Workshop 1

System Assets
Definition
Key Tasks

Describe:
1. What is the system?
2. What is its architecture (layers)?
3. What are
   • system assets,
   • business asset and their security criteria

4. Create models for
   – System architecture
   – System and business assets and their security criteria

You need to use at least four different modelling perspectives (and four modelling languages), for example:
   – Structural (UML class diagrams), Functional (BPMN), Behavioural (UML use cases), Actor and role (i*/Tropos) and other perspectives
   – Models can be at the different level of abstraction

5. Define and maintain Team management plan
6. Prepare and present your solution
Deadlines

10. March — present your solution to your classmates
   • During lecture time
   • 10 minutes presentation + 10 minutes questions/answers

10. March (at the latest!) — submit your workshop report including solutions to all 6 tasks
   • Do not be late (late solutions will not be accepted, and later feedback will not be given
     Submission through course Website, it is OK if only one team member submits the solution

16. March (at the latest!) — feedback given to teams
16. March — post-workshop questionnaire released
18. March (at the latest!) — submit post-workshop questionnaire
Evaluation

• Workshop 1 report – 10 points
  • You will receive feedback and will be able to improve the solution. The grade will be given for all three workshop solutions at the same time

• Workshop 1 presentation – 5 points
  • The grade will be given after the presentation

• Post-workshop 1 questionnaire – 2 points
Team management plan

<table>
<thead>
<tr>
<th>Workshop 1 – Team responsibility plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team name:</td>
</tr>
<tr>
<td>Team members:</td>
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<tr>
<td>Workshop tasks</td>
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<tr>
<td>Agree about tasks and responsibilities</td>
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</tbody>
</table>
# Team management plan

**Workshop 1 – Team responsibility plan**

**Team name:** Some imaginary team  
**Team members:** John A., John B., Joanna C., Joanna D., Vaclav

<table>
<thead>
<tr>
<th>Workshop tasks</th>
<th>Names</th>
<th>Task deadline</th>
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</table>
Software-Intensive System

Intelligent Transportation Systems

**PERCEPTION LAYER**
- Sensing
- Vision
- Positioning
- Actuating

**NETWORK LAYER**
- In-Vehicle
- Vehicle to Vehicle
- Vehicle to Infrastructure

**APPLICATION LAYER**
- Computing/Server
- Data Storage
- Human
Asset-Related Concepts

• Specify important **assets** to protect, define **criteria** to guarantee asset security
  - **Asset** – anything that has value to the organisation and is necessary for achieving its objectives
  - **Business asset** – information, process, skill inherent to the business of the organisation that has value to the organisation in terms of its business model and is necessary for achieving its objectives
  - **System asset** – a component or part of the system that has value to the organisation and is necessary for achieving its objectives and supporting business assets
  - **Security criterion** - property or constraint on business assets
  - **Security objective** is defined using security criteria on business assets

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Processing of Information

Everything that IT does, reduces to six functions

• Capturing information
  • Keyboard, bar code reader, digital camera

• Transmitting information
  • Wired-, wireless-phone

• Storing information
  • Hard disk, memory card, internet

• Retrieving information
  • From any storage device

• Manipulating information
  • Calculations, combinations of data

• Displaying information
  • Monitor, printer
Functional Decomposition

• **User interaction**
  • Interfacing and/or interacting with users

• **Data/storage management**
  • Storing and management of applications or information

• **Resource management**
  • Resource allocation, global scheduling, process migration,
  • Dynamic configuration of active software components

• **Distribution control**
  – Component collaboration
  – Coordination of local/remote execution
  – Synchronization/concurrency control

• **Communication**
  – Network communication

**Addressing**
  – Address, identifier and/or name allocation, distribution and discovery/lookup

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Security Criterion

• Property or constraint on **business assets** that characterises their security needs

• Act as indicators to assess the significance of a risk

  - **Confidentiality** – a property of being made not available or disclosed to unauthorized individuals, entities or processes

  - **Integrity** – a property of safeguarding the accuracy and completeness of assets
    - **Accuracy** could be threatened by (unauthorised or undesirable) update or tampering
    - **Completeness** could be threatened using altering or deletion

  - **Availability** – a property of being accessible and usable upon demand by an authorised entity
### Example

#### Asset-Related Concepts

<table>
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<tr>
<th>Assets</th>
<th>Business assets</th>
<th>Asset-Related Concepts</th>
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<tbody>
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<td><strong>Transmission medium</strong> that transfers game report</td>
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<td><strong>Game storage</strong> to store ERIS data</td>
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<td>Security criteria</td>
<td>Confidentiality of game report</td>
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<tr>
<td></td>
<td><strong>Integrity</strong> of game report</td>
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</table>
Modelling Perspective

- Structural perspective
- Goal and rule perspective
- Functional perspective
- Actor and role perspective
- Behavioral perspective
- Topological perspective

Example

Financial Module

- Add new staff member
- Add new staff grade
- Change rate for the client
- Change grade for the staff member
- Calculate staff bonuses

Accountant
Activity diagrams

• **Activity diagrams**
  • Represent dynamic behaviour
  • stepwise activities and actions with support for choice, iteration and concurrency
  • intended for computational and organisational processes
i* / Tropos
Strategic dependency model