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Games & innovation development

Innovation development	User-centered activities	User adoption
Conception	Research •Understanding challenges •Identification of opportunities	Knowledge
Development	Development & Testing •Alignment with user requirements •Testing and evaluation	Persuasion
Deployment	Dissemination •Integration in existing processes •Training and internalization	Decision
		Implementation
		Confirmation

Meesters, Kenny, and Bartel Van de Walle. "Serious gaming for user centered innovation and adoption of disaster response information systems." International Journal of Information Systems for Crisis Response and Management (IJISCRAM) 6.2 (2014): 1-15.

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Disasters happen when...

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Disasters happen when:

- Something **unpredictable** occurs:
 - Unexpected events happen
 - Unforeseen consequences follow
- There is **no time**:
 - For training, meeting, or planning
 - Immediate action is required
- There is **no plan**:
 - No standard approach
 - Exceeds existing resources and capability
 - Limited information about what is happening

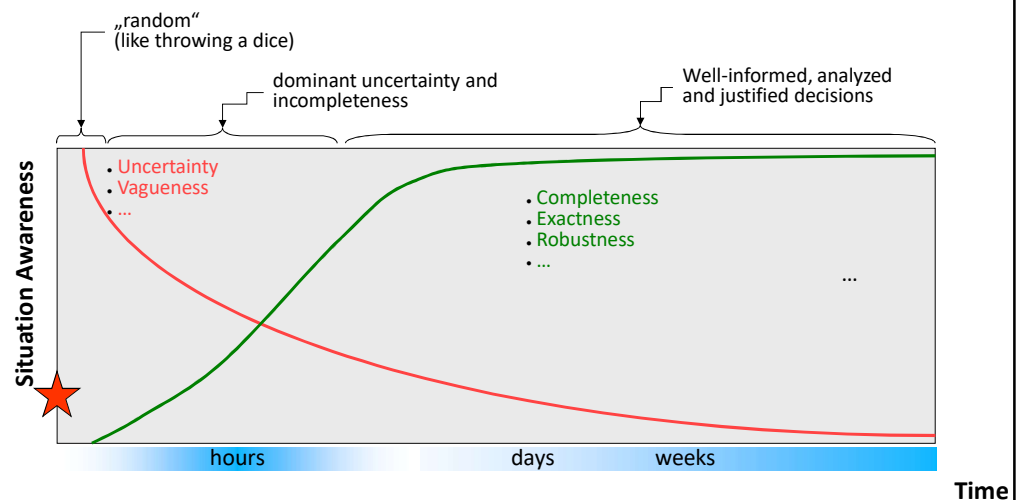
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Decision making & Sit awareness



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"What a piece of work is a man! How noble in reason, how infinite in faculty! In form and moving how express and admirable! In action how like an Angel! in apprehension how like a god! The beauty of the world! The paragon of animals!"

> From Hamlet, Act II, scene 2

TU Delft People are not rational decision makers

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(non) Rational decision making

- **Perfect information:**
 - All information about alternatives
 - Perfect (objective) information
- **Choice under uncertainty:**
 - Know all the options & outcomes and their probability
 - Know all the consequences of those options
- **Inter-temporal choice:**
 - Different choices over time
 - Choices may be influenced by (perceived time effects)
- **Limited cognitive ability:**
 - Not all decisions are rational (or can be)

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Simon, H. A. (1979). Rational decision making in business organizations.

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Games, Disasters, Exercises

The need for games

What and how do we train now and prepare for disaster responses?



Training

Use of games

How do games add to the state of the art? What are the opportunities, challenges



Games

Lessons learned

Designing games and executing them in disaster response



Design

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Training

Games

Design

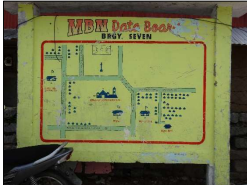
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Information

“Timely information can save lives...Aid organizations must recognize that accurate, timely information is a form of disaster response in its own right.”

- M. Niskala, Secretary-General of the IFRC, World Disasters Report 2005



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Training

Games

Design

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Why training

- Gain experience
- Train routines
- Learn updates / changes
- Build networks



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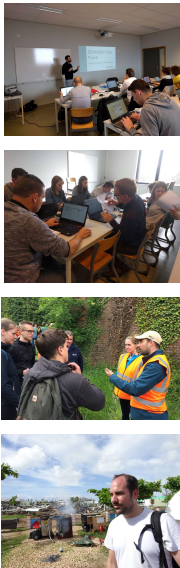
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Training

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So how and where do we train?

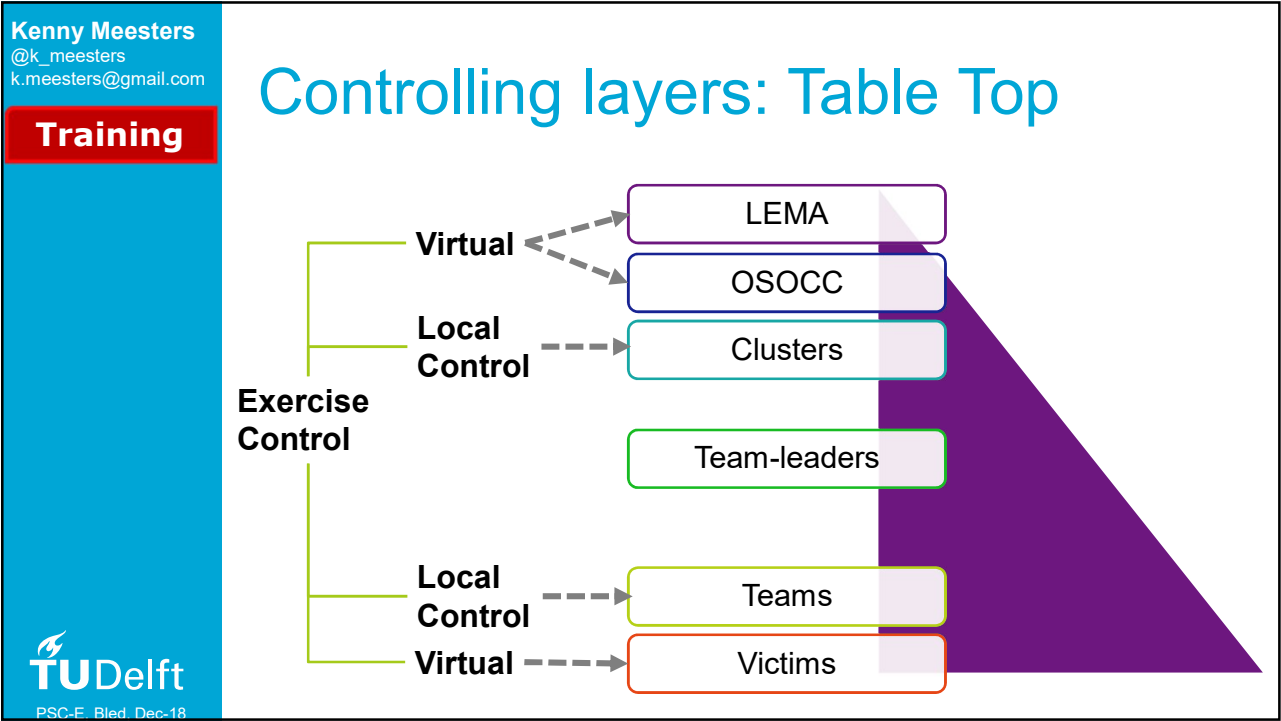
- Training sessions
 - Basic knowledge
- Table top simulations
 - Focus on a specific aspect
- Full-scale exercises
 - As realistic as possible
- In the real world
 - During missions

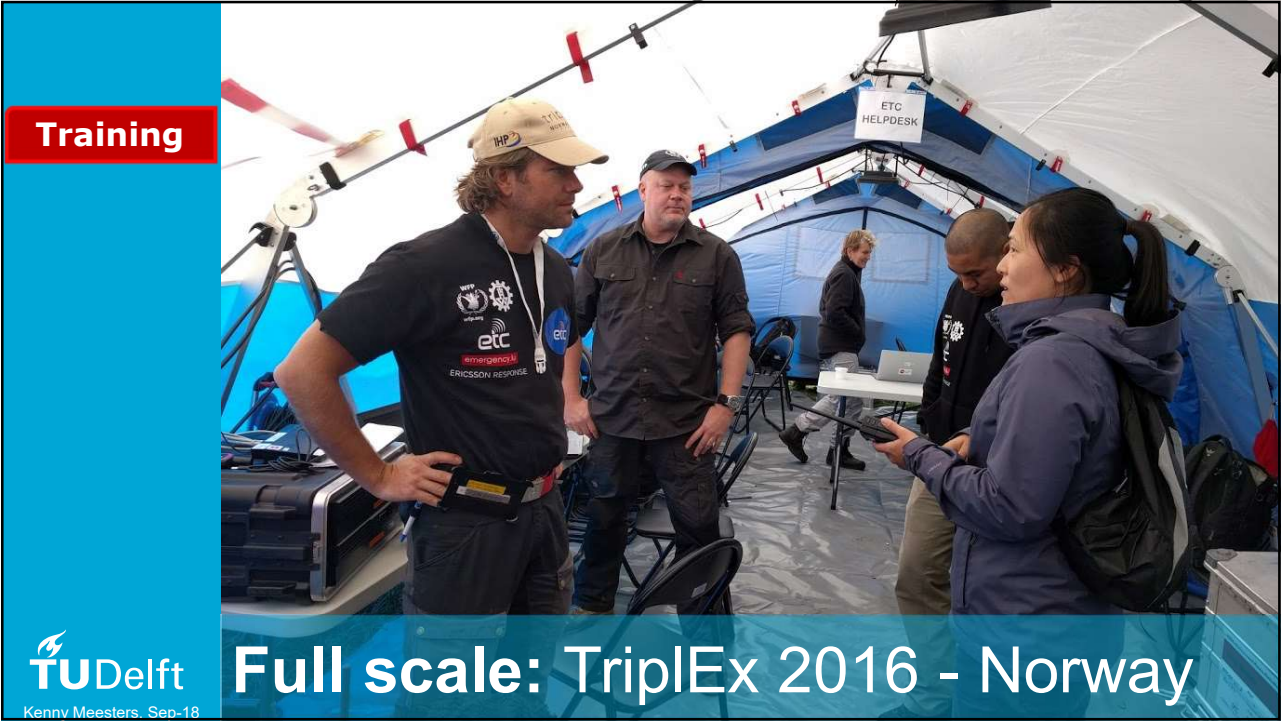


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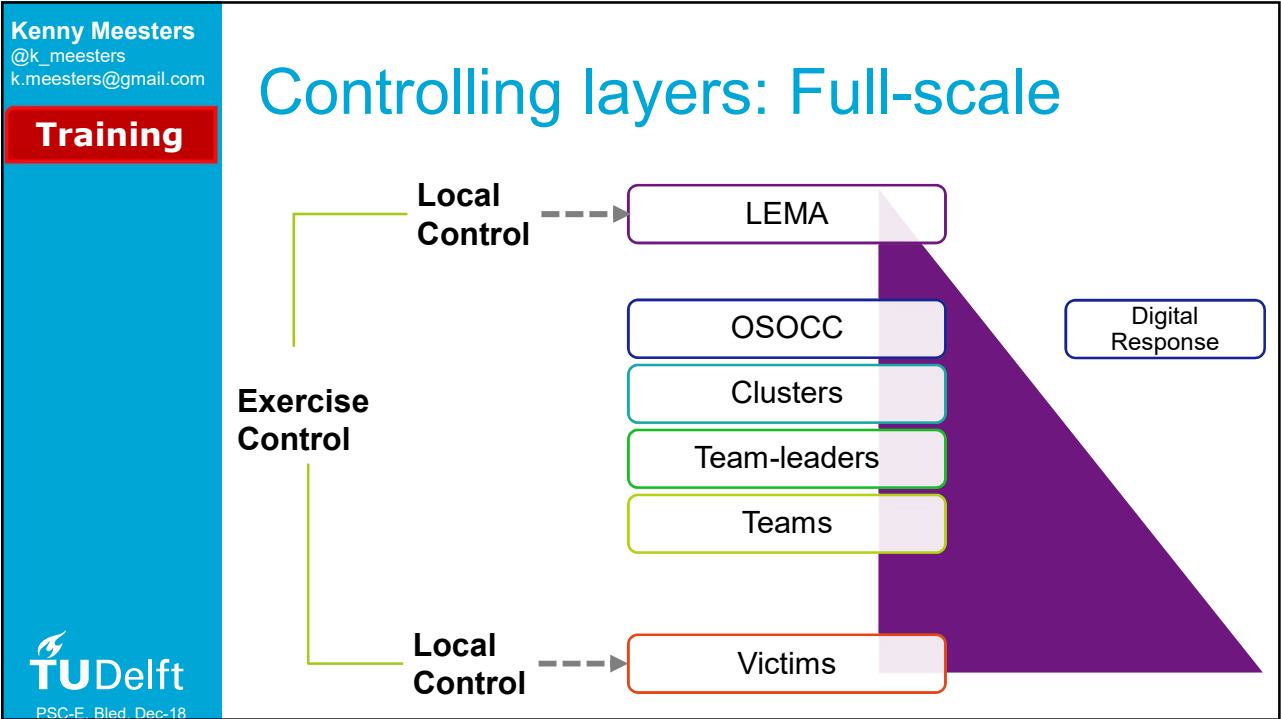


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Training

Challenges and Drawbacks

- Learning limitations
 - Train new people in old systems
 - Pressure to perform well
 - No room for experimentation
- Evaluation limitations
 - At individual, group, system, level
 - Exercise artifacts
 - Observer limitation / bias

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Games



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Gaming

1. We want to create awareness
2. We want to be able to train and apply competences
3. We want to “experiment”, learn and improve

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Games

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Games v. Exercises

‘Safe environment’ for participants

- Provide the environment, and guide them
- Set their own goal
- Play against themselves. Not against you.

Result

- More explorative environment
- Learning opportunity & stimulate self-evaluation
- Room for experimentation
- Easier to replicate / balance resource & fidelity
- Data collection

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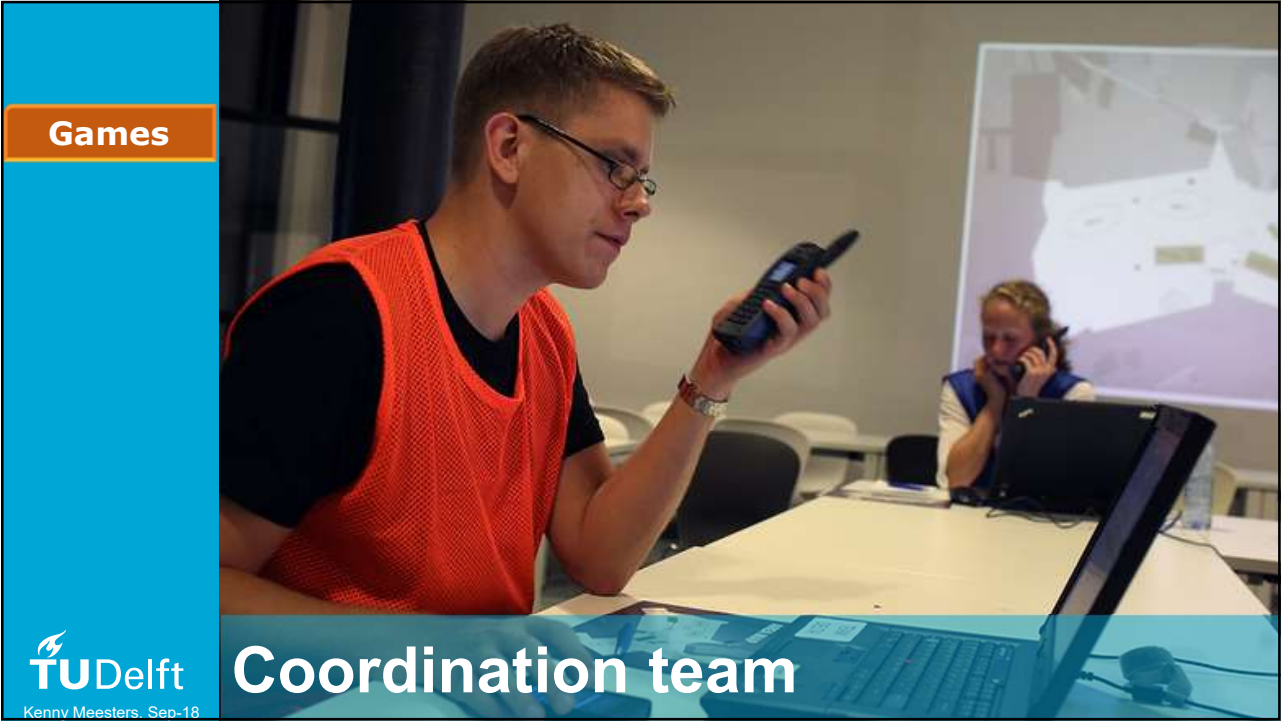
Games

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Game objectives

- “Understand” the work in-field
- Evaluate (the practicality of) tools
- Teams of players have to:
 - Manage the online information flow
 - Locate supplies
 - Locate, help and evacuate victims

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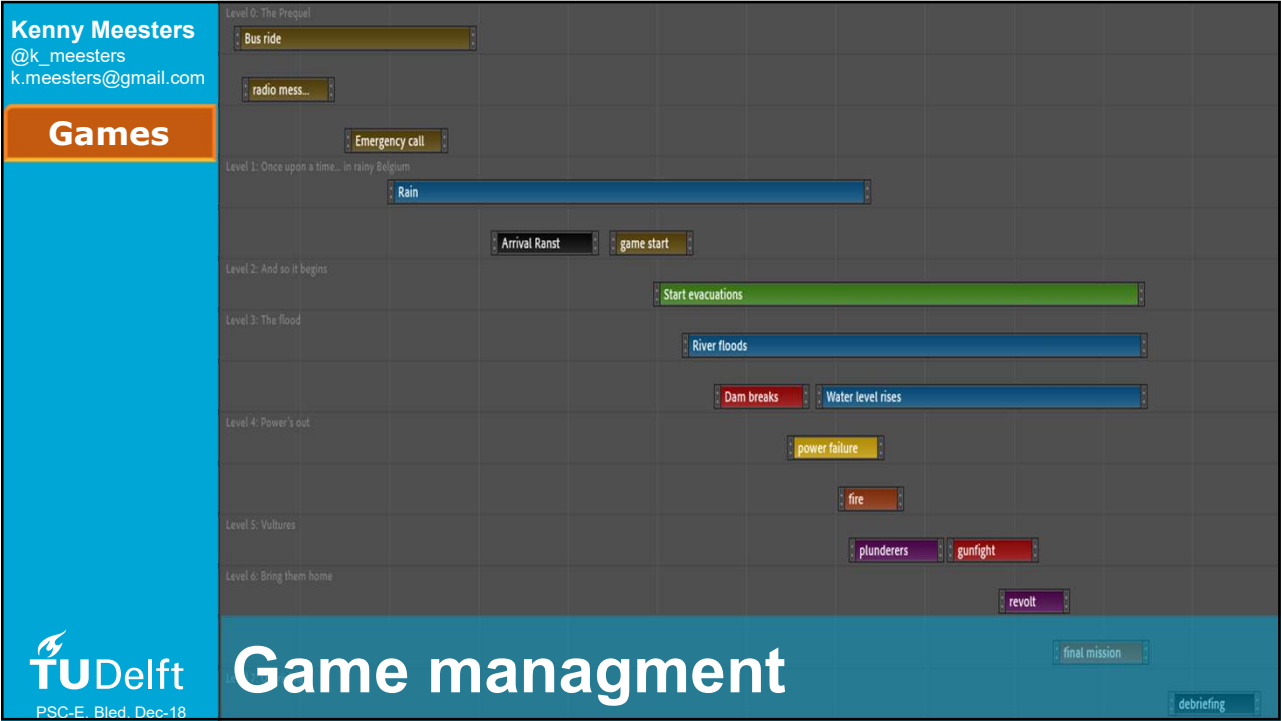
Games

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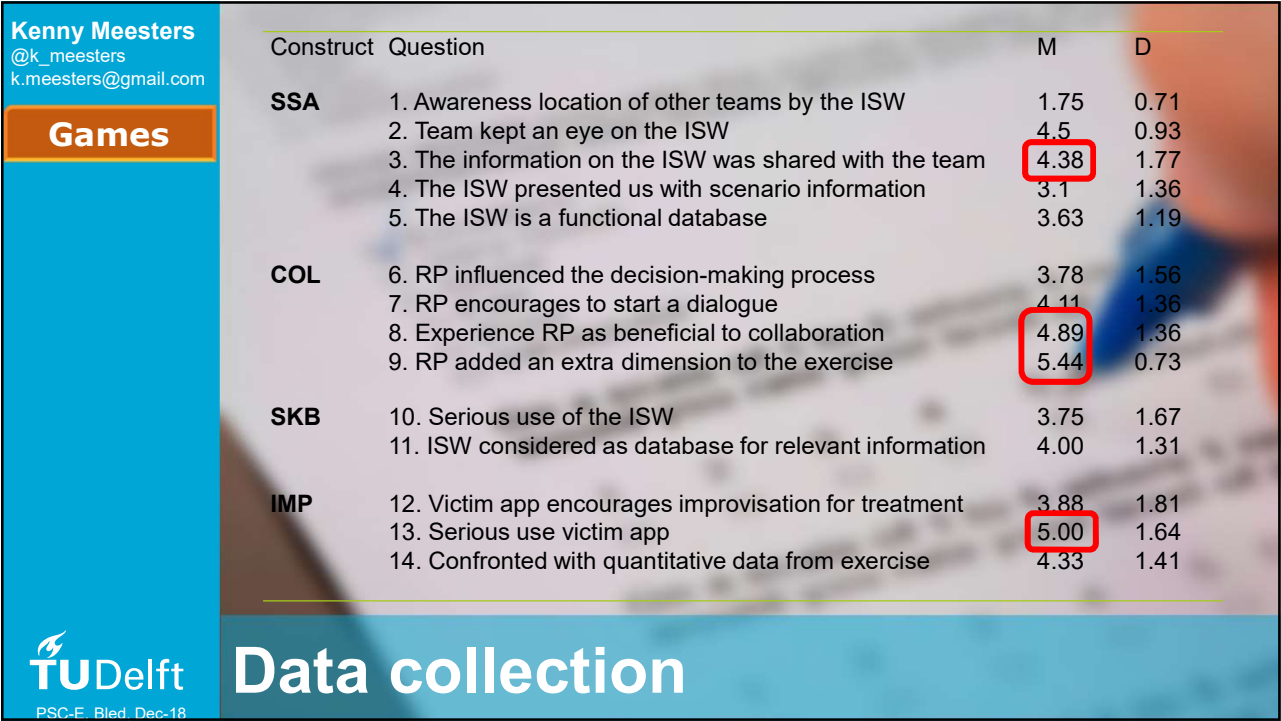
Debriefing results

- Situational overview & coordination**
 - Communication issues
 - Operational overview
- Immersion & Realism**
 - Strong immersion
 - Safety and care
- Learning experience**
 - Strong self-reflection
 - Insights shared
 - Key points for improvements identified

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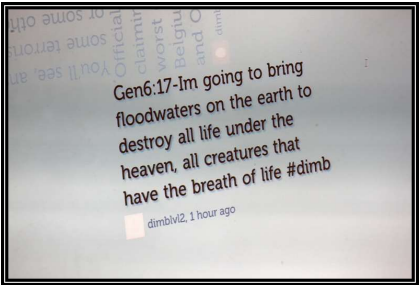
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Additional game options

- Injects
 - Social media, (faux) Satellite imagery
 - Actors (Press, victims, government)
- Additional IM tasks
 - Reporting (Mapping, 3Ws)
 - Plan of action



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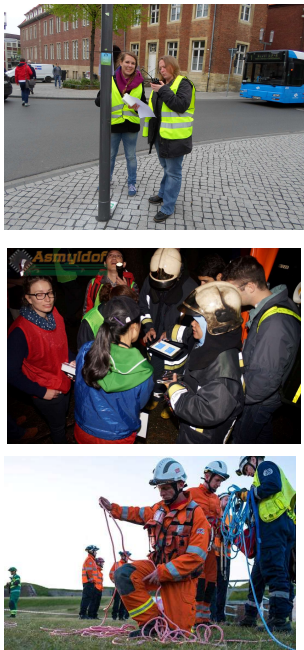
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Games

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Use of game

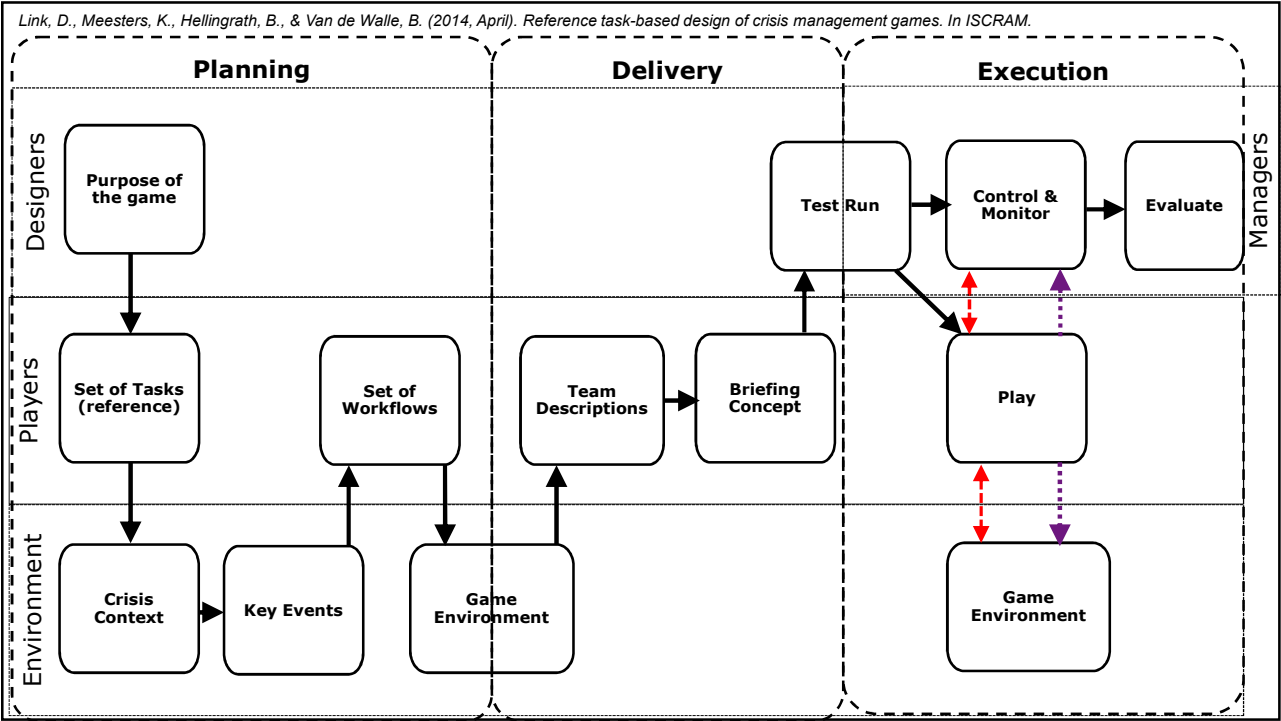
- Awareness
- Training
- Experimentation



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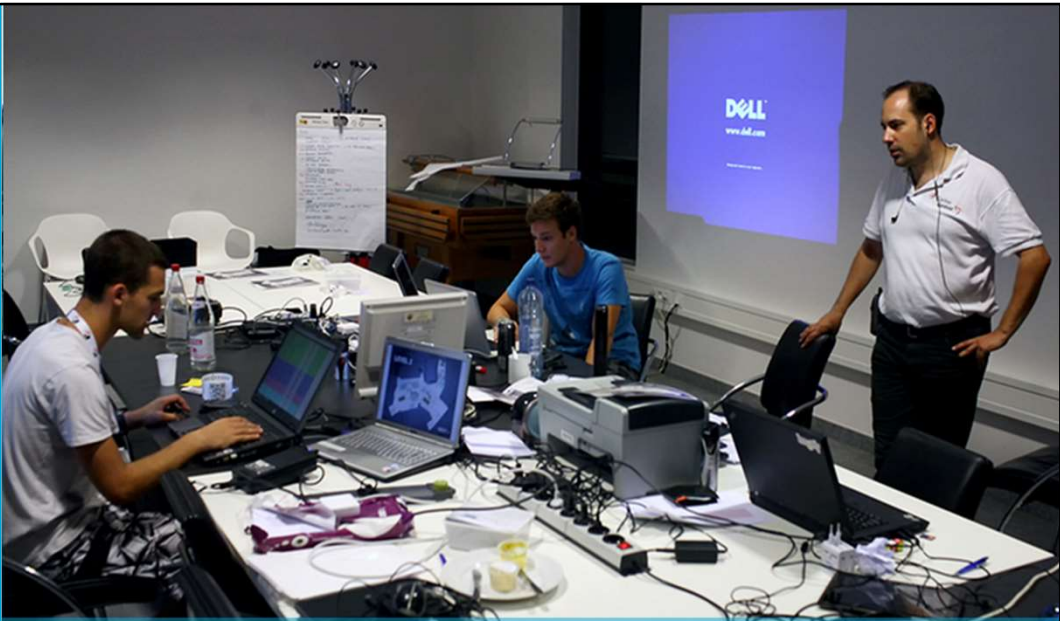
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Design

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Deliver the game

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Realism vs Fantasy

- Choices: focus on what is needed
- Augment Reality
- Story telling




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Enthusiasm

- Believe in your game
- Players experience is key



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Training

Games

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Thank you!
Want to know more?

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