

Safety & Security Design in Buildings Intersec Conference



Dubai Convention Centre Trade Centre 2, Sunday, January 17, 2016



AUTOMATING INTEGRATION

Linking Fire, Security & Building
Systems - in the Internet of Everything

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SYSTEMS INTEGRATION DESCRIPTION

- Life Safety and Security are both crucial requirements for any populated areas, critical to individuals, corporations and government occupants alike. Both are needed for us to feel safe and secure, so need to work together.
- The appropriate and effective integration of all systems needs careful application. This is the experience we're sharing in the conference.

SYSTEMS INTEGRATION DESCRIPTION (CONT'D)

- Our world is continually evolving and the pace of change increasing, represented in many aspects, not least the element of communication technology. IT networks and mobile communications are everywhere, not least in all new buildings in fast developing cities in the Gulf.
- Embedded IT networks offer communications to link life safety, security and other building systems.

PRESENTER

STUART AYNSLEY

- Electronic systems design consultant
- Consultant, contractor and manufacturers
- Security, building and industrial systems
- Over 30 years' experience
- Europe, Middle East, Africa and Asia
- Contributor to CEN, CIBSE and BSRIA standards



LEARNING OBJECTIVES

1. Why integrate?
What are the benefits?

2. Which systems to link?
Fire? Security? Others?

3. Integration routes
Legislation v technology

4. Finding integration solutions
Connect or network? Local or remote?

QUESTIONS AND DISCUSSION



INTEGRATION IN-TI-GREY-SHUH N

AUTOMATION AW-TUH-MEY-SHUH N

WHY INTEGRATE OR AUTOMATE SYSTEMS?



FIRE CAUSE +
EFFECT



SECURITY
CAUSE + EFFECT



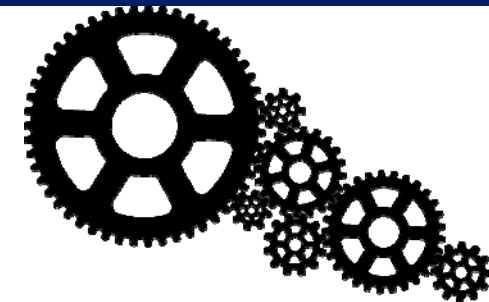
IMPROVE
SAFETY



FOR REMOTE
ACCESS



BETTER
MAINTENANCE

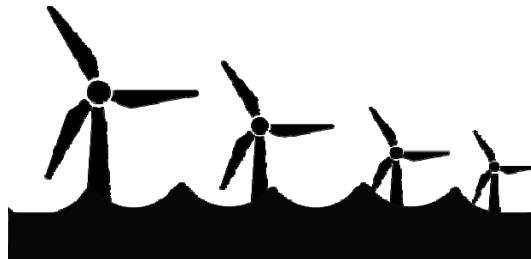


CONTROL
BETTER

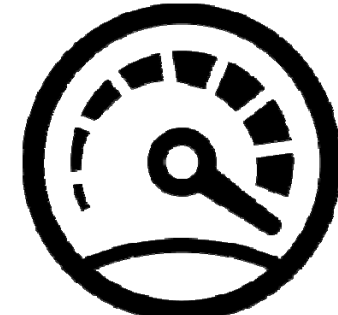
WHY INTEGRATE OR AUTOMATE SYSTEMS?



TO SAVE
ENERGY



RENEWABLE
ENERGY USE



ENERGY
MANAGEMENT



CARBON
REDUCTION



ECONOMIC
GOALS



ENVIRONMENT
PROTECTION

POTENTIAL BENEFITS OF INTEGRATED SYSTEMS

- any, or all of the above
 - not just because we can
- common benefit goals
 - improved life safety
 - safer security protection
 - energy reduction
 - better control alternatives
 - better maintenance
 - comprehensive reporting
- always agree integration goals and reasons with stakeholders!

WHICH SYSTEMS COULD BE LINKED?

- life safety systems
 - fire alarm and detection
 - notify evacuation - public address, voice alarm, digital signage
 - stops air flow - air conditioning, ventilation, circulation fans
 - visibility - turns on lights
 - safe vertical transport - stops escalators and travellers, grounds elevators
 - allows exit - opens doors, barriers and windows
 - gas fire suppression
 - notify operation - alert security to allow exit but stop entry

WHICH SYSTEMS COULD BE LINKED? - CONT'D

- security systems

- video surveillance

- notify incidents - public address, voice alarm recordings, digital signage
 - deterrent - turn on lights for visibility, broadcast audio messages

- access control, intruder detection

- notify incidents - public address, voice alarm recordings, digital signage
 - deterrent - turn on lights, broadcast voice recordings

WHICH SYSTEMS COULD BE LINKED? - CONT'D

- building services systems
 - electrical systems
 - incoming power supply - early alert to FM and security
 - generators - alert FM and security of automatic start-up
 - UPS power - alert FM and security of battery use, depletion and faults
 - building management / building automation
 - notify incidents - public address, voice alarm recordings, digital signage

developing technology brings new things to link all the time...

CHALLENGES TO INTEGRATING SYSTEMS

- international standards
 - BS 5839 and NFPA 72 require all components between detection and first evacuation alert to be reliable (we all need that too)
 - use of non-volatile memory (EPROM, no RAM)
 - shortest direct connection between systems
- government regulation
 - Gulf states require security systems to be dedicated without communication to other systems or from off-site to avoid hacking, tampering or faults
 - critical infrastructure and government sites will have specific security restrictions
 - industrial sites can have specific security to protect high value assets

INTEGRATION OPPORTUNITIES

- direct system connections
 - hard wired relay to system input or control circuit
 - recommended for critical fire and security system reliability
 - shortest direct connection between systems
 - avoid additional components in the link to reduce failure risks
- communications
 - wired or wireless, with it's own challenges
 - Ethernet IP, local point to point (RS232), multi-drop (RS422/485), other cabling
 - open industrial, building controls, lighting, metering, security, AV protocols
 - manufacturer proprietary protocols

DEVELOPING INTEGRATED SOLUTIONS

- define systems to link for your project
 - agree reasons and intended benefits with all project stakeholders
- develop functionality integration matrix across systems
(as life safety or security cause + effect)
- review communication options and protocols for systems
- consider options against applicable standards and legislation
- select appropriate integration mechanism for all links
- develop connected systems topology schematic diagrams
- test feasibility with manufacturers, suppliers and contractors

USING OUR
INGENUITY
TO CREATE
LASTING
VALUE
FOR ALL

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