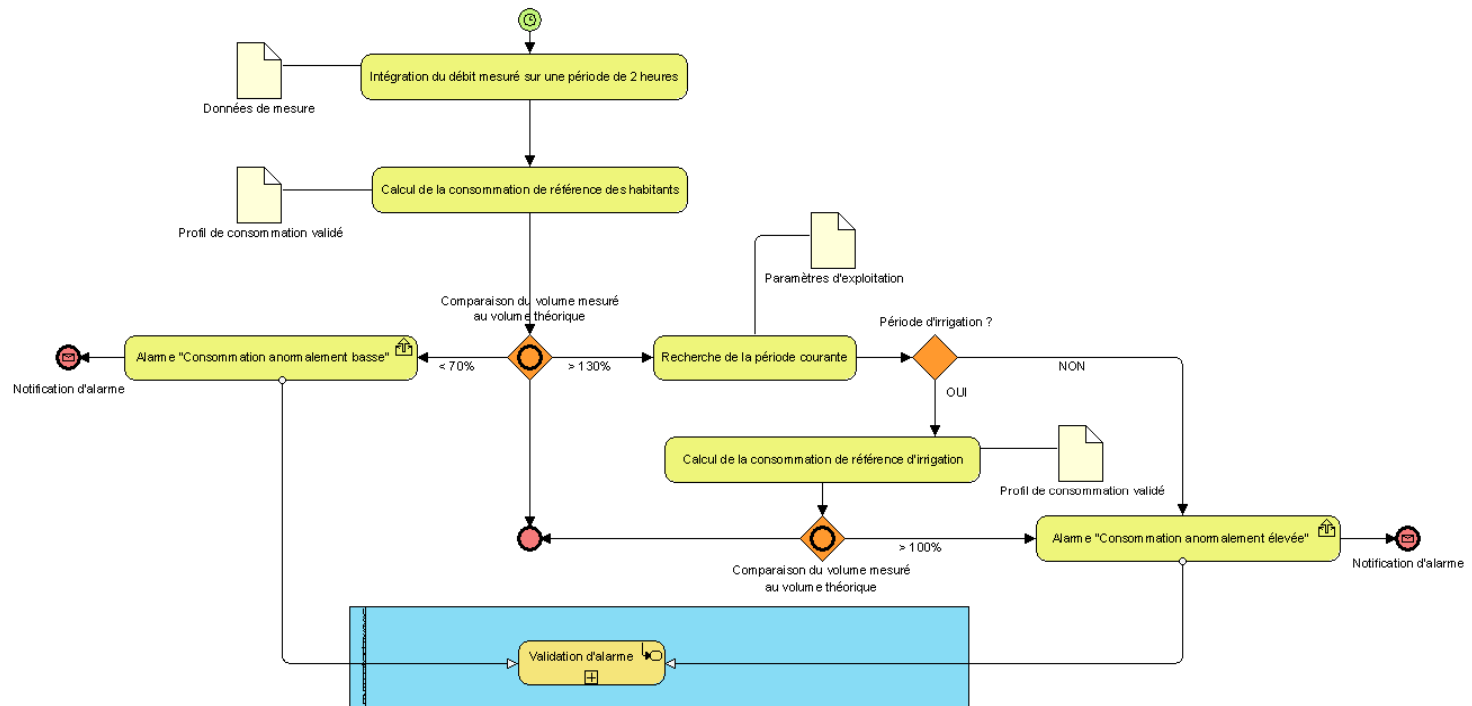


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## 3. The knowledge system « Sync'flow »

Interactions between the knowledge system and the users are defined by computer process called « Workflow »



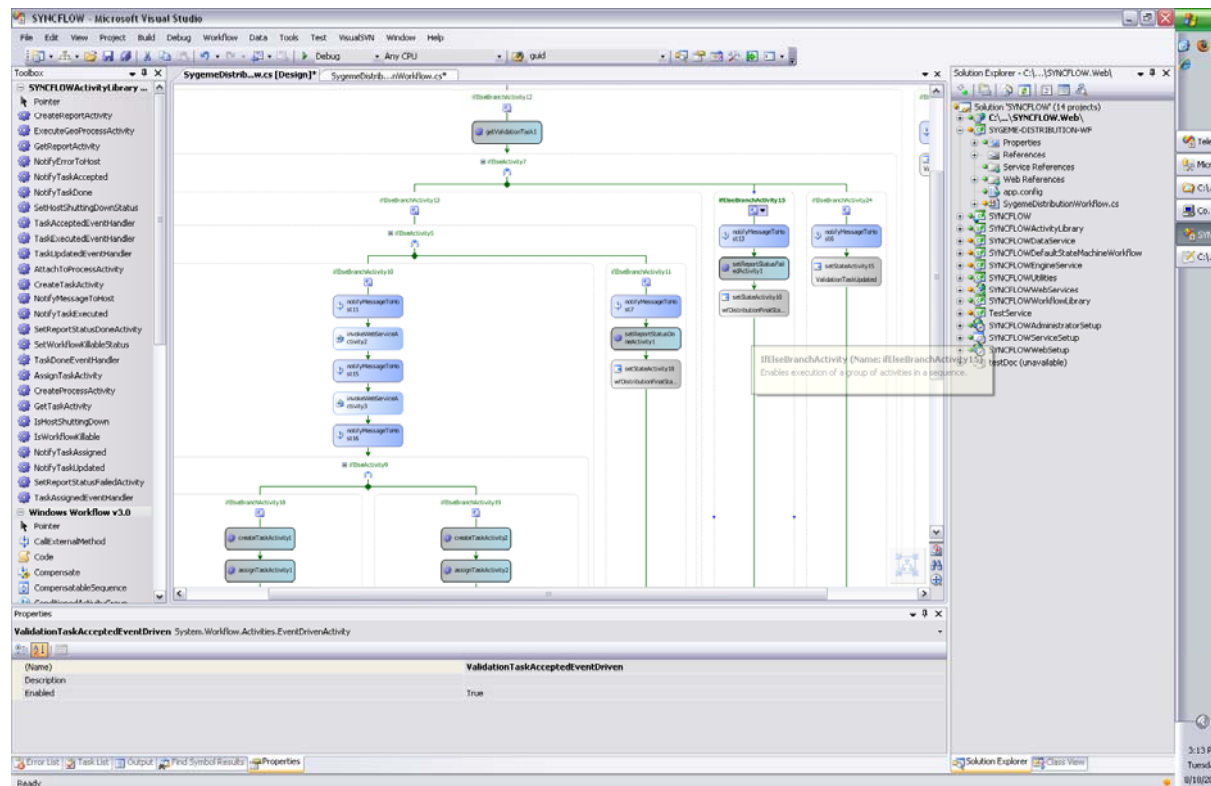




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## 3. The knowledge system « Sync'flow »

Developers implement the processes with the help of graphical development tools and publish them on the knowledge system





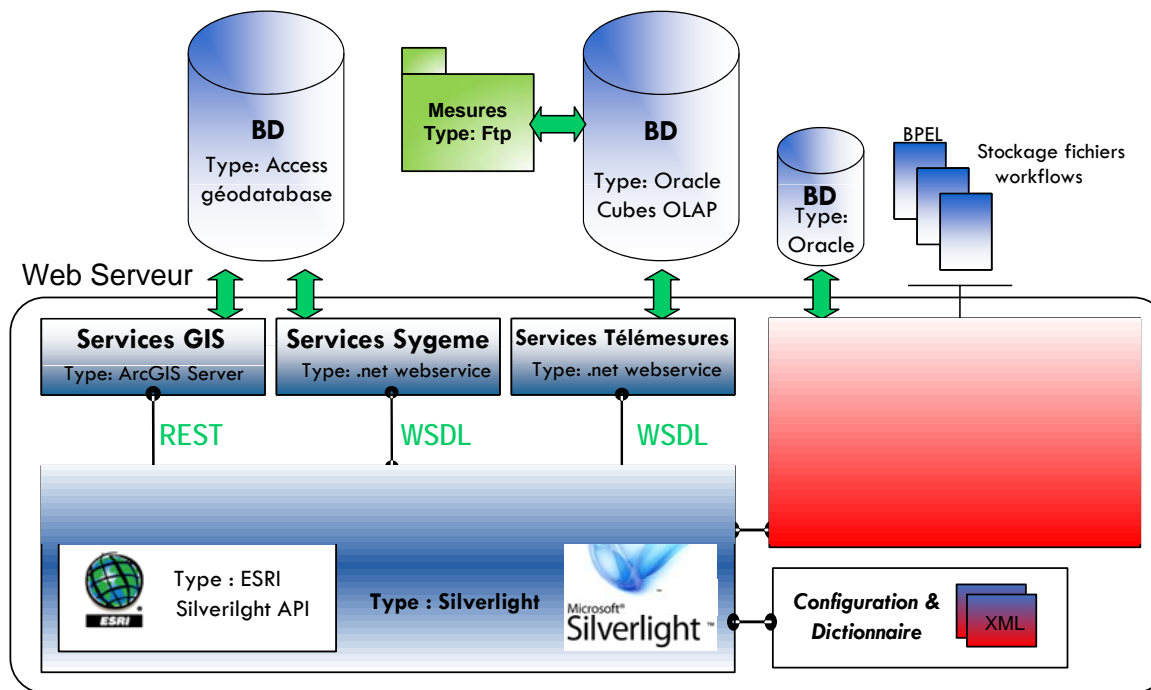
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## 4. SyGEMe technology

SyGEMe architecture is a WSOA type (Web Services Oriented Architecture)



### Architecture système: WSOA





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## 4. SyGEMe technology

Sync'flow architecture is a WSOA type. It can be totally independant from applications and working tools that it has to manage.

It is implemented with standard technologies from Microsoft (Visual Studio 2008, .NET Framework, Workflow Foundation and Silverlight).

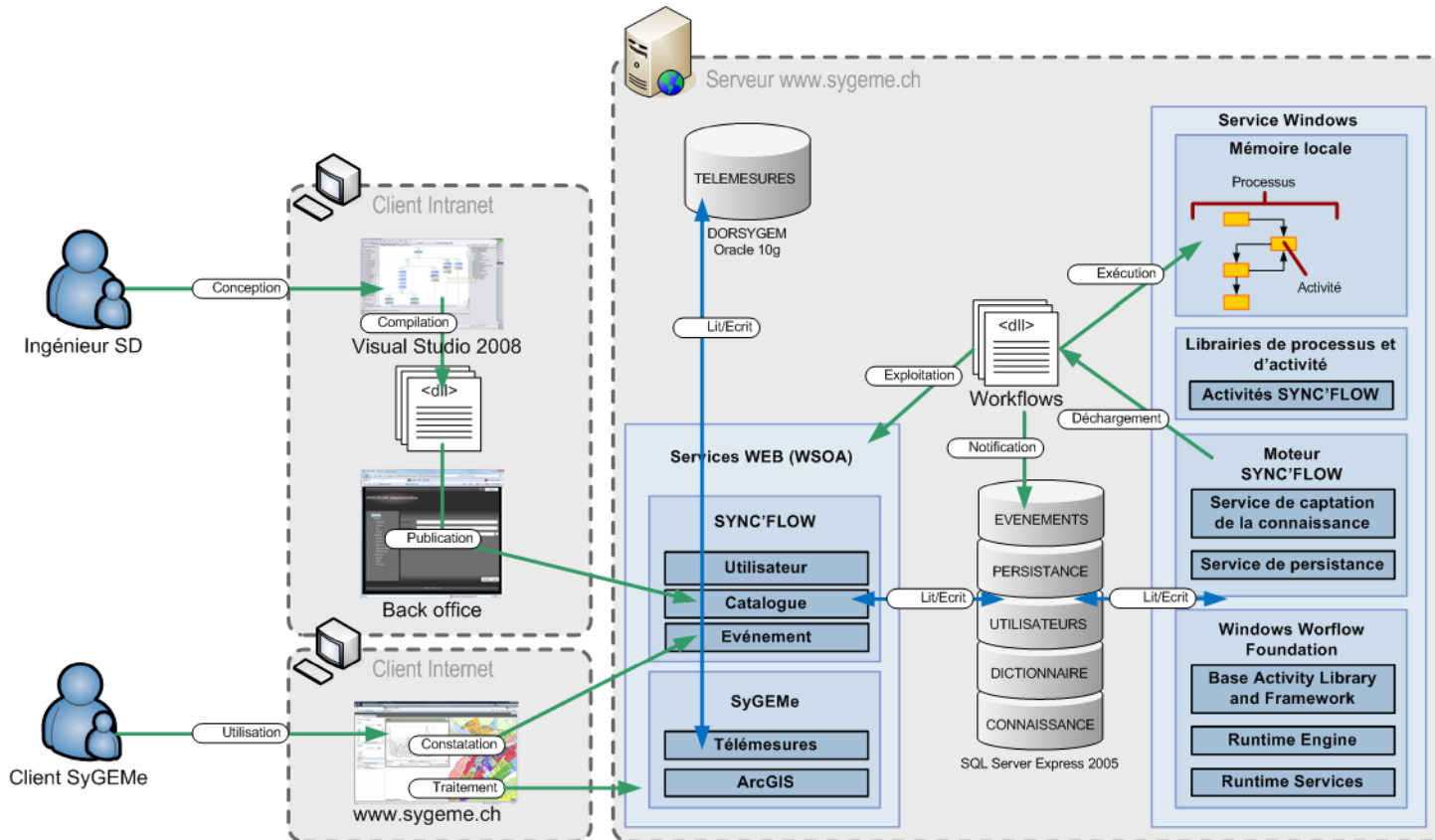
SYNC'FLOW is implemented in a database divided by 5 data models (>40 tables) ;

- a Windows service in which the workflows are executed ;
- 3 services Web SOAP (Utilisateur, Catalogue, et Evénement) ;
- a back office managed from a web browser which let manage the users and the workflows catalog ;
- A database and a web service for the storing and the access of telemetry.



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## 4. SyGEMe technology





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## 5. Business opportunities

For public authorities, control of supply systems and water distribution is of obvious interest :

- a water system is an important investment
- availability in quantity and quality of water resources is a global challenge,
- the water network deteriorates itself naturally or due to human actions,
- performance criteria of a network are multiple and mechanisms of deterioration also,
- information is composed of small fragments, infrastructure is often poorly known and plans incomplete,
- the resources available are limited.



## 5. Business opportunities

Good control of supply networks and water distribution, as well as the efficient management of water resources, need to have effective and integrated tools.

- Measure

- Understand

- Acting

→ Transmit acquired information to other actors

A tool for controlling the supply system and water supply has to serve three distinct levels of information:

- The manager (help for decision tool)

- The expert

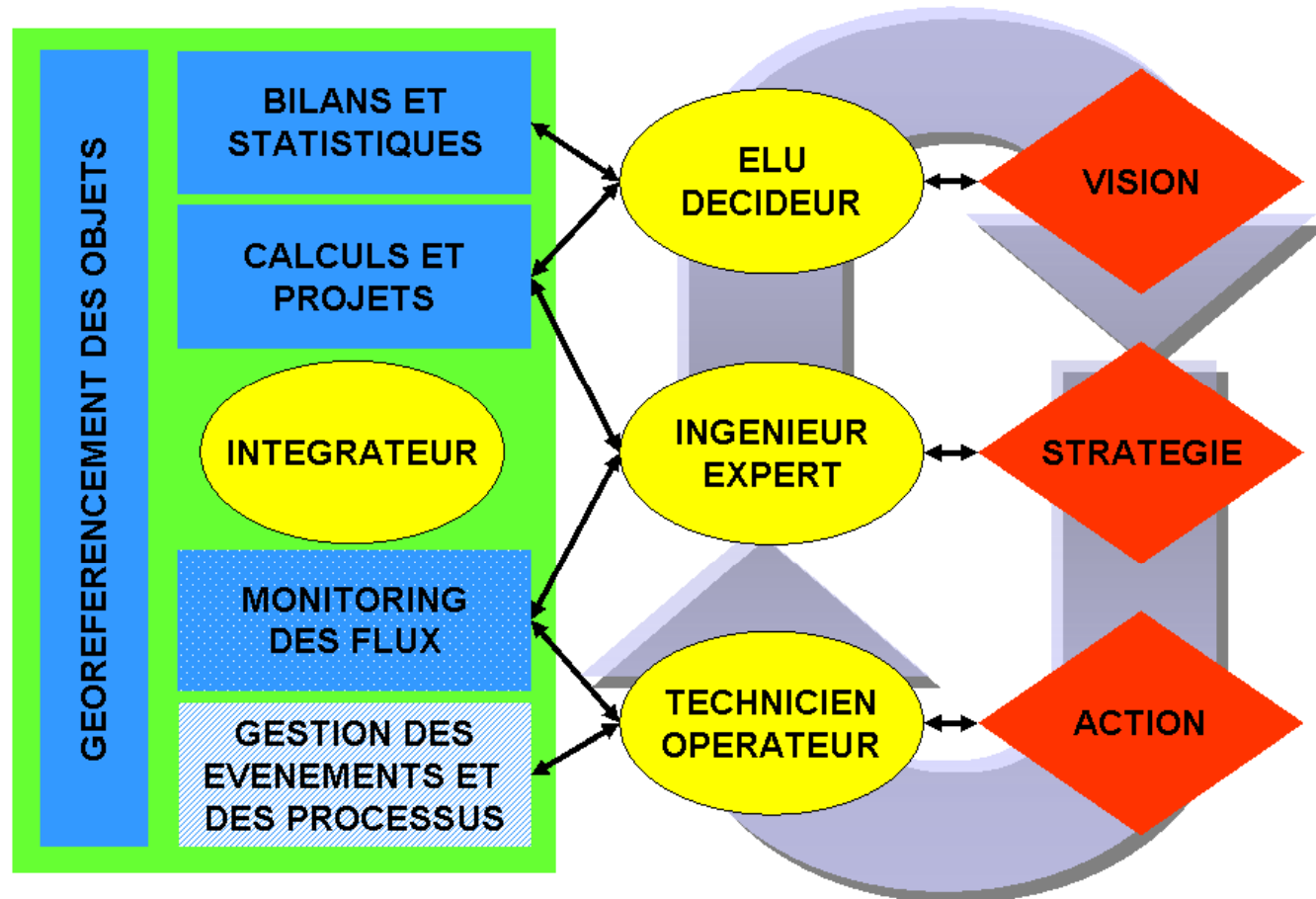
- The operator



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## 5. Business opportunities

### ECOSYSTEME SYGEME



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## 5. Business opportunities

The business opportunities are of three types:

- « SyGEMe services »
- « SyGEMe integration »
- « SyGEMe management »



## 6. SyGEMe and its functions





## 7. Perspectives

The challenge of SyGEMe project : develop an innovative tool with monitoring and knowledge management, for the market of operators in water supply networks. The prototype is functional and accessible online for the first pilot customer, Sinergy SA.

An initial market investigation has shown an interest of operators in water supply networks.

The number of services developed to the specifications of the project shows there is great potential for the development of SyGEMe.

The process of information management opens the scope of SyGEMe. All network industries (electricity, water courses, gas system, etc..) may be involved, but also all types of territorial projects that require monitoring information.



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