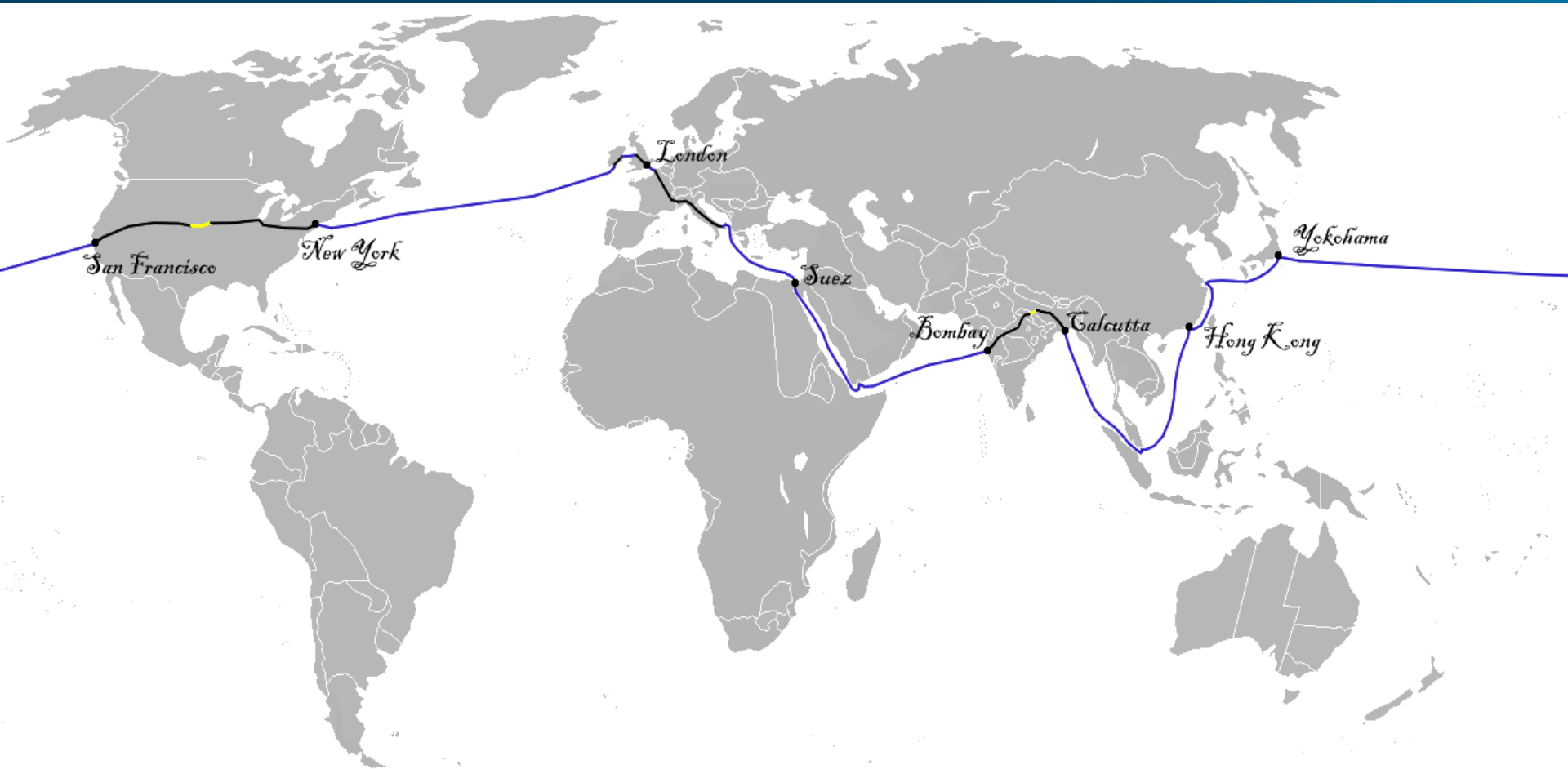
Gestione ottimale delle reti idriche

Gli strumenti tecnologici DHI

D.Persi

Torino, 15 Ottobre 2015

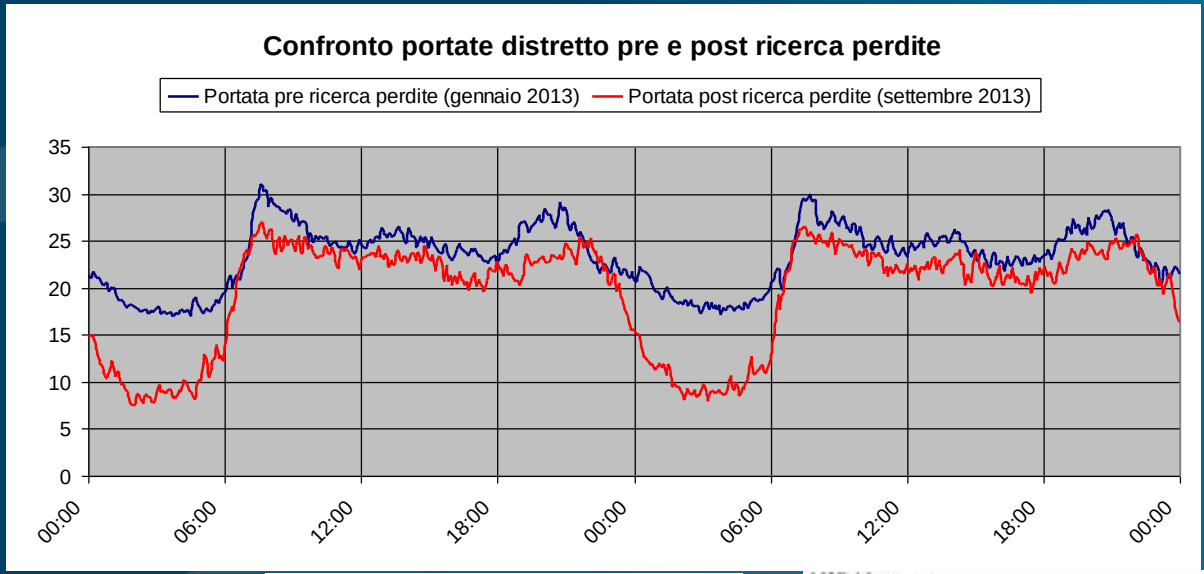
‘’Le Tour du monde en quatre-vingts jours” - J.VERNE

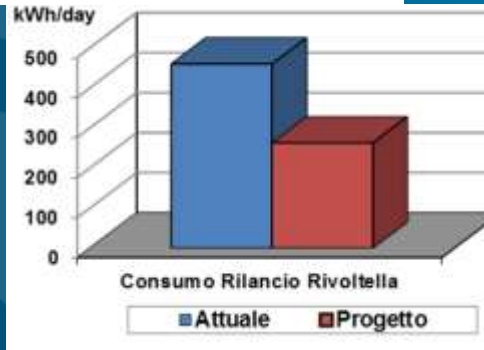



DHI - Modelling the world of water
“ La tecnologia DHI in 6 tappe”
DHI

GESTIONE OTTIMALE DELLE RETI DI DISTRIBUZIONE - RIDUZIONE PERDITE

Romano D'Ezzellino (Vi)

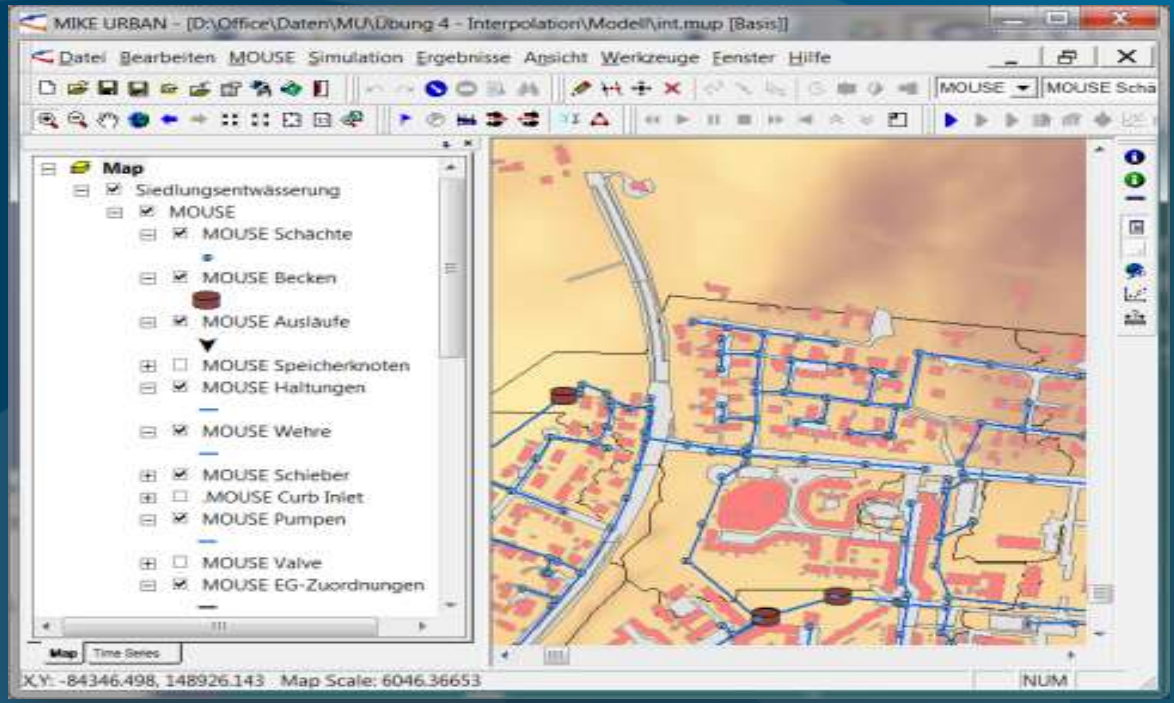




MIKE URBAN

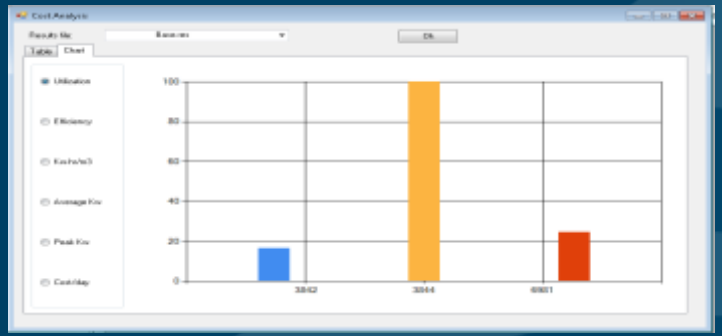
Gestione dati e simulazione dei sistemi di:
DRENAGGIO URBANO & DISTRIBUZIONE IDRICA
Ambiente di lavoro
Progettazione e gestione delle reti idrauliche urbane

a) Integrazione GIS completa – Struttura, interfaccia e DB ESRI ARCGIS
b) Motore EPANET +
c) Tool avanzati



Pressure depended analysis

Pipe criticality, sustainability and cost Analysis



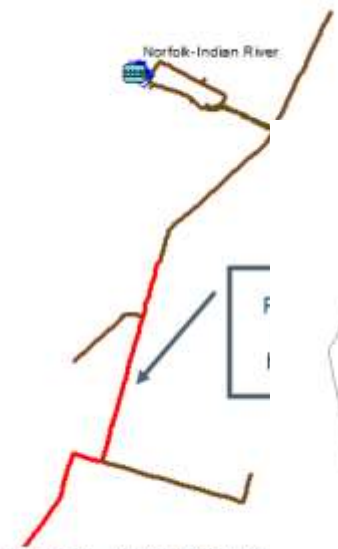
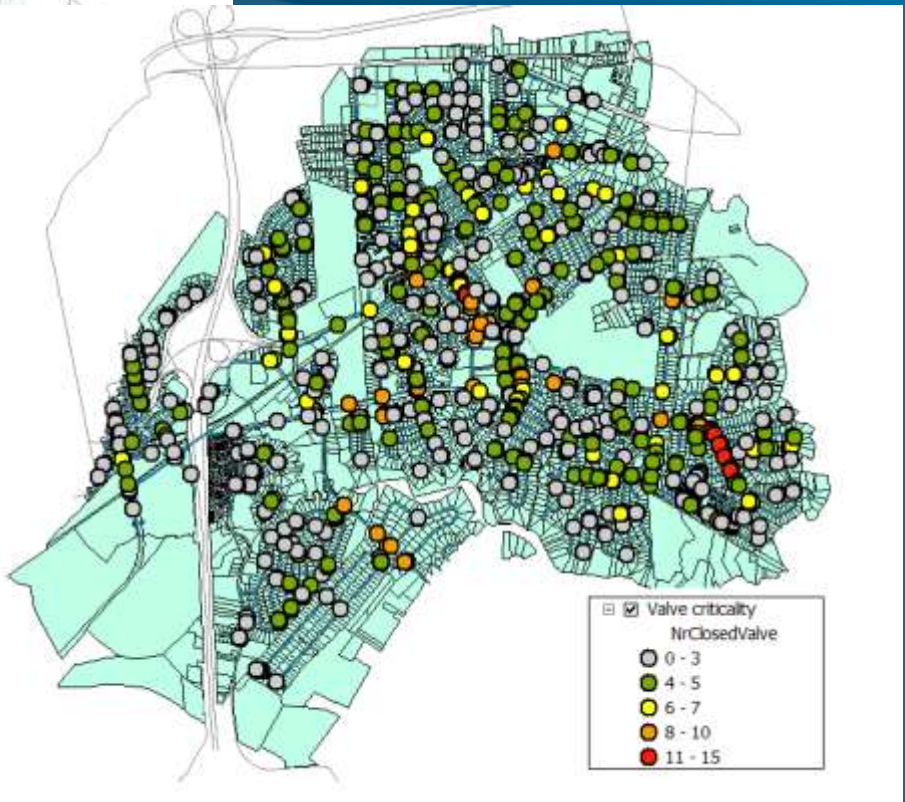
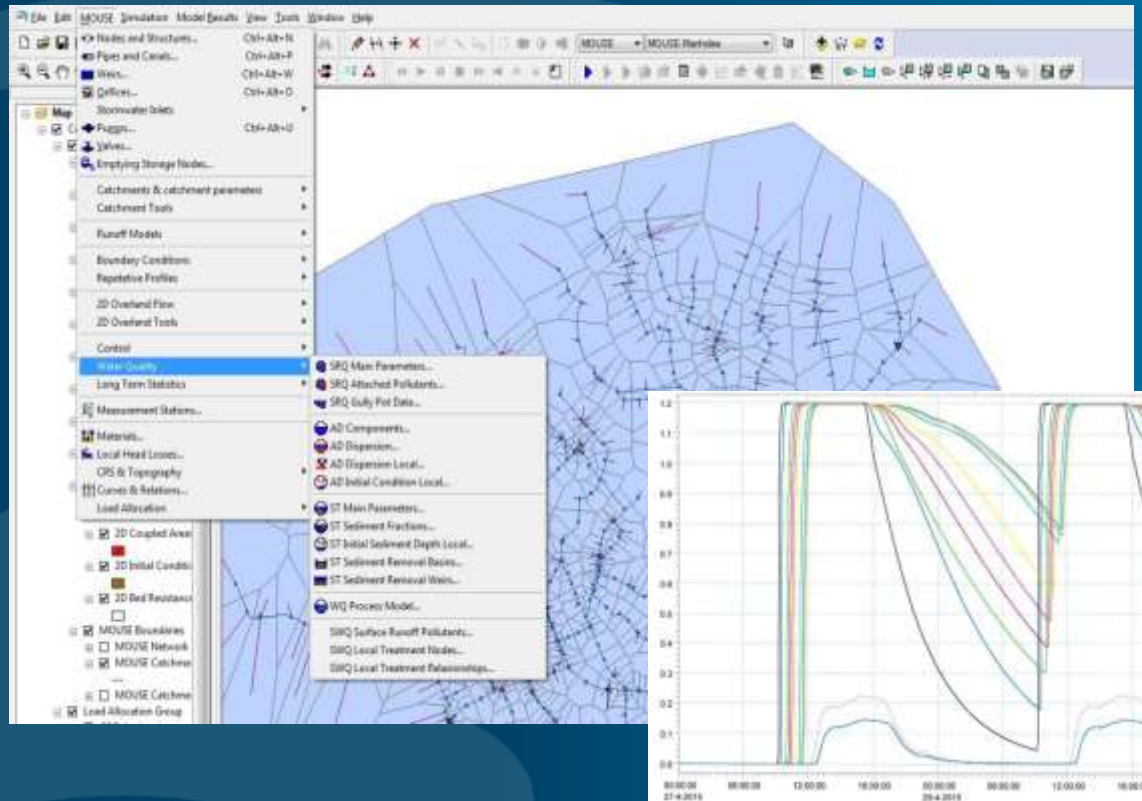


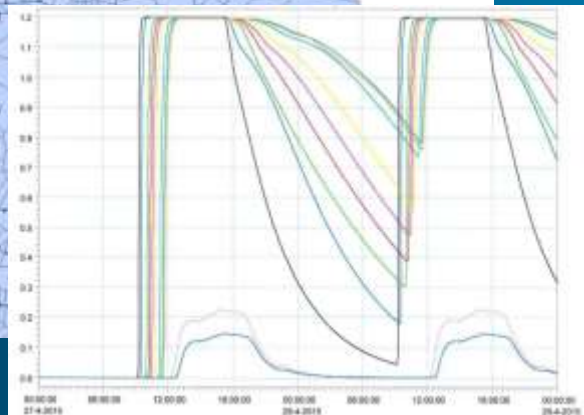
Figure 35 - Sustainability ana
headloss)



Pollution Transformation within the Sewer Network

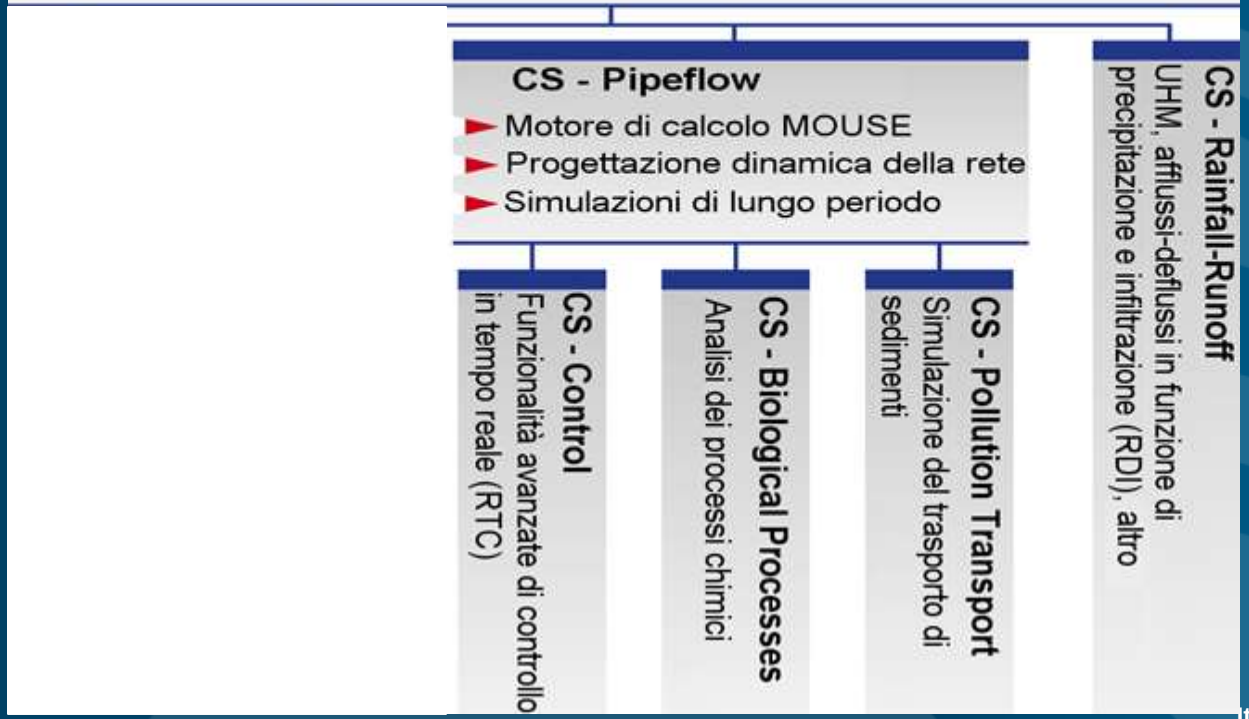
Milano





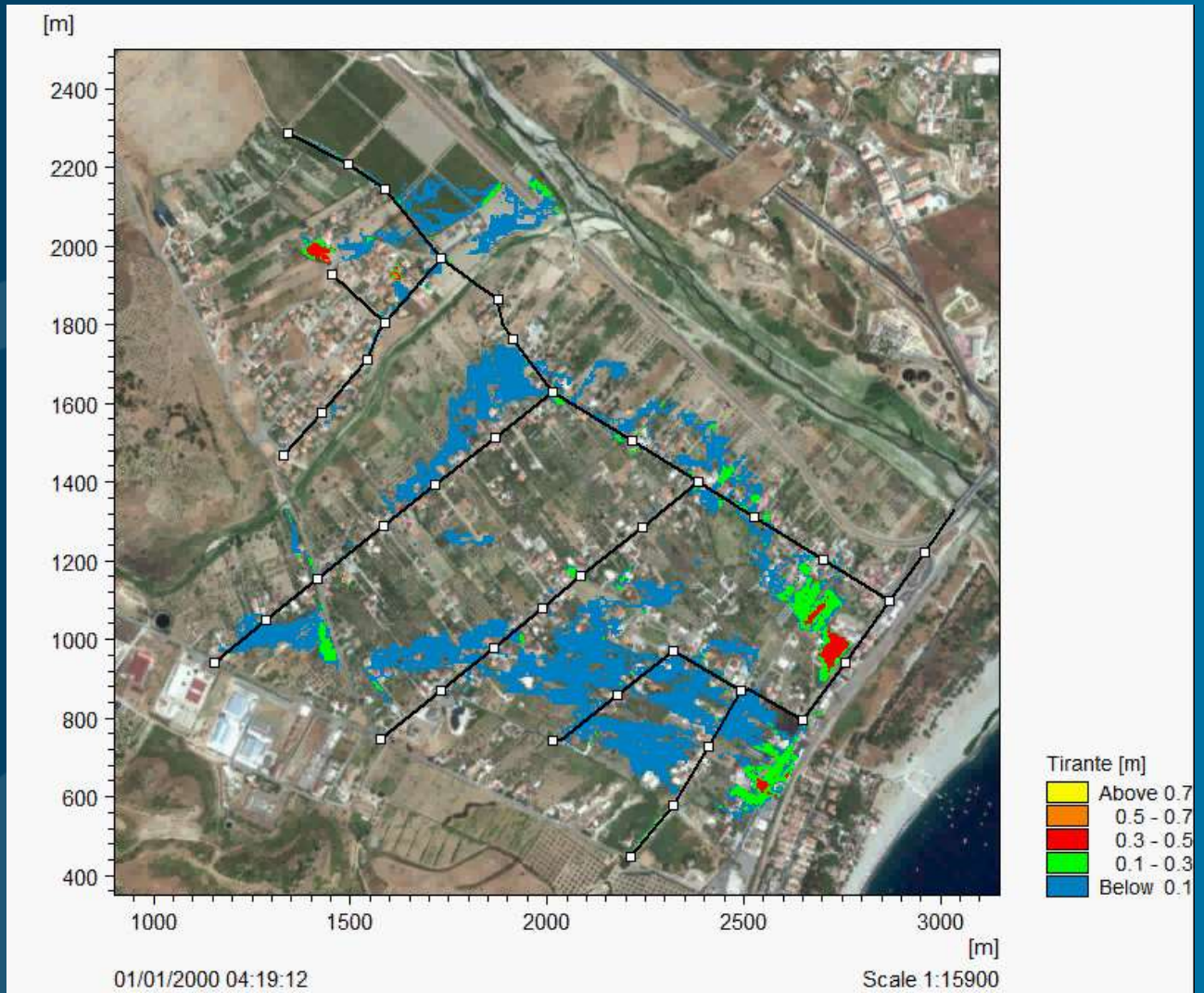
MIKE URBAN Collection System

- Gestione dei dati delle reti idrauliche urbane
- EPANET per la simulazione delle reti di distribuzione
- SWMM per la simulazione delle reti fognarie e delle acque meteoriche
- Integrazione GIS ad elevate funzionalità di visualizzazione

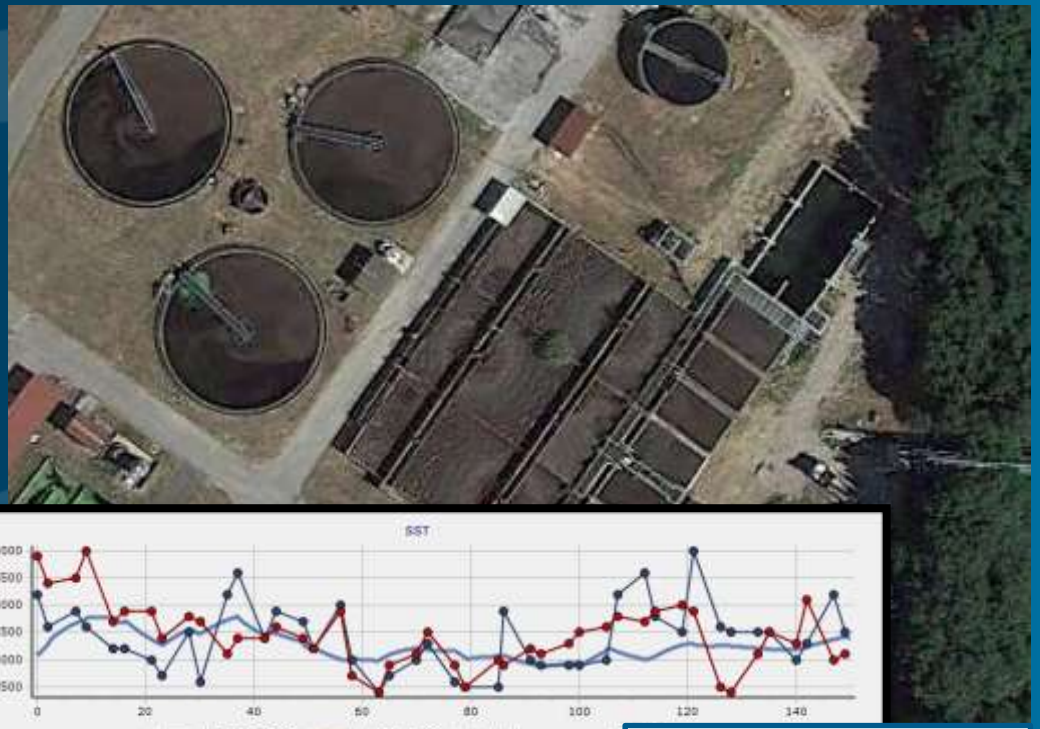


MIKE Urban Flood

Integrazione 1D – 2D



Toscana

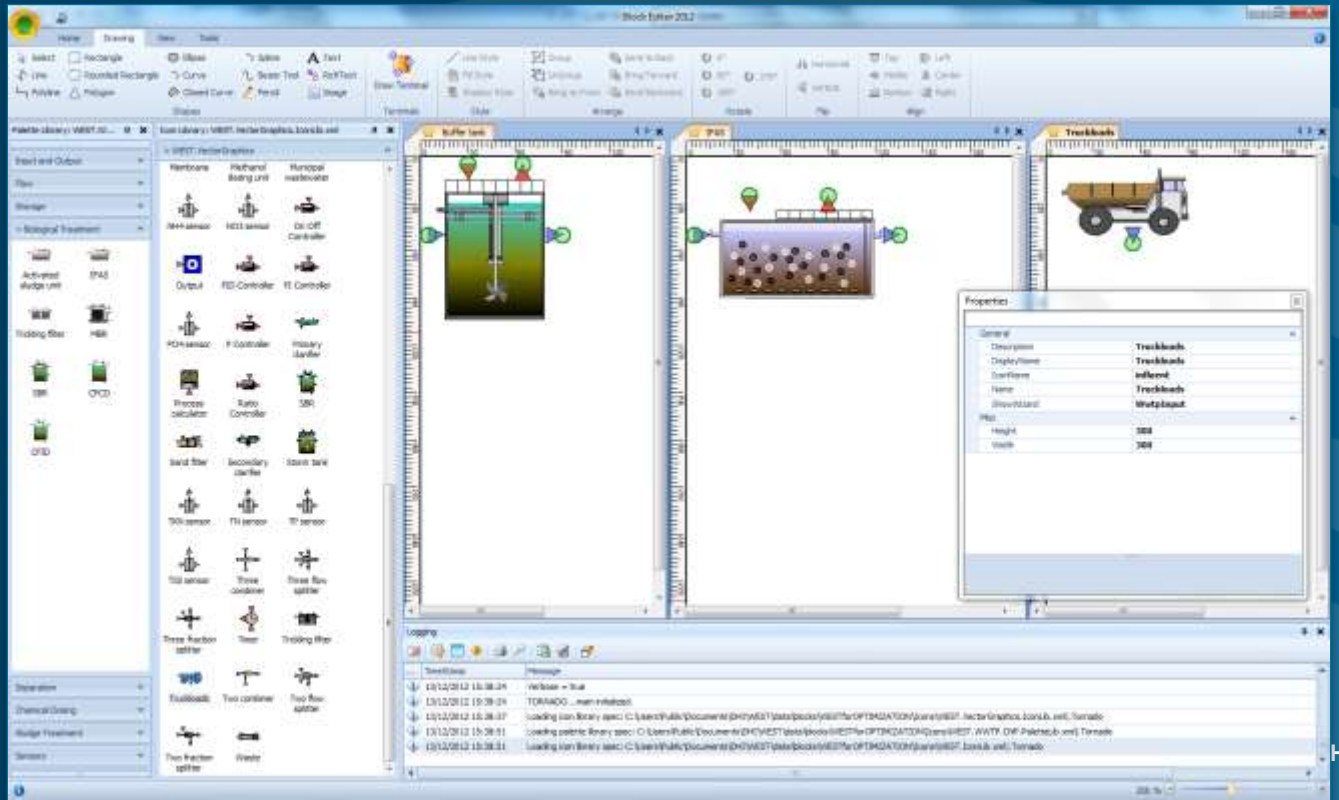


Influenza sulla concentrazione di solidi nelle due linee

WEST

The software tool for dynamic modelling and simulation of WWTP

- WESTforOPERATORS : Simulation of existing plant models
- WESTforDESIGN : Simulation and creation of plant models
- WESTforOPTIMIZATION : Simulation and creation of custom models
  : Complex virtual experimentation (scenario, sesitivity, autocalibration …)
- WESTforAUTOMATION : Software Development Kit (SDK)

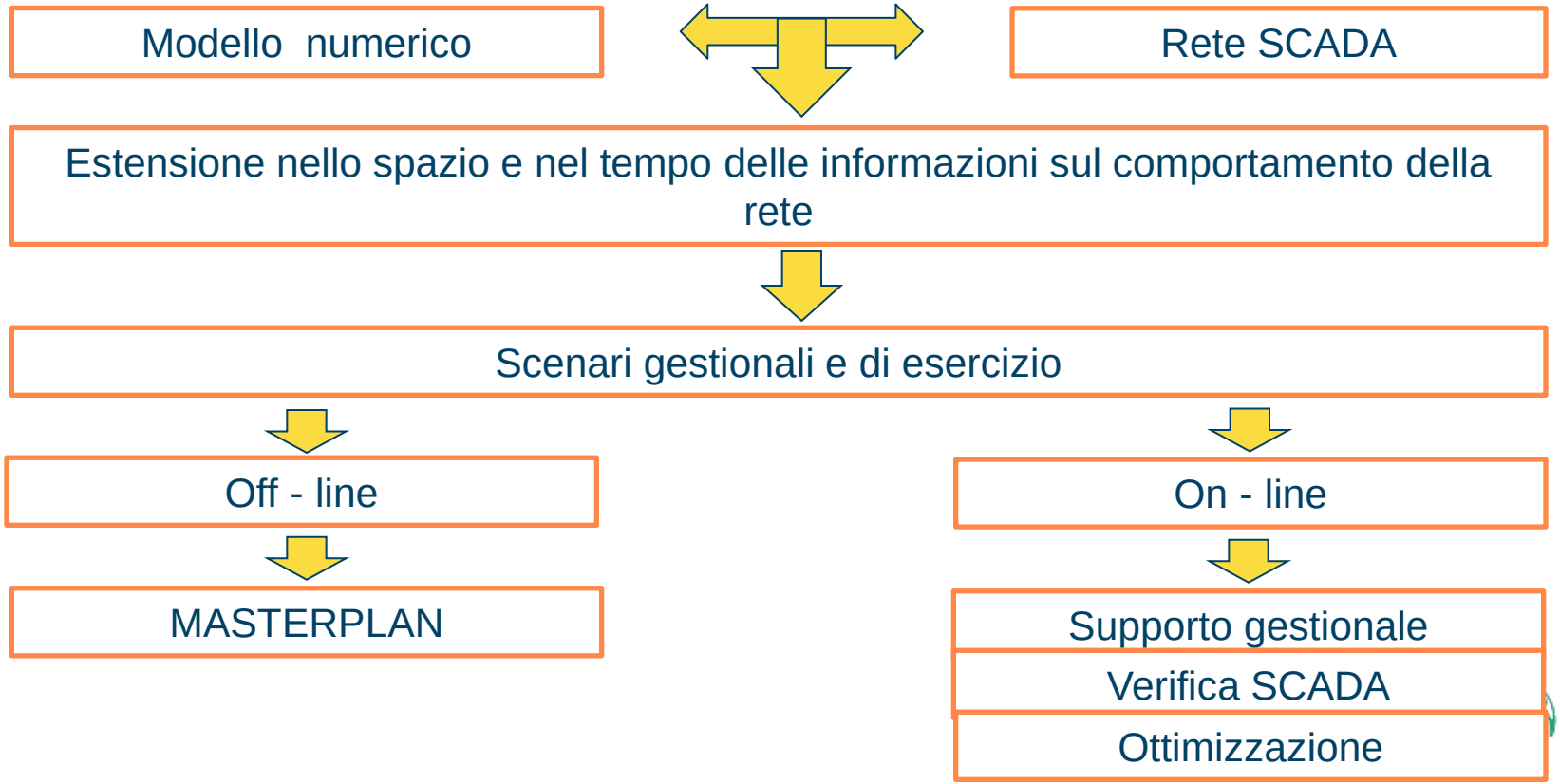


SISTEMA INFORMATIVO PER L'INTERO CICLO IDRICO INTEGRATO

water affairs
Department:
Water Affairs
REPUBLIC OF SOUTH AFRICA

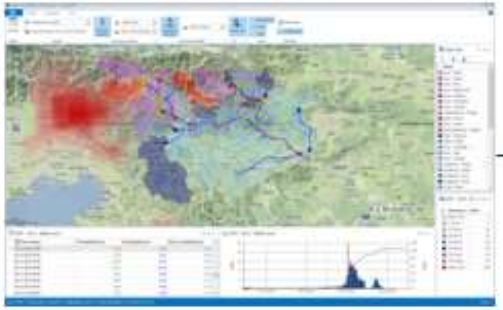
WESTERN CAPE WATER SUPPLY SYSTEM DSS
MANAGEMENT DASHBOARDS

SISTEMI DI SUPPORTO GESTIONALE



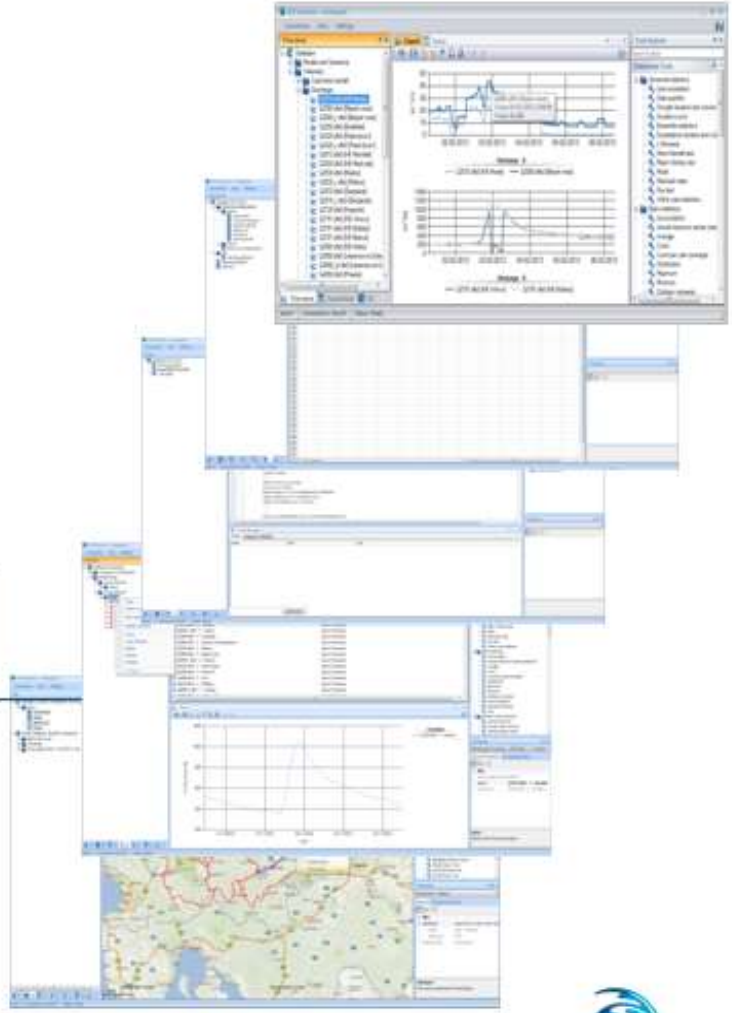
MIKE CUSTOMISED by DHI

Operator view (product)



Tailor made view (client solution)

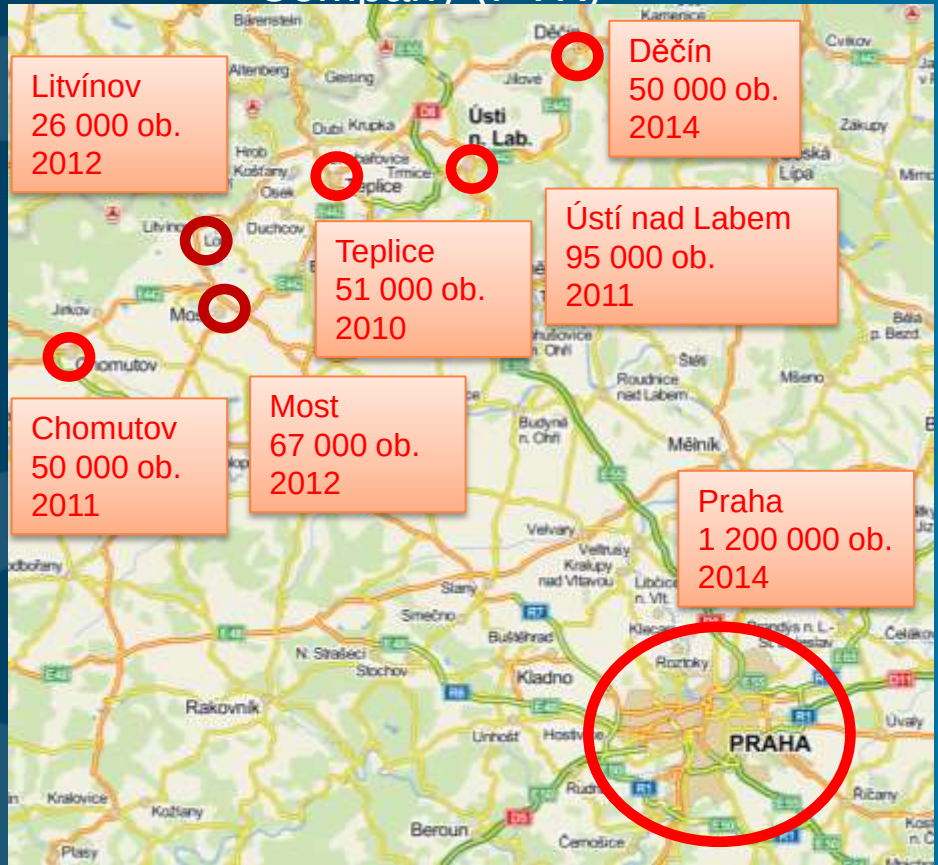
Data base



MONITORAGGIO E GESTIONE DELLE PERDITE IDRICHE

PRAGA

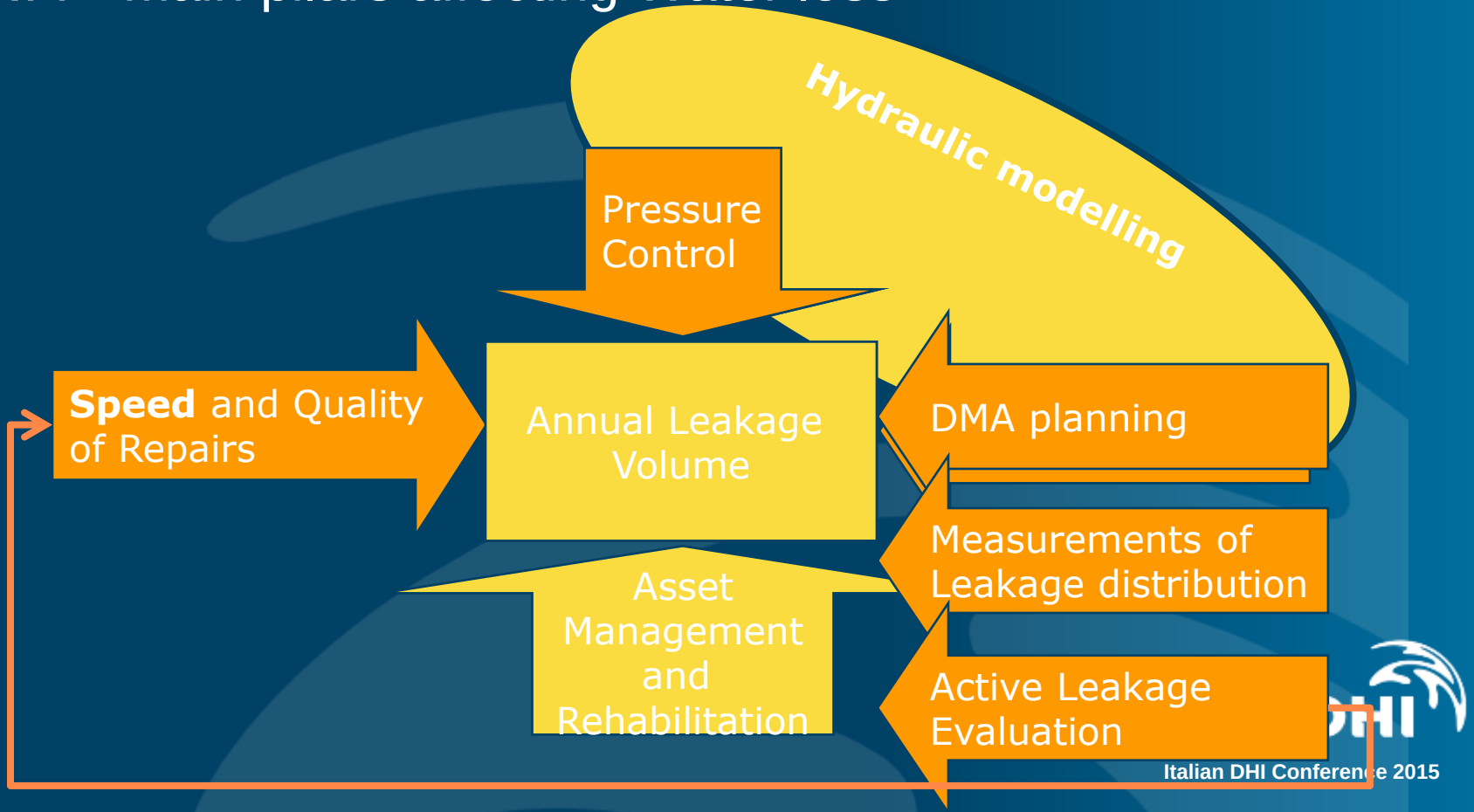
Prague Water Supply and Sewage Company (PVK)



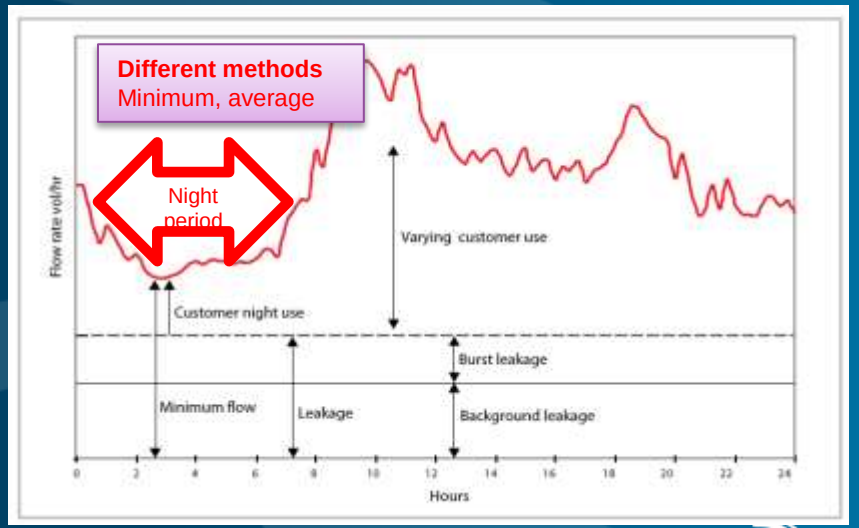
DHI NRW strategy

Managing leakage level at low and economically acceptable level

IWA – main pilars affecting Water loss

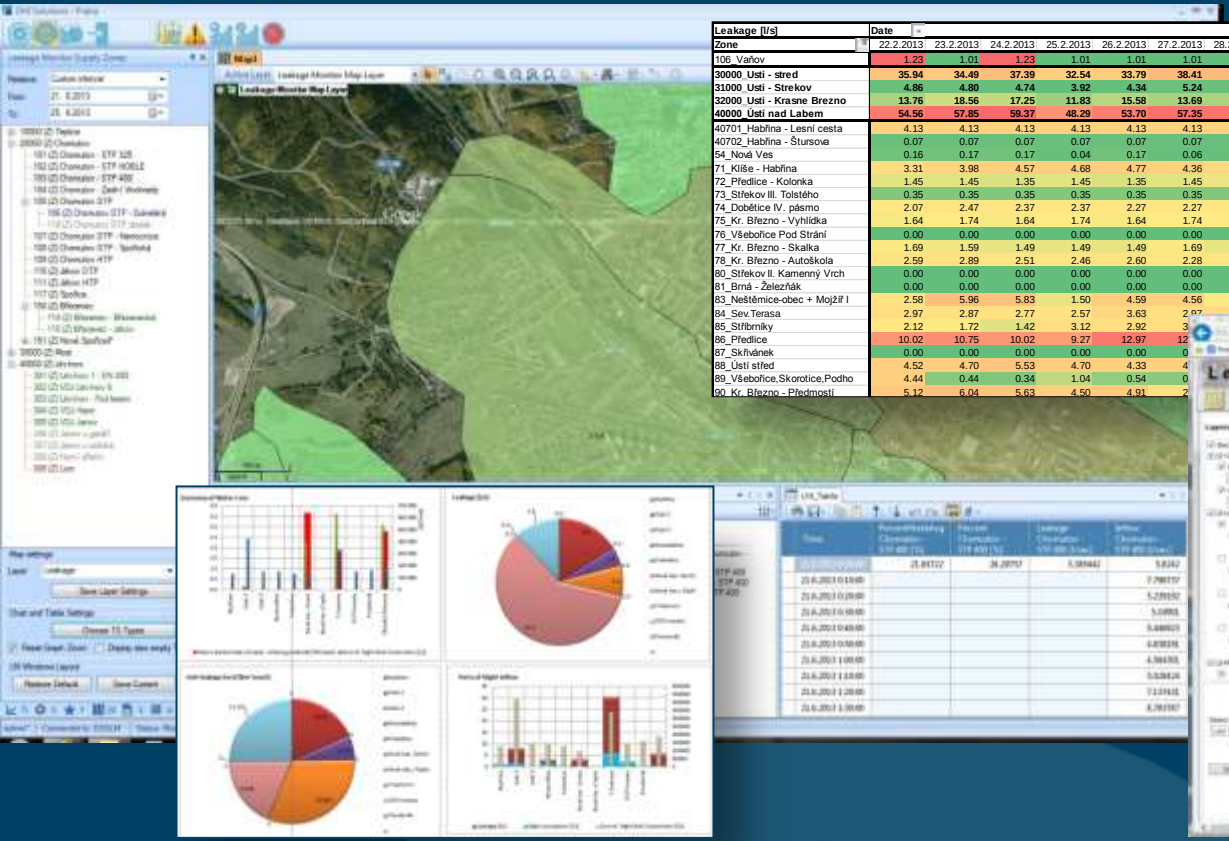


Leakage monitor = software and ***implementation*** for data collection and complex water leakage evaluation and optimization working as utility IS

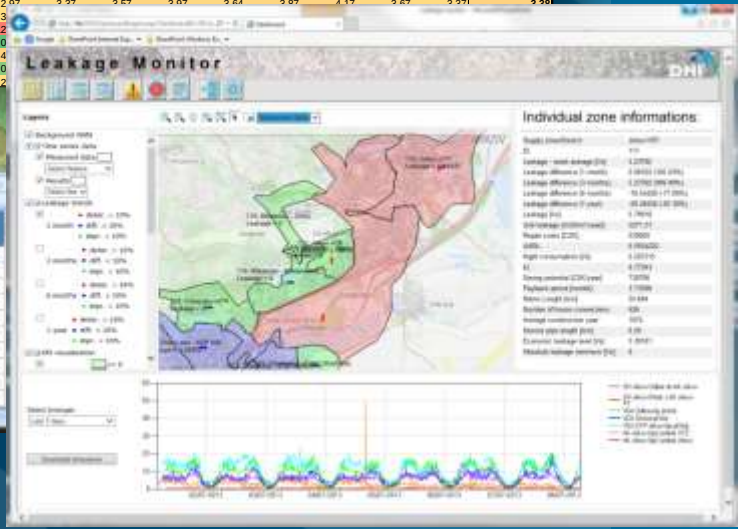


PROVIDES COMPLEX OUTPUTS FOR DIFFERENT TYPES OF USERS – overview for decision makers

Desktop, WEB Interface, Export excel, ESRI map…



Leakage [l/s]	Date													
Zone	22.2.2013	23.2.2013	24.2.2013	25.2.2013	26.2.2013	27.2.2013	28.2.2013	1.3.2013	2.3.2013	3.3.2013	4.3.2013	5.3.2013	6.3.2013	7.3.2013	Celkový průměr
106_Vařov	1.23	1.01	1.23	1.01	1.01	1.01	1.01	1.23	1.23	1.23	1.01	1.01	1.17	1.23	1.12
30000_Ústí - stred	35.94	34.49	37.39	32.54	33.79	38.41	37.98	35.07	37.84	37.21	37.83	39.53	32.44	32.85	35.95
31000_Ústí - Strekov	4.86	4.80	4.74	3.92	4.34	5.24	4.98	5.05	5.28	4.77	4.58	4.75	5.78	6.05	4.94
32000_Ústí - Krasne Brezno	13.76	18.56	17.25	11.83	15.58	13.69	13.79	15.39	15.19	15.15	16.01	12.37	14.07	13.45	14.72
40000_Ústí nad Labem	54.56	57.85	59.37	48.29	53.70	57.35	56.76	55.50	58.31	57.13	58.42	56.66	52.29	52.35	55.61
40701_Habřina - Lesní cesta	4.13	4.13	4.13	4.13	4.13	4.13	4.13	4.23	4.23	4.13	4.13	4.23	4.13	4.13	4.15
40702_Habřina - Šturova	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.17	0.07	0.17	0.07	0.17	0.09
54_Nová Ves	0.16	0.17	0.17	0.04	0.17	0.06	0.06	0.06	0.25	0.16	0.00	0.07	0.06	0.00	0.10
71_Kliše - Habřina	3.31	3.98	4.57	4.68	4.77	4.36	3.52	1.91	2.48	2.92	2.41	2.58	3.61	4.40	3.54
72_Předlice - Kolonka	1.45	1.45	1.35	1.45	1.35	1.45	1.55	1.45	1.45	1.45	1.55	1.55	1.45	1.45	1.45
73_Střekov III. Tolstého	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
74_Dobětice IV. pásmo	2.07	2.47	2.37	2.37	2.27	2.27	2.37	2.37	2.77	2.27	2.27	2.37	2.27	2.27	2.34
75_Kr. Březno - Vyhlídka	1.64	1.74	1.64	1.74	1.64	1.74	1.84	1.64	1.74	1.74	1.74	1.74	1.84	1.94	1.74
76_Všebořice Pod Strání	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
77_Kr. Březno - Skalka	1.69	1.59	1.49	1.49	1.49	1.69	1.49	1.79	1.49	1.59	1.49	1.49	1.49	1.59	1.56
78_Kr. Březno - Autoškola	2.59	2.89	2.51	2.46	2.60	2.28	2.33	2.37	2.59	2.50	2.42	2.20	2.47	2.47	2.48
80_Střekov II. Kamenný Vrch	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
81_Brná - Železňák	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
83_Neštěmice-obec + Mojžíř I	2.58	5.96	5.83	1.50	4.59	4.56	1.70	5.25	4.38	4.13	4.77	2.39	4.05	4.23	4.00
84_Sev.Terasa	2.97	2.87	2.77	2.57	3.63	2.07	2.27	2.57	2.97	2.64	2.97	4.17	2.67	2.27	2.98
85_Stříbrníky	2.12	1.72	1.42	3.12	2.92	3									
86_Předlice	10.02	10.75	10.02	9.27	12.97	12									
87_Skřivánek	0.00	0.00	0.00	0.00	0.00	0									
88_Ústí střed	4.52	4.70	5.53	4.70	4.33	4									
89_Všebořice,Skorotice,Podho	4.44	0.44	0.34	1.04	0.54	0									
90_Kr. Březno - Předmostí	5.12	6.04	5.63	4.50	4.91	2									



POLONIA

Ústí nad Labem
2007 - 2008

Liberec
2009 - 2010

Teplice
2009 – 2010
Chomutov 2011
Most 2012
Děčín 2014

Jablonec
2009 - 2010

Praha
5 projects
2009 – 2014 -

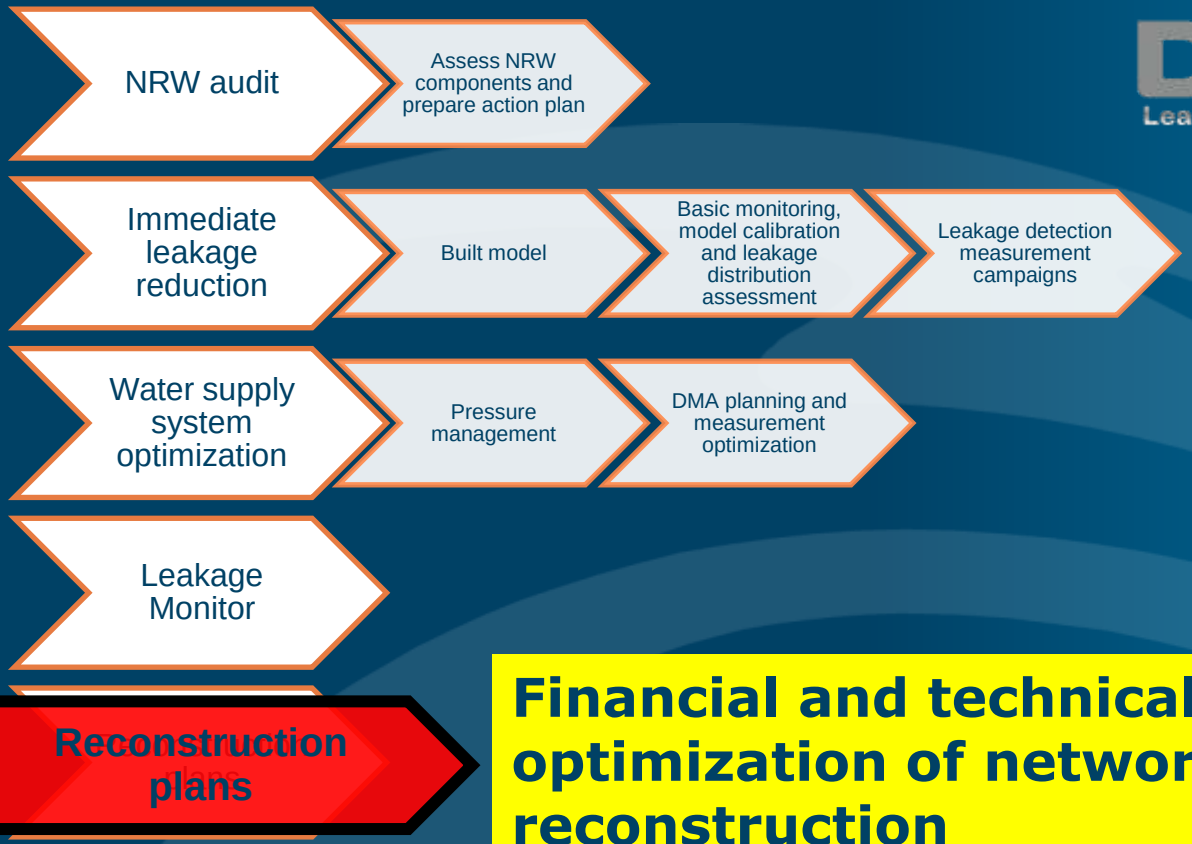
Hradec Králové
2009 - 2010

Plzeň
2003 - 2005
Update 2014-2015

Szeged, HU
2013 - 2015

Olomouc
2012 - 2013

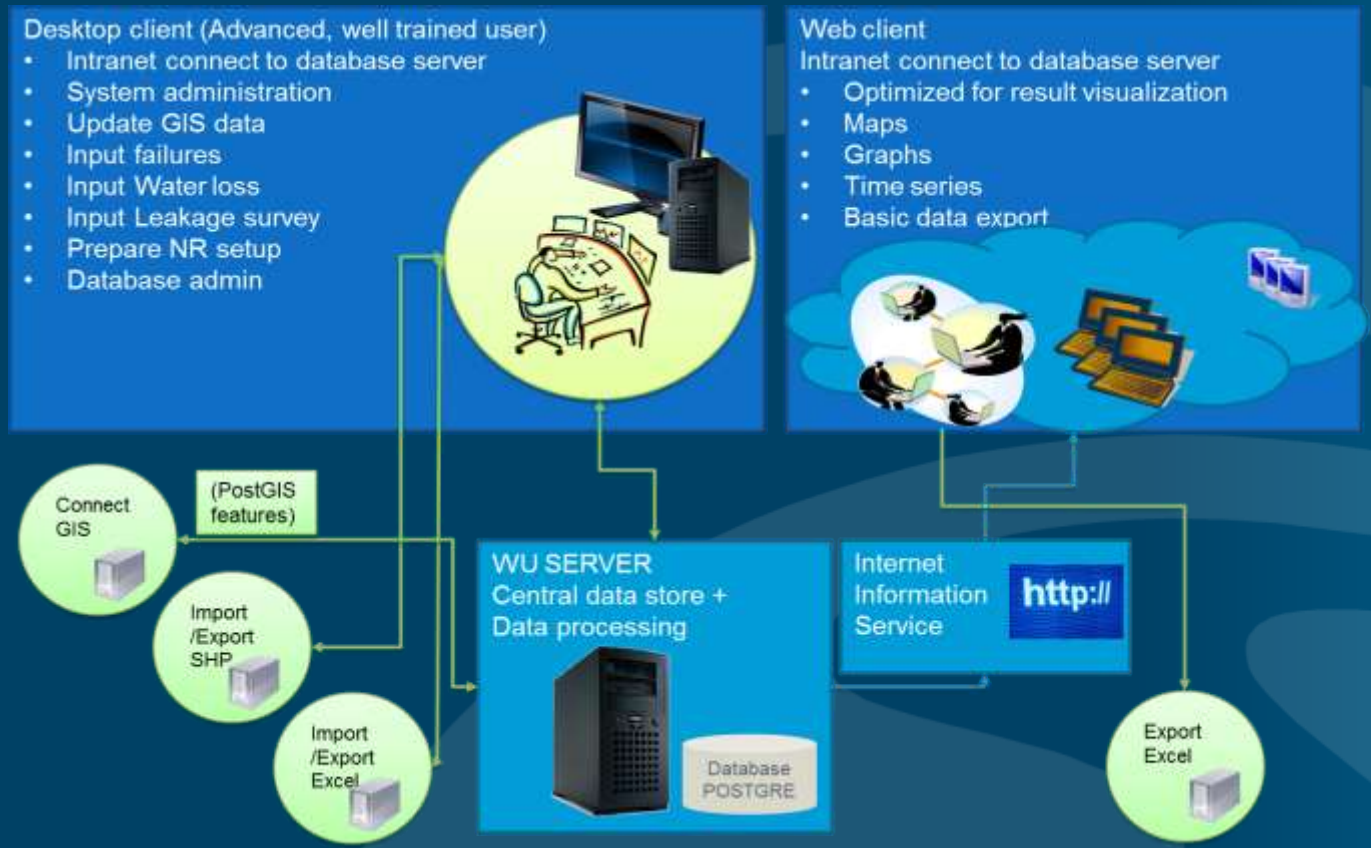
DHI NRW strategy



Financial and technical optimization of network reconstruction

DHI Network reconstruction tool

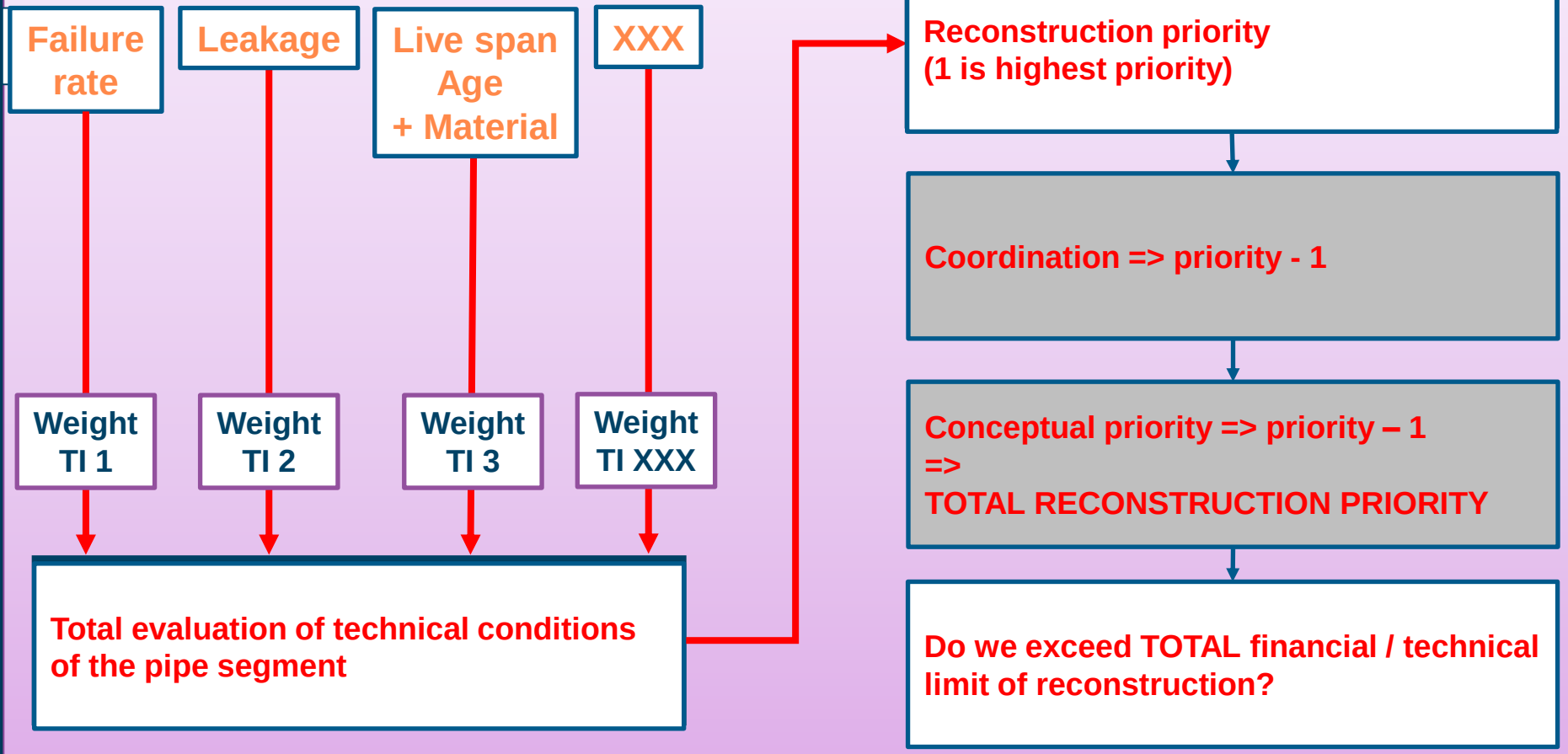
DSS for integration of the data inputs and planning of the network reconstruction as a long term process with respect to the financial and technical optimization

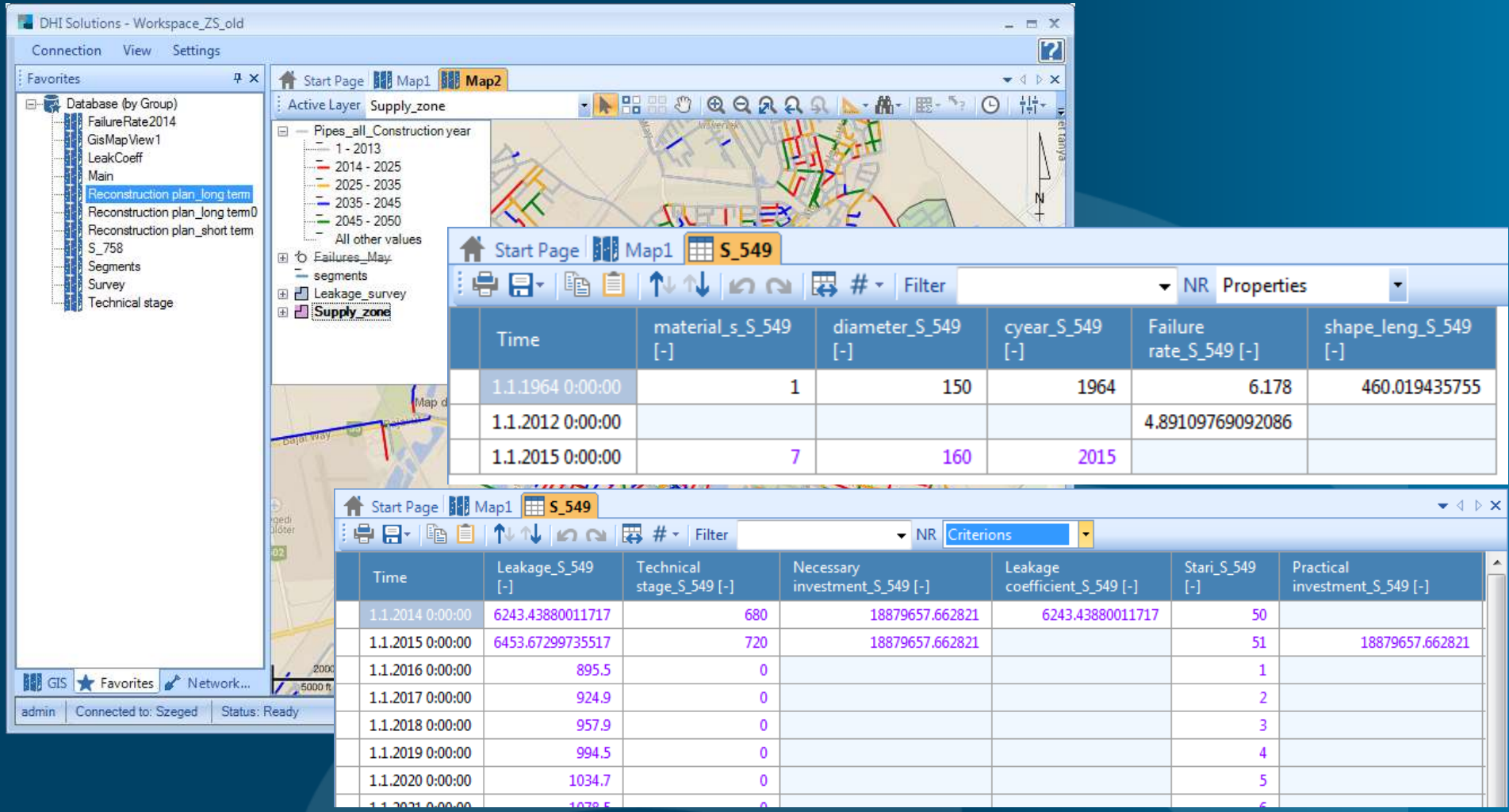


- Connection to WU data sources
- Sustainable and long-term network planning
- Share of results in WU and other related agencies

Multicriteria evaluation

EACH PIPE SEGMENT




DHI Solutions - Workspace_ZS_old
Connection
View
Settings
Favorites
Database (by Group)
FailureRate2014
GisMapView1
LeakCoeff
Main
Reconstruction plan_long term
Reconstruction plan_long term0
Reconstruction plan_short term
S_758
Segments
Survey
Technical stage
GIS
Favorites
Network...
admin
Connected to: Szeged
Status: Ready
Start Page
Map1
Map2
Active Layer
Supply_zone
Pipes_all_Construction year
1 - 2013
2014 - 2025
2025 - 2035
2035 - 2045
2045 - 2050
All other values
Failures_May
segments
Leakage_survey
Supply_zone
Start Page
Map1
S_549
Filter
NR
Properties
Time
material_s_S_549 [-]
diameter_S_549 [-]
cyear_S_549 [-]
Failure rate_S_549 [-]
shape_leng_S_549 [-]
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1
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1964
6.178
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1.1.2012 0:00:00
4.89109769092086
1.1.2015 0:00:00
7
160
2015
Start Page
Map1
S_549
Filter
NR
Criterions
Time
Leakage_S_549 [-]
Technical stage_S_549 [-]
Necessary investment_S_549 [-]
Leakage coefficient_S_549 [-]
Stari_S_549 [-]
Practical investment_S_549 [-]
1.1.2014 0:00:00
6243.43880011717
680
18879657.662821
6243.43880011717
50
1.1.2015 0:00:00
6453.67299735517
720
18879657.662821
51
18879657.662821
1.1.2016 0:00:00
895.5
0
1
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924.9
0
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4
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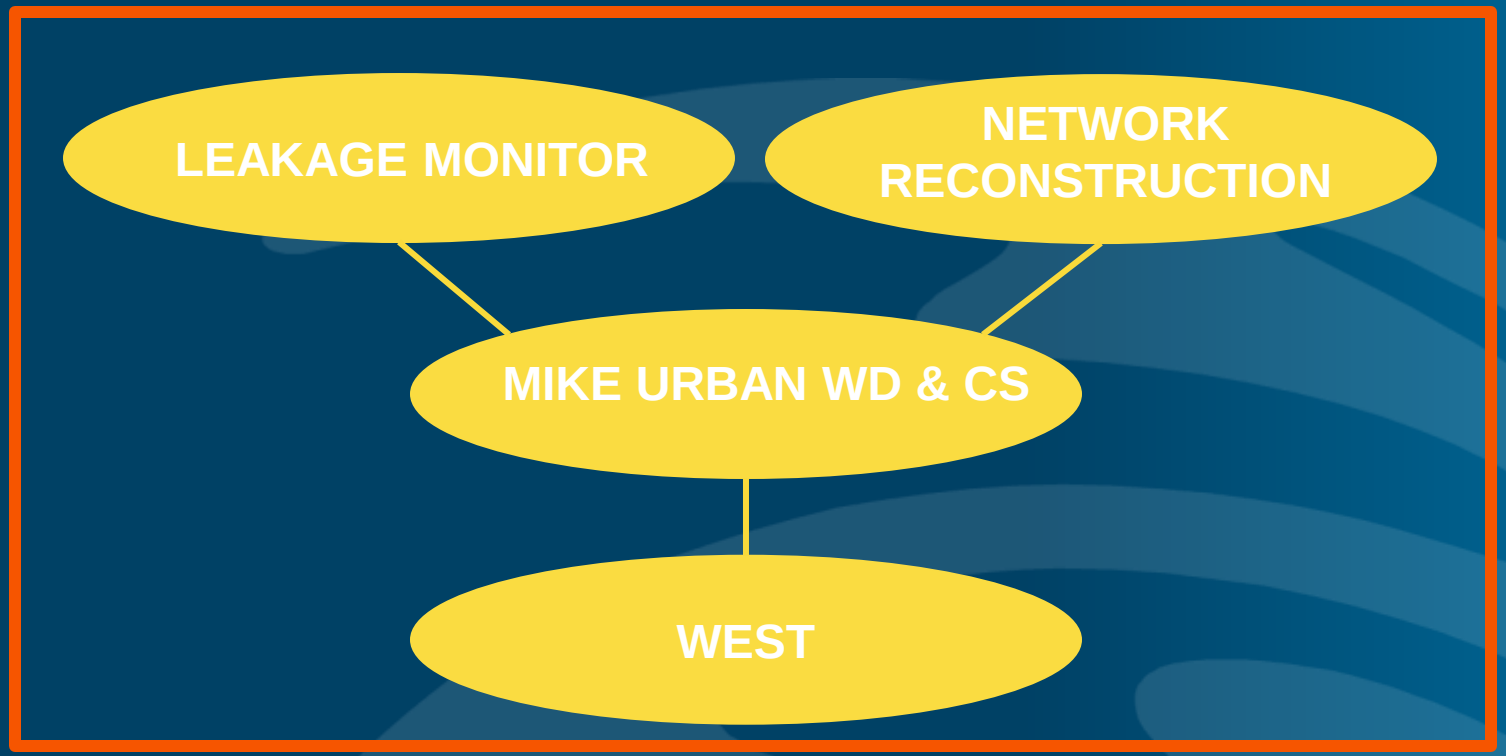
0
5

MIKE CUSTOMISED - DSS



Grazie

Torino, 14-15 Ottobre 2015