Digital transformation

Sanitation / wastewater sector

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Until recently: not much had changed
- data / info in peoples head,
- hard copies, paper records.

Drawbacks:
- inconsistent, unreliable, impermanent,
unavailable, errors and inaccuracies, slow,
destroyed over time, storage space.
- No better system available, no pressure to improve

Then:
- Expectations, demand for quick action/ service
- Timing coincidental with enhanced digital capability.
Decision making basis

- **data**: availability, completeness, reliability
- **data acquisition**: cost vs benefit, nice to have vs must have
- **Systems to manage data / data itself / utility applications** (getting the data ready for decision making)
- **Algorithms & automation**
The Journey:

initially
- transferring available information to digital mode
- Scanning, digitisation

Next:
- systems to acquire, manage, transmit
- analysis
- linking & integration

- Easy search & retrieval, sending to remote locations
- Links: visualisation
GIS SEWER NETWORK MAP: objects with attributes
GIS TOOLS FOR PLANNING
Integrated information systems

- Asset info
- Maintenance info
- Billing info
- Customer complaints
- Effluent data

GIS MAP
DATA

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Data acquisition

CCTV: Sewer pipeline condition:
- Decision making on asset repair, rehabilitation
- Prioritisation

Mapping underground utilities:
- GPR, EML, Laser etc
- 3-D underground visualisation: BIM
Remote unmanned sewage treatment facilities
- Early warning systems
- Electronic security systems

Sewer network: predicting events
- Flow modelling, detectors
- Level sensors
- Heat maps for preventive maintenance

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Process control: efficiencies

- SCADA
- DO meters
- flow meters
- Process automation
- Equipment sensing: real time performance monitoring

Asset risk monitoring

- operational focus
- maintenance strategies: preventive, predictive & prescriptive maintenance
- CAPEX plan
LINKING CUSTOMERS TO ASSETS
- GIS interfaced with customer database
- Identifies unbilled customers
Integrated service request system:
- Automated work order
- Workflow
- Escalation
- Feedback / closing
On-line plan submissions & approvals:
- faster
- easier
- ensures transparency and integrity
- BIM
Communications

Procurement:
- e-bidding
- e-auction

Knowledge repository / dissemination
Benefits

**ENVIRONMENT**
- Lower environmental impact
- Energy saving/green approach

**RELIABILITY**
- Risk reduction
- Less breakdown/down time

**COSTS**
- Operation & maintenance efficiencies, lower costs

**PEOPLE**
- Better working conditions
- Productivity

**REGULATORY**
- Better monitoring
- Regulatory compliance

**CUSTOMER**
- Faster, better service
- Lower costs

**REVENUE**
- Efficient billing and collection

**CAPEX**
- Focussed & timely

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Managing on-site systems
Survey of on-site systems:

- Sanitab
- “Volaser”
- GIS mapping
FSM TRACKER

Credits: ASCI
Tracking FSM services

- Vehicle monitoring
- Routing
- Efficiencies
- Productivity
DAKAR, SENEGAL

APP BASED CALL CENTRE

- easy access to emptying service
- bidding
- reasonable cost through healthy competition
- data collection
Groupon model:

Innovation made possible by digital technology: can it be applied to desludging services?
Benefits

RELIABILITY
Risk reduction
Less breakdown / down time

COSTS
Operation & maintenance efficiencies, lower costs

PEOPLE
Better working conditions
Productivity

ENVIRONMENT
Lower environmental impact
Energy saving/ green

CUSTOMER
Faster, better service
Lower costs

REVENUE
Efficient billing and collection

REGULATORY
Better monitoring
Regulatory compliance

CAPEX
Focussed & timely
Trends – drivers

• Global change pressures: crucial to manage sanitation efficiently
• Doing more with less as resources get scarce
• Community expectations and demands
• Aging infrastructure

Business as usual is no longer an option.
Better decisions

Data

Requirements

Analysis tools

Technology is the easy part!
DIGITAL TRANSFORMATION

Cautions:
- System capability vs data availability/integrity
- "Black box" demand, ownership, readiness
- GIGO: privacy/security
- Affordability: baby steps

Thank you