RGI-189

SWE-connected sensors: Datasource for geo-information

Jan Jellema

Partners

- **KPN** National Telecommunications
- **LOFAR** Super fast scientific fibre network
- **KNMI** Royal Netherlands Meteorology Institute
- **WUR** University Wageningen
- **Alterra** Agricultural Scientific Institute
- **Delft Hydr.** Delft Hydraulical laboratory
- **GeoDelft** Centre for Geo-Engineering
- **Eijkelkamp** Supplier of sensors.
- **TNO B&O** Geological Survey of the Netherlands
- **IFGI** Institute for Geo-Informatics (Germany)
- **WSRL** Waterboard Rivierenland

In consultation with the project “IJkdijk” in Groningen

Sensor Web Enablement

- Search through the Internet.
  Find the metadata and location of the sensor
- Contact the sensor and ask for recent (meta)parameters
- Define a selection or pre-process the data
- Receive the selection or request for periodic updates
- Search for and apply standard processes on received data.

Past:

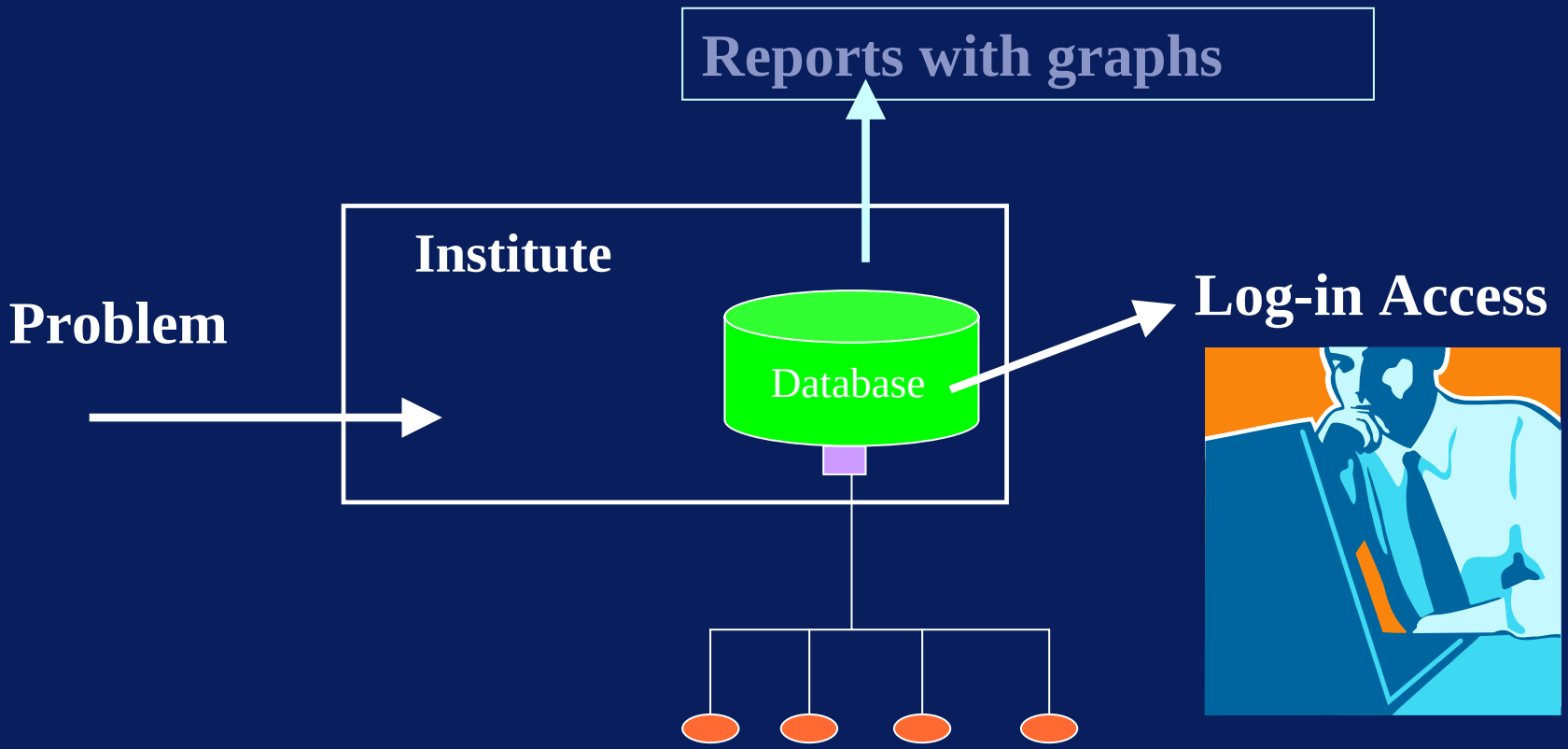
Report with tabels

Problem

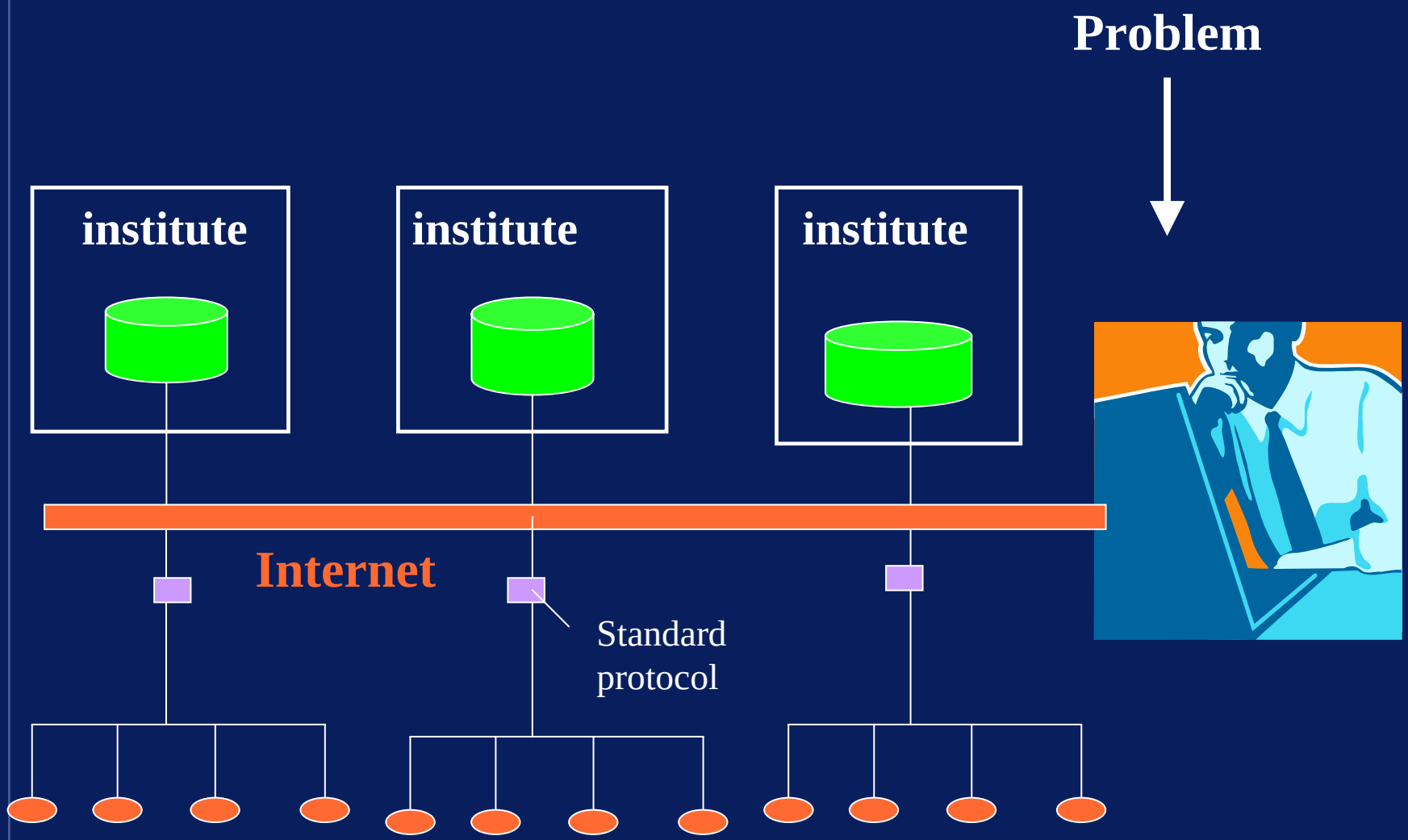
Institute

Department

Actual practice



Future situation



Example: Dry period

1. Moisture	2. Precipitation	3. Precipitation
Several locations	Local	Model: Hydroline

Request Groundwater pumping

Groundwater levels
- Actual sensorinfo
- Historic curves

Intake
gauges, discharge canals, weirs

Precipitation, evaporation
- actual sensorinfo
- historic, prediction

Example high water

River levels
(Werse, Elbe, Oder, Rhine)


telefoon
ptt telefoon
telefoon
ptt telefoon

Example High water

rivier levels

Groundwater levels In seepage area

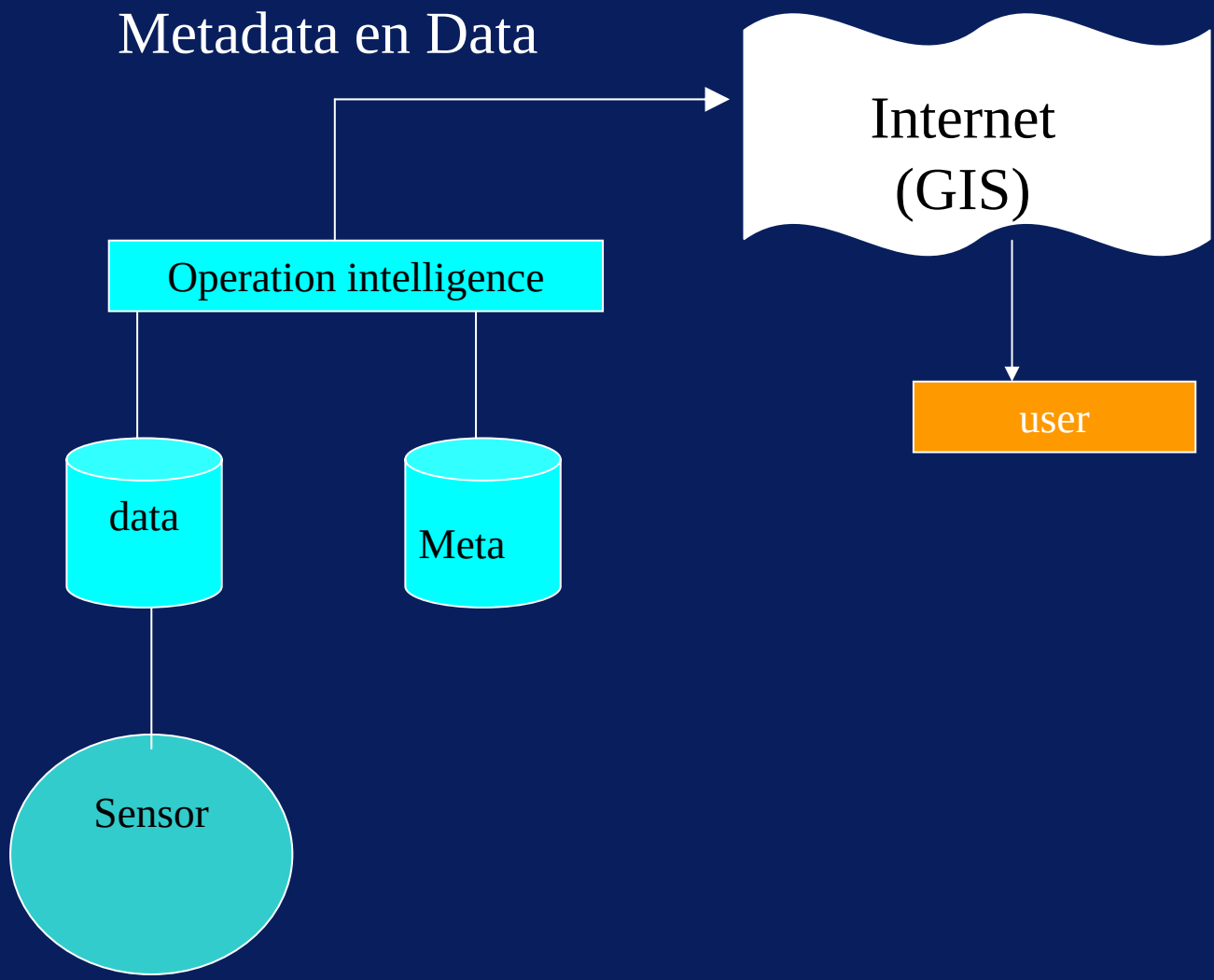
Actual outflow from polders

Polder

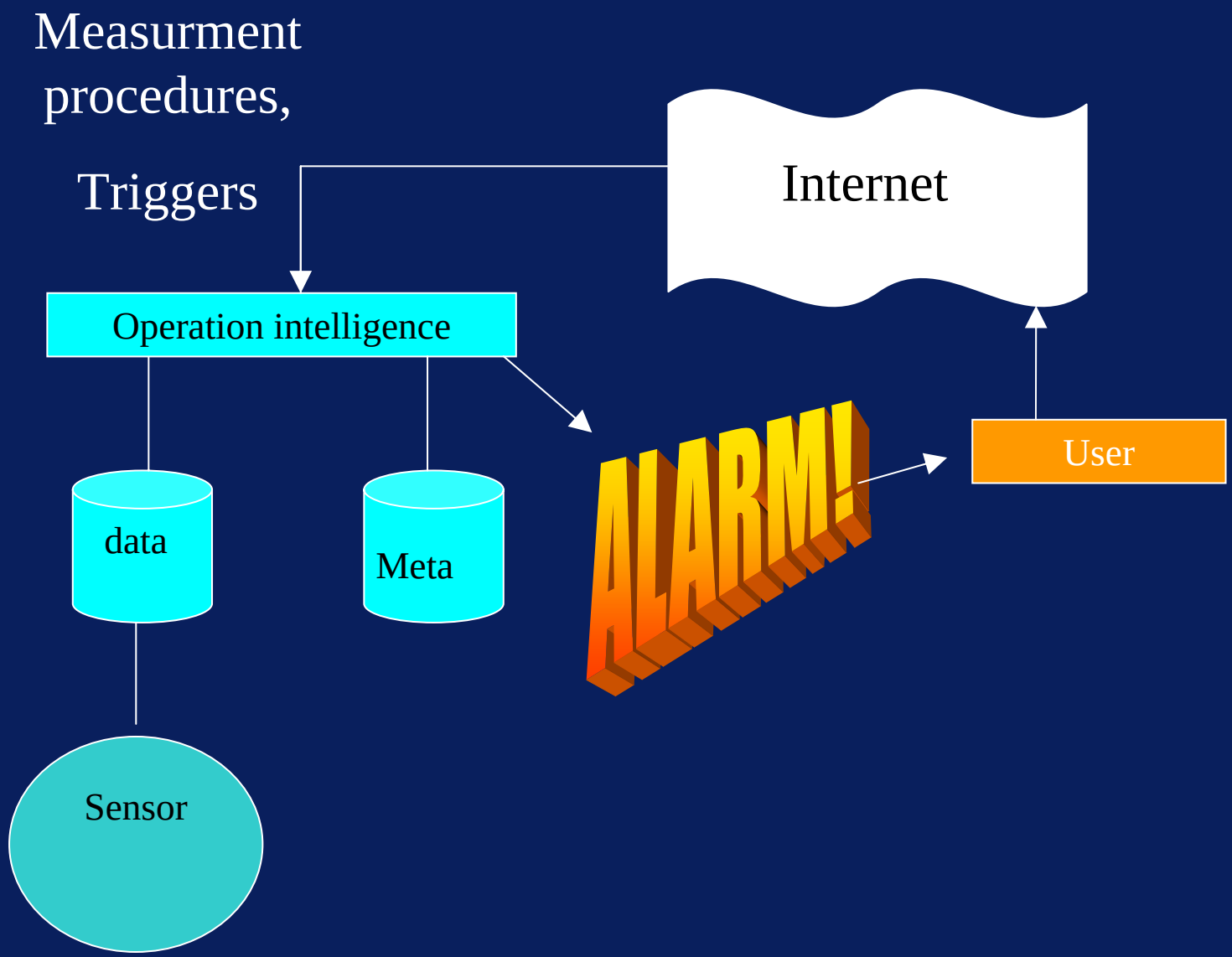
at Lent

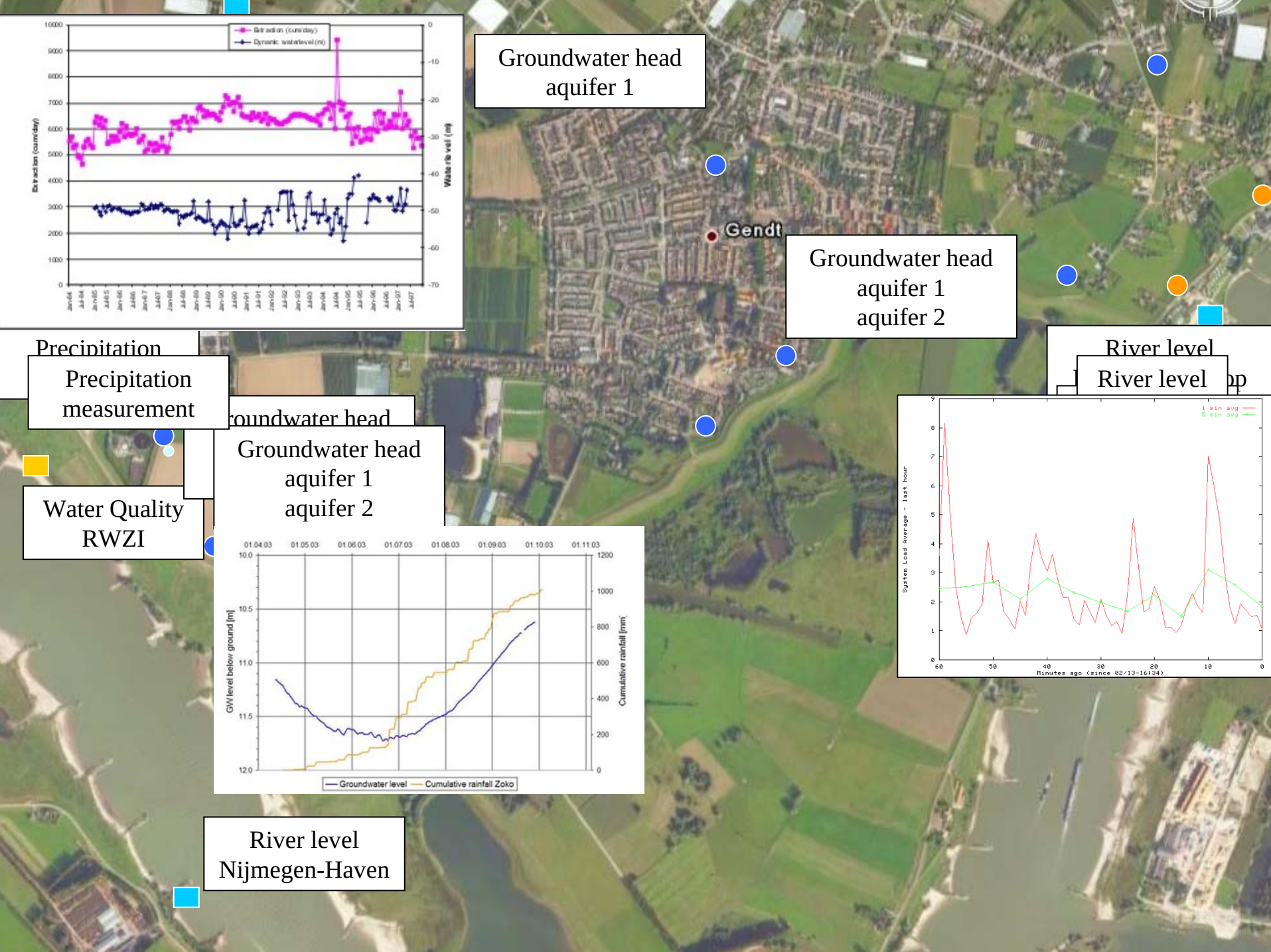
Future suburb of Nijmegen

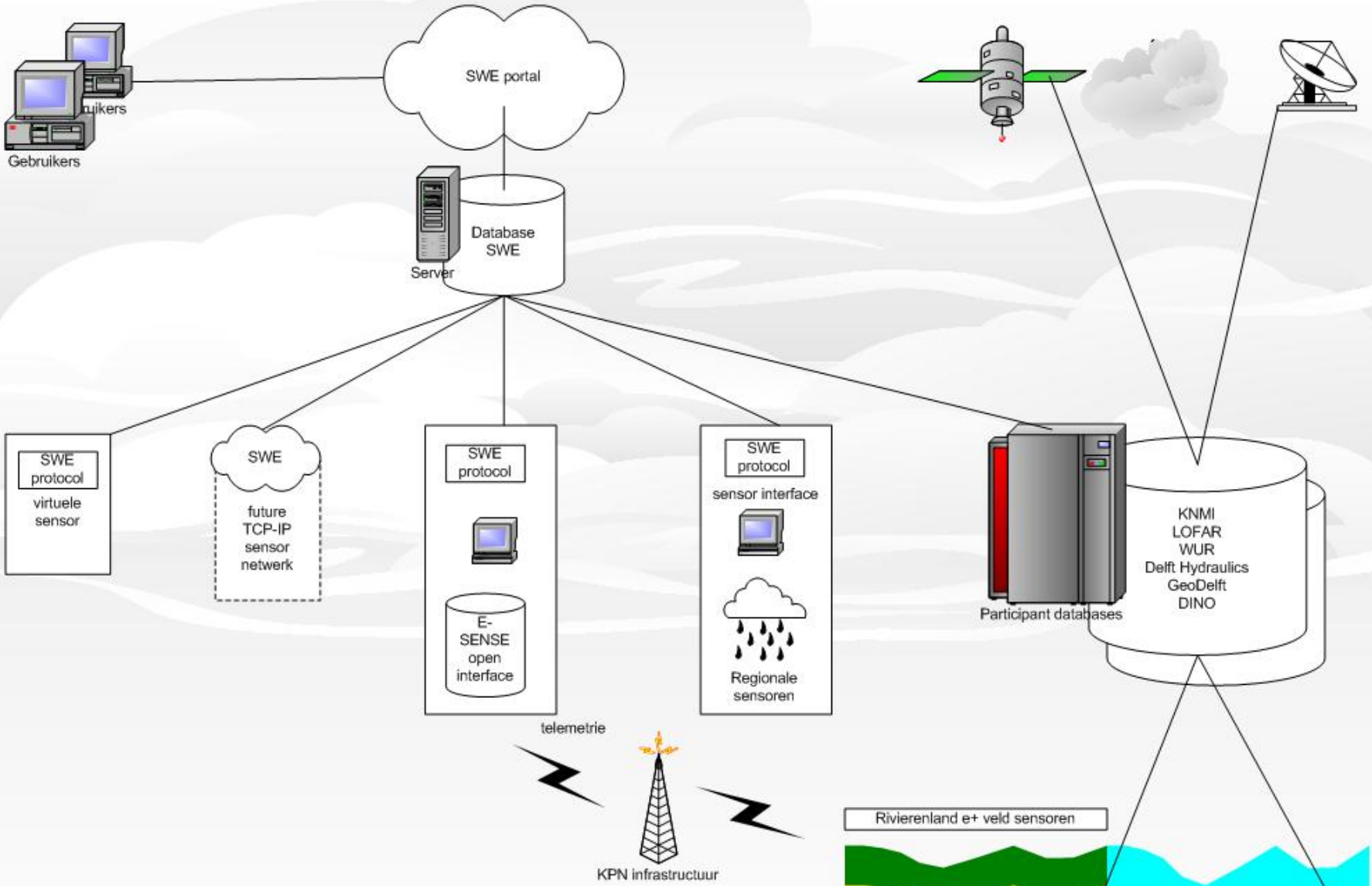
Information flow to user



Steering by user



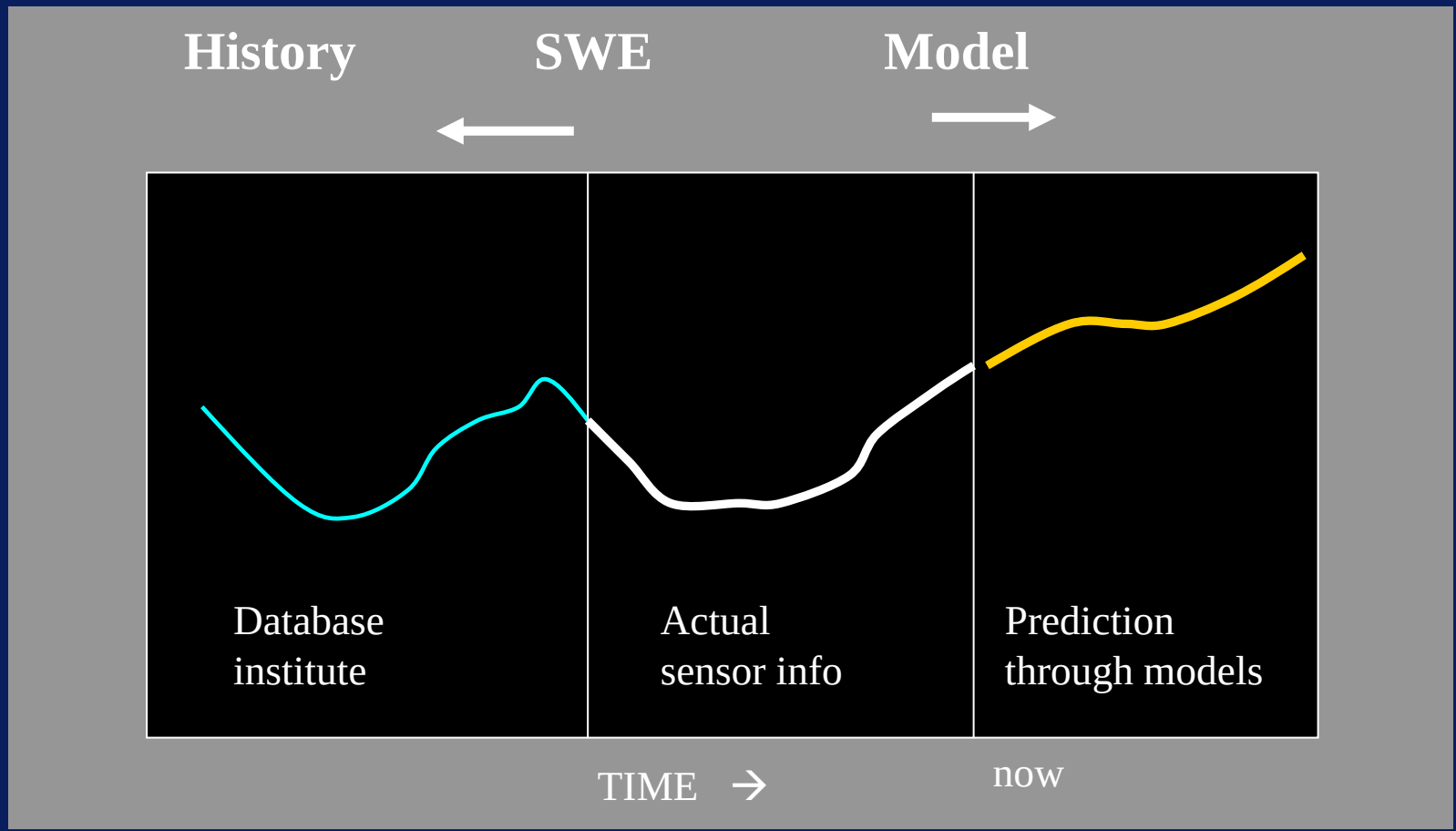

Groundwater head
aquifer 1
Gendt
Groundwater head
aquifer 1
aquifer 2
River level
River level
Precipitation
Precipitation
measurement
Groundwater head
aquifer 1
aquifer 2
Water Quality
RWZI
River level
Nijmegen-Haven
Extraction (cum/day)
Dynamic waterlevel (m)
Groundwater level
Cumulative rainfall Zoko
GW level below ground [m]
Cumulative rainfall [mm]
1 min avg
5 min avg
System Load Average - last hour
Minutes ago (since 02/13-16:34)



Sensor Web Enabled Context Diagram

H. van Rheenen 21-10-2006

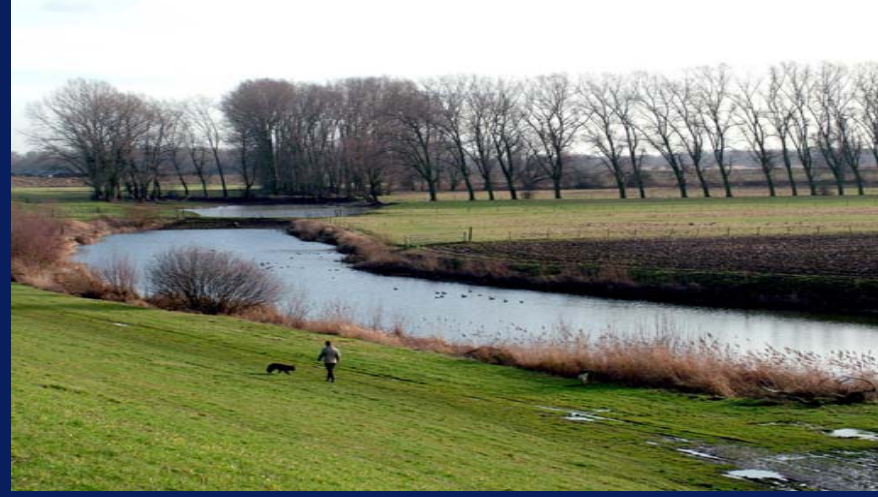
Detail Information from one Sensor



Questions?

- Who pays?
- What doe a value mean?
- Who is responsible for the quality of the sensor?
- We need a new graphical language. Symbols, dynamic features.
- When can be order SWE-enabled sensors?

Summary



- Better cooperation between institutes.
- Informed civilians (Aarhus).
- Real-time support of urgent decisions.

Questions?