
# Dependability of IT systems

Martin Höst, Kim Weyns
Dept. Computer Science, Lund University

# IT systems relation to crisis management

- Used in crises relief
- Information channel
- Generate a crisis if it does not work?

- → many systems of interest

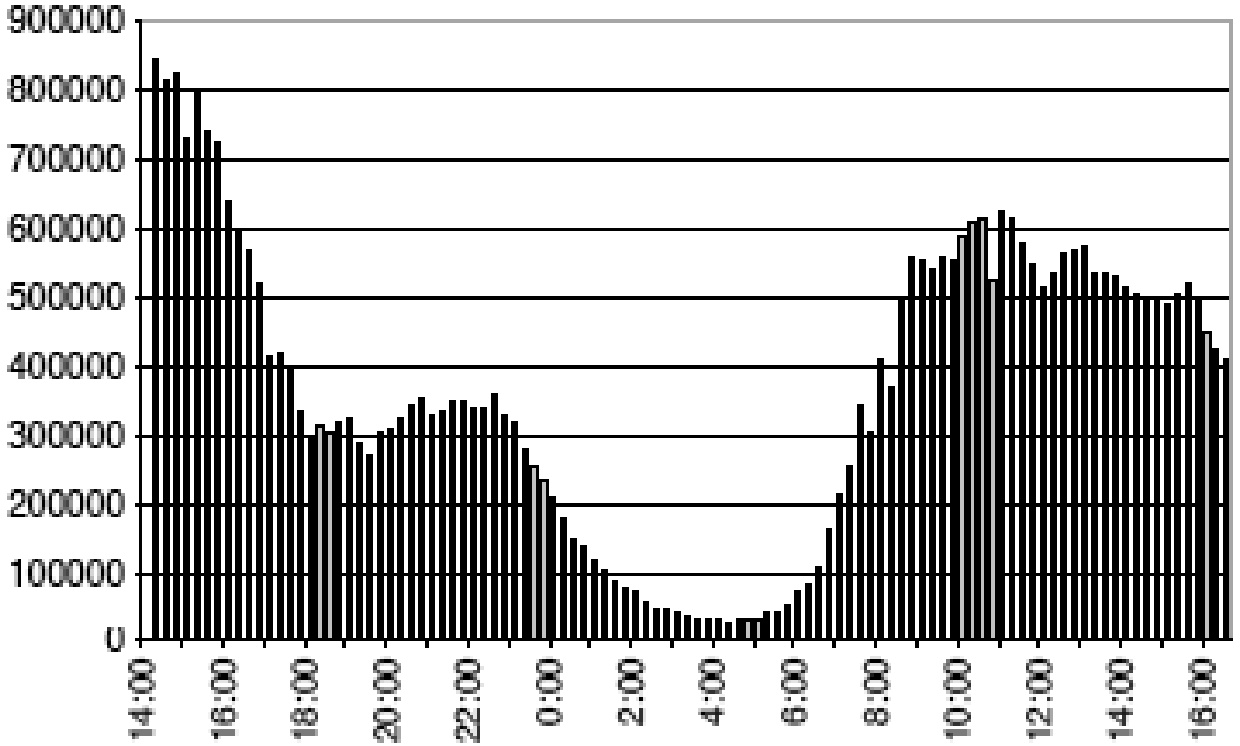
# Different types of systems

- Different functions
  - Providing information / managing operations / …
- Different owners
  - Municipalities/Regions/National/International
  - Public/Private
- Different original intention concerning dependability
  - Intended to be used in a crisis / not intended to be used in a crisis / a complement

# Dependability analysis of IT systems is hard because…

- “Basic characteristics” of IT systems and software
  - Complex (products and development)
  - Rapid changes
  - Hard to verify reliability
- Information about how critical different systems are is not easy to find
- IT systems are changed rapidly, and to a larger extent being “business critical”
- Usage of IT systems will change in case of a crisis

# One example – information requests in a crisis



## In an early study we wanted to know…

… the current situation at Swedish municipalities:

- People involved
- Division of responsibilities
- Critical IT systems
- Current methods
- Problems

# Findings: Organisation

- System Responsibility
  - Specific systems and common systems: no responsibility for data collection, uncoordinated updates of both applications and OS/network
- Internal Communication
  - Lack of understanding (knowledge about purpose vs technical understanding)
- Service Level Agreements
  - No measurements
  - No guarantees

# Findings: Risk Analysis

- Emergency Management
  - Operational level, Scenario analysis, …

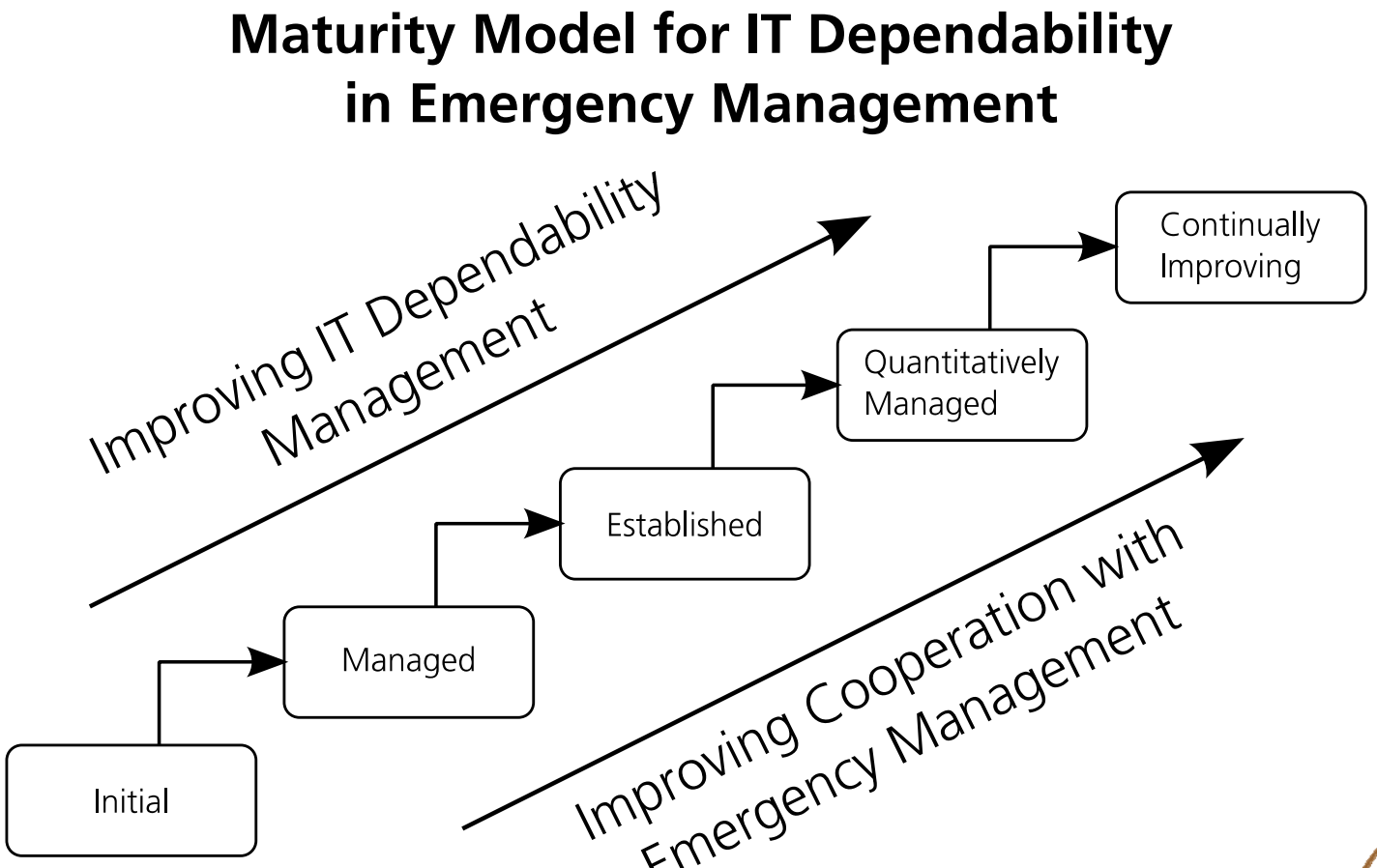
- Practical IT work
  - System view, Maintenance, technical details, …

# IDEM3 Maturity Model

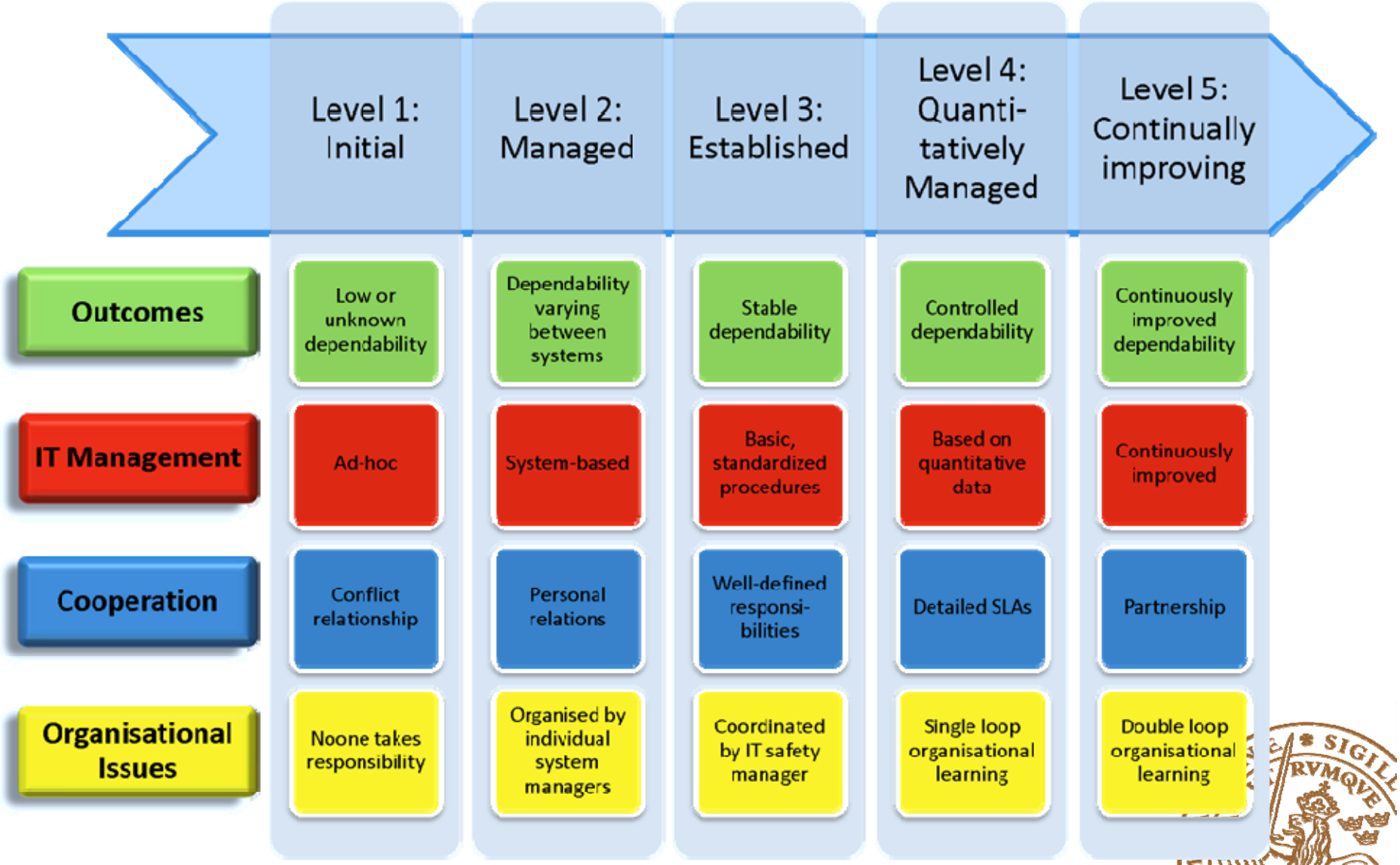
IDEM3 (IT Dependability in Emergency Management Maturity Model)

- Process improvement tool for governmental organisations
- Based on similar existing models
- Focusses on cooperation needed to include information about the dependability of IT systems in emergency management and vice versa
- Adapted based on feedback from experts and practitioners
- Currently being evaluated in practical setting

# Maturity Model (2)



# Four Categories of Attributes



# Conclusions

- IT systems important in crisis management / relief
- Many types of IT systems
- Gap between operational level and practical IT management level
- This type of improvement can be supported by a maturity model – which is also developed