

# Emergency Management – Opportunity

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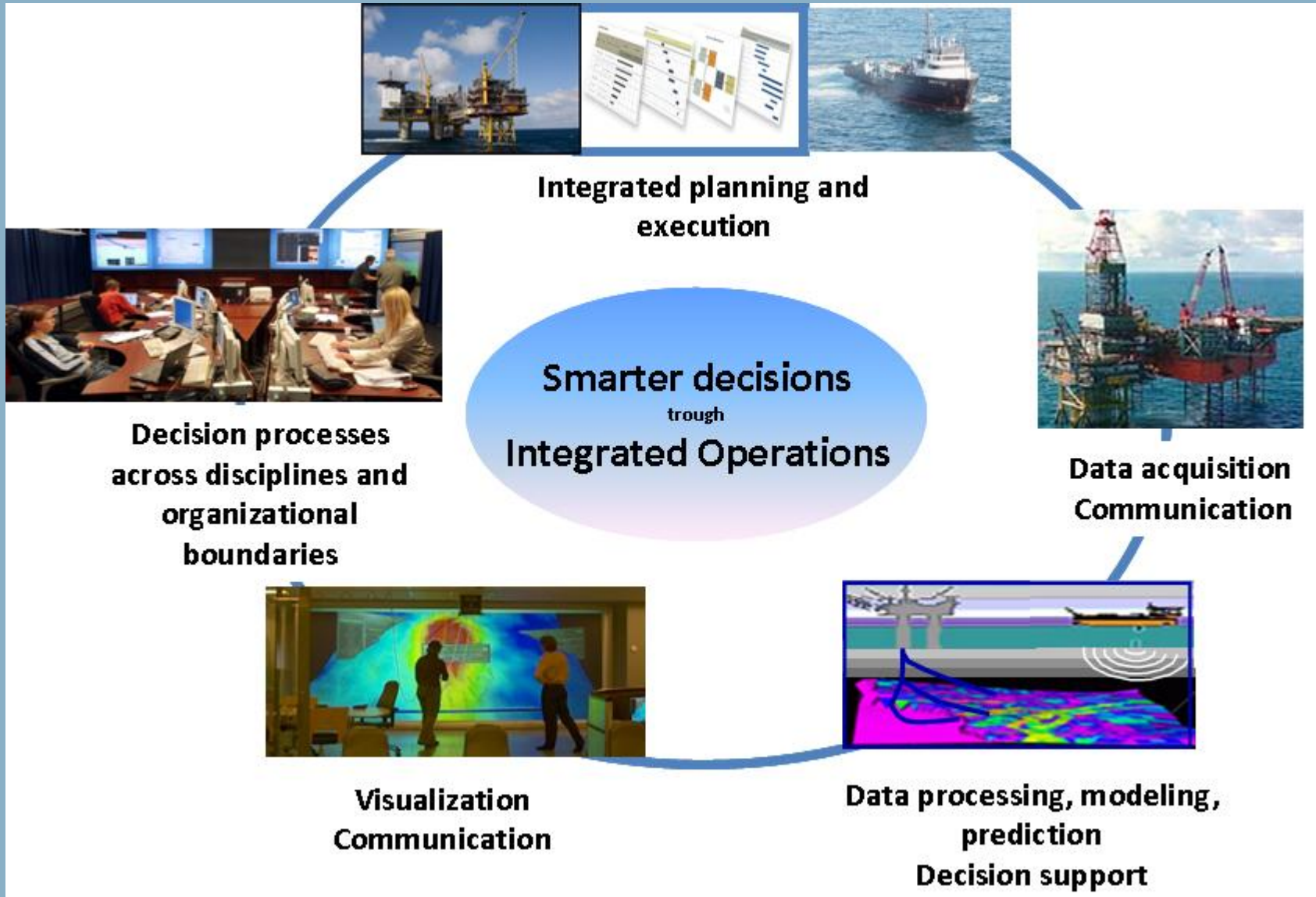
# Background

- Smartphones and wireless devices are ubiquitous
- Increasingly powerful (exponential laws for computing power, energy efficiency, data storage, graphics quality)
- Now: Information overload – Before: lacking information
- Use of wireless devices in emergencies (natural and man-made):
  - Data collection
  - Alerting and reporting
  - Self-organization (social media)
  - Human-Centred Sensing, both spontaneous and participatory
- Huge potential for crisis management
  - Improved early alerts to public and critical infrastructure providers
  - Situational awareness, sensemaking
  - Decision support, coordination and collaboration
  - Providing context-dependent information (targetted, to the point, reflecting risk)
  - eCrisisManagement / Integrated Emergency Management

# Research challenges (CIEM's perspective)

- Moving towards integration of emergency management by:
  - Improving the resilience, reliability, robustness, coverage, energy efficiency and availability of wireless networks
  - Developing new more efficient, robust and reliable methods & protocols for mobile devices to realise the potential of social media, data acquisition (Human-Centred Sensing), and context-dependent broadcasting/multicasting
  - Developing ICT based tools for risk management, data management, analysis, visualization, and decision support that allow efficient information sharing and collaboration
  - Characterizing and describing socio-cultural determinants for effective adoption and use of ICT support in EP&M in geographical areas that suffer most from disasters
  - Improving group and team performance in Emergency Preparedness & Management with integrated systems and collective intelligence methodologies.
  - Beyond collecting and providing information by engaging in a dialogue with organizations and citizens

# Integrated Operations



## UNO temptations could include (preliminary):

- Artificial Intelligence (e.g. critical decision making)
- Autonomous Agent Systems (e.g. condition-based monitoring)
- Data Mining and Knowledge Discovery (making sense of social media and sensor data)
- Information technology for development (e.g. emergency preparedness for volunteers and NGOs)
- Knowledge Engineering and Web Intelligence (e.g. for situational awareness, sensemaking, decision making)
- Wireless sensor networks for data collection and information transmission
- Disaster eHealth
- Education
  - E.g. bachelor/master courses, joint supervision, exchange

## UNO temptations could include (preliminary):

- Collaboration Engineering
  - (Prof. Gert-Jan van de Vreede, Institute for Collaboration Science - <http://collaboration.unomaha.edu>)
- Virtual Project Management and Virtual Teams
  - (Prof. Deepak Khazanchi)