The long term impact of „Kommunal 4.0“

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HST Systemtechnik GmbH & Co KG
Brief profile / Claim

Klar!

HST Systemtechnik has been developing, producing and installing technical and operational **Core products** in the form of **Machines & Systems** and **IT & Automation** for facilities/plants and services in water management for 35 years.
HST – Brief information

Foundation
1981 – a medium-sized owner-operated company for more than 35 years

Headquarters
59872 Meschede, NRW, Germany

Customers
Communities, associations, municipal utilities, operators
Engineering offices and planners
Industry and commerce
Construction companies, plant manufacturers, OEM providers

References
8500 projects completed without any damage
Proportion of regular customers > 80%

2 branches with approx. 120 employees

<table>
<thead>
<tr>
<th>Machines &amp; Systems</th>
<th>IT &amp; Automation</th>
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<tbody>
<tr>
<td>12 engineers</td>
<td>12 engineers/computer scientists</td>
</tr>
<tr>
<td>41 specialist workers</td>
<td>33 specialist workers</td>
</tr>
<tr>
<td>6 apprentices</td>
<td>13 apprentices</td>
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Operating revenue
HST-Group approx. 20 million EUR/year, approx. 15 million EUR/year at the Meschede site approx. 400 orders/year with order volumes of 5,000 - 2,000,000 EUR

Memberships
DWA, IFAK e.V., Kommunal 4.0 e.V.

Certificates
ISO 9001, ISO 14001, ISO 18001, SGU management certificate, SCC regulations, Comprehensive welding certificate in accordance with DIN18800-7:208-11 Class D
HST product range – systems and solutions for storm water and cso structures

➢ **Water level- and flow control:**
  
  Dams, storm water retention structures,

➢ **Removal & prevention of sedimentation:**
  
  Storm water retention tanks, collector channels and sewer networks

➢ **Separation of floating solids:**
  
  Storm water retention structures, WWTP (SBR)

| Weirs & gates for dams and storage tanks | Flush cleaning/ Jet cleaners | Vertical lifting weir & Flushing sluices | CSO Fine screen |
HST product range – automation & it-software

- Process monitoring, process control, supervisory control and data acquisition (SCADA)
- Operational management software → organisation- and optimize of workflows, (KANiO)
- Data collection & evaluating
- Automation → TeleMatic

Precision flow measurement over weir crest (EMA)

TeleMatic Telecontrol systems

Automation Software (HydroMatic)

SCADA-Systeme (SCADA V10 / SCADA.web)

Operational Management (KANiO / KANiO.web)
SMART Machines + Intelli.net
As soon as a machine is computerised, we label it as a SMART Machine. For example, this could be an automation intelligence such as one of the Intelli functions or systems for real-time data processing such as smartSCADA or a operation management software like smartKANiO.

SMART Machines possess particular functions and properties due to their IT systems and comply with integrated safety which is well above the requirements of the Machinery Directive.

==> Added value: Efficiency, safety, cost benefits, convenience
KOMMUNAL 4.0
Digital transformation in water management

PROJECT OBJECTIVES:
- web-based data and service platforms
- Innovative application tools
- Business models
- Solutions for IT-security (IT Security Act)

KOMMUNAL 4.0 funding project sponsored by the German Federal Ministry for Economic Affairs and Energy
The idea for Kommunal 4.0: transformation from digitisation

reasons for Industry 4.0
- Company profit / shareholders profit
- Securing the future
(Livelihood - competitive)

reasons for Kommunal 4.0
- Securing sites / Citizens profit
- Securing the future
(Trust / reliability – Citizen-oriented)

==> benefit: more flexibility, higher efficiency, higher quality, safety in value creation processes, saving costs
Challenges
for Kommunal 4.0
Global challenges:

- Rising Urbanisation
- Frequency of extreme weather events due to climate change

Fluctuations
Impact of global challenges

1. Urban flooding resulting from overloaded drainage systems in urban areas
2. Pollution of receiving water bodies
Storm water is responsible for 50% of pollution flowing into receiving waters
Managing the “peak loads“ & fluctuations - major challenges for urban Infrastructure
How to handle the challenges
Data exchange between infrastructure objects

- Elevated Tank
- Flood gate
- Gauging station
- Water works
- Flood pumping Station
- Well
- Overflow Structure
- Sewage Plant
- Storm water tank
- Sewer Systems
- Precipitation
- Shafts
- Transverse Structure
- Water ways
- Polder
- Dam
- Water energy
- Storm water tank
- Overflow Structure
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A storm event is coming, major lead value: Precipitation Data
Precipitation portal NiRA.web | high resolution forecast
Precipitation portal NiRA.web | Data of Oberhausen (sample)
Intelligent operation of infrastructure: sample – City of Erfurt
Intelligent management of storm water infrastructure: Sample – City of Erfurt, Germany
Linking at all levels: Kommunal 4.0 / intelli.net

Project sample: Qinan, China
HST Intelli.net
Drainage Management Software
Outcoming data as basis for

✓ Stormwater management
  • Buffer stormwater in sewers, basins or reservoirs
  • Discharge in less stressed regions
✓ Predictable management
✓ Optimisation primary with management
✓ Optimised design of new facilities (storm water tanks,...)
✓ Increasing reliability
✓ Cost minimisation
HST products
for intelligent management of storm water infrastructure
Rainwater retention tank | smart equipment with “Intelli“ functions
Intelli.net: Hard- & Software in an intelligent water infrastructure:
System with Sensoric und Aktor – technology
SCADA.web – Intelli.Net (NiRA-SCADA-EMA-TeleCam)
Thank you for your attention!

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