INCOSE Usability Working Group

High-Value Use Cases

Collected January 31, 2011 at the INCOSE International Workshop

in Sunny Pheonix Arizona

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **\* Goal** | Capture use cases |
| **\* Actors**  **(Customer, Worker)** | Actor – Designer (SE), Customer (SW Engineer) |
| **\*Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq | Consistency of views for each design artifact  PV = 1  Freq = 2 |
| **Process / Diagram / Tool** | Op Con / Use Case / SysML Tool |
| **Pre-condition** | Context of the system is understood. Have knowledge of actors and actor goals. Have a preliminary set of requirements. Can ask customer or customer proxy questions. |
| **Post-condition** | Use cases printed to document, reviewed by customer, and delivered to SW. |
| **Sequence of tasks** | 1. Review source materials 2. Capture actor, goal, … 3. Create document of use cases |
| **Group Number** | 1 |

* Goal - What is the goal of the use case? (Focus on the produced engineering artifacts and the needs of the customer)
* Actors – Who are the actors involved in this use case? Who does the work? Who is the customer?
* Value Added – What is the value added to this use case because I used MBSE as opposed to traditional methods?
* What systems engineering process, tool, and/or SysML diagram is utilized? What is the potential Value and the frequency the primary actor performs use case. Use a 1-5 scale where 1 is the minimum and 5 is the maximum.
* Pre-condition – What is the state of the tools and engineering artifacts before the use case begins. What are the inputs needed to start this use case.
* Post-condition – What is the state of the tools and engineering artifacts after the use case finishes. What are the outputs from this use case.
* Sequence of tasks - What are the tool independent tasks the primary actor does (Starts with a verb) (What SysML element(s) and/or diagram(s) is used?)

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | Trace requirement to design, implementation, test |
| **Actors**  **(Customer, Worker)** | Actor – Designer (SE), Customer (SE doing impact analysis) |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq | Ability to query model for un-traced requirements, ability to visualize trace links using tools like a trace matrix.  PV = 2 – Assume tool has trace matrix and query mechanism.  Freq = 2 |
| **Process / Diagram / Tool** | Req / Req Diagram / Trace & Impact analysis |
| **Pre-condition** | Requirements captured in tool. Design and/or test artifacts under development. |
| **Post-condition** | Requirements traced to design and/or test artifacts as they are completed. |
| **Sequence of tasks** | Organize requirements on a requirements diagram  Create design artifact associated with organized diagram  Create trace link from implemented requirement to the associated design element  Check for requirements trace links |
| **Group Number** | 1 |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | Assemble components associated ? from library and to meet mission need |
| **Actors**  **(Customer, Worker)** | Architect, systems engineer/weapon engineer, component designers, librarian, interface designer/CCB |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq | PV – 5  Freq - 2 |
| **Process / Diagram / Tool** | ?, analysis simulation, configuration management tools |
| **Pre-condition** | - Mission needs understood  - Library of components, meeting criteria to reuse |
| **Post-condition** | Architect and collection of components, meeting the proposed mission need |
| **Sequence of tasks** | - SE searches repository for components, based on criteria/desired function  - SE selects and connects component abstractions in system model  - SE/integrator initiates performance analysis, simulation to verify behavior  - SE reconfigures components as necessary |
| **Group Number** | Tools |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **\*-Goal** | Conduct a Design Review using MBSD Environment |
| **\*-Actors**  **(Customer, Worker)** | SE, Architect/Designer  Customer, PM, Eng Mgmt, Peers |
| **\*-Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq |  |
| **Process / Diagram / Tool** | Collected changed artifacts and supporting artifacts into a form that can be commonly sharable form, document or html form. Highly all changed items |
| **Pre-condition** | Change Complete  Completed design review checklist |
| **Post-condition** | All issues adjudicated  Ready for re-baseline |
| **Sequence of tasks** | 1. Identify modeling artifacts and external artifacts that have changed or support  2. Create review artifact that is sharable across all reviewers. Artifact should highlight all changed items, both textual changes, changes to a diagrams/tables and any model element property, including logical/physical elements, requirements, relationships, etc.  3. Distribute review artifact and initiate review process  4. Collect issues, resolve and capture resolution  5. Review adjudication with reviewers  6. Merge changes and re-baseline |
| **Group Number / Assigned Dimension** | Group A  John Watson |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | Create an activity diagram |
| **Actors**  **(Customer, Worker)** | Worker |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq | Ability to quickly and completely capture needed behavior and resulting output |
| **Process / Diagram / Tool** | Activity diagram |
| **Pre-condition** | Defined use case |
| **Post-condition** | Completed activity diagram |
| **Sequence of tasks** | Identify use case  Identify and diagram start conditions  Identify and diagram activity/functions  Identify diagram end conditions  Identify and diagram logic , -1  Identify and diagram exception cases – abnormal handling  Update start/end conditions |
| **Group Number** |  |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | Generate & execute performance/simulation based on architecture and components captured in system model |
| **Actors**  **(Customer, Worker)** | SE, analyst, detail designer, ?, subcontractor/supplier |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq | PV – 4  F – 3 |
| **Process / Diagram / Tool** | Sys modeling tool, repository, analysis tools |
| **Pre-condition** | - Library of components in ? performance  - Proposed system architecture ? in system model |
| **Post-condition** | - Validated performance architectural configuration, at single level of abstraction |
| **Sequence of tasks** | - Determine how analysis of components tool together (which values/standards)  - Auto generate appropriate simulation/analysis for use in analysis tool  - Execute analysis  - Return results to system model |
| **Group Number** | Tools |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | Generate baseline/spec for review |
| **Actors**  **(Customer, Worker)** | Designer, reviewer, customer |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq | PV – Consistent collab – 4  Freq – 3 |
| **Process / Diagram / Tool** | Reqs, req diagram, Rational, arch diagram |
| **Pre-condition** | - Baselined set of reqs/arch artifacts  - Needed viewpoints of architecture available (safety, cost, etc.) |
| **Post-condition** | - Reviews commented on artifacts relevant to their role and stakeholders call ?) can review allowable info |
| **Sequence of tasks** | - Baseline set of specific versions of artifacts to form consistent baseline (electronic)  - Generate specs/review packages by reviewers role (specific viewpoints, level of detail)  - Reviewer able to comment on diagrams/artifacts and able to support multiple people reviewing/commenting on the same artifact  - Collect feedback on artifacts and resolve/merge comments to analyze all feedback  - Activity to resolve or clarify issues identified and assigned |
| **Group Number** | Tools 3 Karla Duchorne |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | Create report for a viewpoint |
| **Actors**  **(Customer, Worker)** | Architect, SE, viewpoint stakeholders |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq | PV – 4  Freq – 2-3 |
| **Process / Diagram / Tool** | All SysML along with possible other tool products (e.g. analysis product) |
| **Pre-condition** | Viewpoint created and applied |
| **Post-condition** | Current view is produced in selected format (e.g. HTML, Word, PDF) |
| **Sequence of tasks** | Create viewpoint  Apply viewpoint to model  Execute query to collect relevant information, diagrams, etc.  Produce output |
| **Group Number** |  |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | Generate documentation/specifications from model content (get diags into reports/updates) for review/customer approvals) |
| **Actors**  **(Customer, Worker)** | System engineer, customer reviewers, approvers |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq | Easily created, current docs  PV – 5  Freq – 3 |
| **Process / Diagram / Tool** | Each diagram used – state/AD/UC/ |
| **Pre-condition** | Some model data populated  Some reqs data populated  Template added |
| **Post-condition** | Docs generated with model data, text data which provided |
| **Sequence of tasks** | 1. Pgm manager requests updated system reqs set for review 2. System engineer reviews requirements in system req. set database 3. SE start artifact generation process – tool pulls updated text reqs, updated SysMl models, updated parameteric model (power, weight, etc.) into artifact 4. MS Word doc generated and PDF file generated |
| **Group Number** | Tools 3 Kent deJong |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | Build, integrate, use large scale system model with components (reuseable) from many areas |
| **Actors**  **(Customer, Worker)** | - Component model dev  - Model integrator  - Model end user/customer |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq | PV – 3  Freq – 3 |
| **Process / Diagram / Tool** | MATLAB/Simulink, SysML, conf/model management, other architecture tool? |
| **Pre-condition** | Domain modelers available, modelers and use cases understood |
| **Post-condition** | Deliver models to activities for use for dev and testing |
| **Sequence of tasks** | - Define architecture/integration rules  - Represent architecture & provide domain template to domain model  - Define config system with rules  - Specify rules for model dev & use |
| **Group Number** | 3 Judy Che |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | Version control of both an assembly and the components used in the model assembly |
| **Actors**  **(Customer, Worker)** | Model makers  Model users |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq | PV – 3  Freq – 5 |
| **Process / Diagram / Tool** |  |
| **Pre-condition** | Model components exist  Models are generated using subelements (components) |
| **Post-condition** | Version is known and changes are discernable. Updates to components are reflected in the model assemblies where the components are used when desired (can select old or new version)   1. Models are created 2. Versions are assigned 3. Updates are managed and version updated |
| **Sequence of tasks** |  |
| **Group Number** | 3 Kathy Baksa |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | Lean modeling via reuse. Pull elements from a library |
| **Actors**  **(Customer, Worker)** | Model creators – faster model generation  Model users – more consistent models |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq | PV – 4  Freq – 3 |
| **Process / Diagram / Tool** |  |
| **Pre-condition** | Library management exists  Librarian, model criteria versioning testing to ensure integration is viable |
| **Post-condition** | Models are assembled |
| **Sequence of tasks** | 1. Capture model component 2. Verify criteria 3. Make available 4. Use in model – versioning maintained for both assembly and components |
| **Group Number** | 3 Kathy Baksa |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | Fully specify user interfaces |
| **Actors**  **(Customer, Worker)** | HSI/HMI specialist  Modeler – HSI model |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq | Reduced design time/cost  Improved design time/cost  Reduced rework |
| **Process / Diagram / Tool** | HVS/TDFA  Imprint?/RMS |
| **Pre-condition** | Must ingest H PM data |
| **Post-condition** | Trace req backwards/forward |
| **Sequence of tasks** | Can Op/Use  ID/allocate req  For req ? |
| **Group Number** | 3 Jennifer |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | Make assertions on current design |
| **Actors**  **(Customer, Worker)** | Accountable engineer makes assertions, reviewers evaluate |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq | PV – 5  Freq – 5 |
| **Process / Diagram / Tool** | Cross-cutting – focused on constraints |
| **Pre-condition** | Assertions are made, simulations and analysis run |
| **Post-condition** | Reviews have concurred or not concurred that assertions are properly validated/tested |
| **Sequence of tasks** |  |
| **Group Number** | 2 |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | Priorities system feature/function based on business need/operational need |
| **Actors**  **(Customer, Worker)** | Designer, end user, PM |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq | PV – 5  Freq – 3 |
| **Process / Diagram / Tool** | Req/Agreement |
| **Pre-condition** | All system level functions identified, traceability  Complete to system (operational), ROM schedule, cost estimate  Complete panel do not fit customer schedule & cost, schedule & cost budgeted by function to extent possible |
| **Post-condition** | System functions prioritized, baseline established within customer schedule & cost |
| **Sequence of tasks** |  |
| **Group Number** | Process Step/Group A/Diana Shaekey |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | Capture design alternatives, decision criteria, weights for sensitivity analysis, decisioning, archiving for future reference |
| **Actors**  **(Customer, Worker)** | Customer, designer, PM, end system user |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq | PV – 5  Freq – 4 |
| **Process / Diagram / Tool** | Design grades & req/agreement/collaboration impact  Analysis, analysis |
| **Pre-condition** | Decision/eval criteria articulated, weighting established, alternatives enumerated & defined to level adequate for evaluating |
| **Post-condition** | Alternative selected, all alternatives, scoring archived for future retrieval as needed |
| **Sequence of tasks**  (Consumable, understandable, review work periodicals) | Define design goals, high level objectives, requirements  Define 3-5 designs which fulfill goals  Articulate evaluation criteria, weighting – obtain agreement  Score each alternative  Perform sensitivity analysis with highest priority eval criteria.  Review designs, sensitivity with actors, revise  Select design  Archive baseline |
| **Group Number** | Process step/Group A/Diana Shalkey |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | Tag/imprint customer provided Op need materialsAnalyze “as-is” V or to be to identify gaps |
| **Actors**  **(Customer, Worker)** | 1. Designer, customer 2. Designer 3. Designer, customer |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq |  |
| **Process / Diagram / Tool** |  |
| **Pre-condition** |  |
| **Post-condition** |  |
| **Sequence of tasks** |  |
| **Group Number** | Process Step/Group A/ Diana Shalkey |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | Work simultaneously on single model |
| **Actors**  **(Customer, Worker)** | Designer 1 doing requirements derivation  Designer 2 doing requirements allocation (could apply at any stage) |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq |  |
| **Process / Diagram / Tool** |  |
| **Pre-condition** | Requirements being generated |
| **Post-condition** | All requirements derived and allocated |
| **Sequence of tasks** | Designer 2 allocation a requirement  Designer 1 update that requirements due to evolving subsystem design  Designer 2 needs automatic notification of change  Ad mfunction |
| **Group Number** | Process – A Phil Eyermann |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | Conduct a model artifact review |
| **Actors**  **(Customer, Worker)** | SE/Designer/Arch  Peers, Customer, PM |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq |  |
| **Process / Diagram / Tool** | Extract document/htm/containing model diagrams, model elements, highlight changed items |
| **Pre-condition** | All issues adjudicated  Ready for re-baseline |
| **Post-condition** |  |
| **Sequence of tasks** |  |
| **Group Number** | 1 |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | Conduct model review |
| **Actors**  **(Customer, Worker)** | SE or designer, peer |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq |  |
| **Process / Diagram / Tool** | Extracted document containing change diagrams and model elements that changed  Highlight data that changed |
| **Pre-condition** |  |
| **Post-condition** | All issues adjudicated  Ready for re-baseline |
| **Sequence of tasks** |  |
| **Group Number** |  |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | Integrate system model with discipline-specific design/analysis model |
| **Actors**  **(Customer, Worker)** | Systems engineer, discipline engineer |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq | Better traceability between system-level and lower-level  Design/specs  PV – 5  Freq – 5 |
| **Process / Diagram / Tool** | Design/Trades |
| **Pre-condition** | System model in place, discipline model in place |
| **Post-condition** | Coupled system-discipline model |
| **Sequence of tasks** | Build system model  Build discipline model  Link models  Determine data exchange format  Exchange data detw-models |
| **Group Number** | Group A/Rich Deloof |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | Use models to support decision |
| **Actors**  **(Customer, Worker)** | E at one level (defines “need”)  Modeler (creates and runs model to produce supporting info)  Modeler and E at next level (interpret supporting info) |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq | E at next level (uses info to drive decisions) |
| **Process / Diagram / Tool** | Note: Models used to generate supporting info – may not be the same as those in main development stream. If they are the same, probably different instance |
| **Pre-condition** | Artifact exists at one level  Uncertainty in how to create next level |
| **Post-condition** | Next level can be created  Supporting info created |
| **Sequence of tasks** | E release does not have sufficient info to create artifact  E works with modeler to define info to be generated by model  Modeler creates model and generates results  E works with modeler to interpret results |
| **Group Number** | A Keith Collyer |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | Locate changes that affect an artifact |
| **Actors**  **(Customer, Worker)** | SE who is creating a derived artifact |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq |  |
| **Process / Diagram / Tool** |  |
| **Pre-condition** | Changes have happened and not been communicated |
| **Post-condition** | Changes identified  Affect of changes on derived artifact identified |
| **Sequence of tasks** |  |
| **Group Number** | A Keith Collyer |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | System integration – tie detailed design to system model and verify system requirements |
| **Actors**  **(Customer, Worker)** | Sys engr, design engr |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq | PV – 4  Freq – 2 |
| **Process / Diagram / Tool** | SysML tool, CAD tool |
| **Pre-condition** | 1. System decomposition complete 2. System requirements defined |
| **Post-condition** | System requirements verified |
| **Sequence of tasks** | - Key component parameters identified  - Key component parameters exported from CAD tool  - Key component parameters exported into SysML tool  - System parameters derived from component parameters  - System requirement compared against system parameters |
| **Group Number** | A Dirk Zwemer |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | Define what are pieces of system |
| **Actors**  **(Customer, Worker)** | System engineer, stakeholders |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq | Partitioned system 5  Allocation of requirements to structure can begin 5  Organize IPT team around |
| **Process / Diagram / Tool** | Design trades/BDD, partitioning of system |
| **Pre-condition** | Requirements are define, stereotypes are defined  Naming convention |
| **Post-condition** | Design alternatives structure is captured |
| **Sequence of tasks** | Create diagram  Name diagram  Create blocks  Name blocks  Create aggregation lines  Number each block as a CI based on # scheme |
| **Group Number** |  |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | Communicate (not just present) design to persons not on the design team |
| **Actors**  **(Customer, Worker)** | 1. Design owner (SE or domain) 2. Reviewer with similar knowledge/skills/experience but not on the design team |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq | PV – 4  Freq – 5 |
| **Process / Diagram / Tool** |  |
| **Pre-condition** |  |
| **Post-condition** | Design communicated. Working/familiarity with a moderate level as detail. Ability to offer critical review of design |
| **Sequence of tasks** | Is there a process completion state that could be a surrogate for artifact review (I think not) |
| **Group Number** |  |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | Orienting team to problem |
| **Actors**  **(Customer, Worker)** | Architect, as producer, other engineers as consumers |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq | PV – 5  Freq – 3 |
| **Process / Diagram / Tool** | ? SysML lite (White board” |
| **Pre-condition** | Architect has idea |
| **Post-condition** | Engineers join in |
| **Sequence of tasks** |  |
| **Group Number** | 2 |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | Capture operating scenarios |
| **Actors**  **(Customer, Worker)** | Operator/maintainer/user produces information, responds to interview, SE is recorder of information; discipline engineer uses |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq | 5 vital  3 Freq – maintained and update as new knowledge comes from field |
| **Process / Diagram / Tool** | Activity diagram |
| **Pre-condition** | Appropriate operator identified and has an operational concept |
| **Post-condition** | Information is captured in a form  Need by disciplinarian |
| **Sequence of tasks** |  |
| **Group Number** | 2 |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | Coming to specific agreement – roll into communication <<include>> |
| **Actors**  **(Customer, Worker)** | Authorizes (worker) and delivery (active customer) delegate together, |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq |  |
| **Process / Diagram / Tool** | Req’s, activity, block |
| **Pre-condition** | Supplier/consumer relationship established |
| **Post-condition** | Work package is agreed |
| **Sequence of tasks** |  |
| **Group Number** | 2 |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | Define the interface – what is the spec? |
| **Actors**  **(Customer, Worker)** | SE as producer, component engineers as customers |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq | 5  3 |
| **Process / Diagram / Tool** |  |
| **Pre-condition** | Elements are defined |
| **Post-condition** | Properly defined parts, protocols, constructed with agreement |
| **Sequence of tasks** |  |
| **Group Number** |  |

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| **High-Value Use Case – INCOSE Usability Working Group** | |
| **Goal** | Define system architecture and conduct architectural analysis |
| **Actors**  **(Customer, Worker)** | Systems engineer performing architecting function |
| **Value Added**  PV = Potential Value  PV (1-5) 5=Max Value  Freq (1-5) 5=Max Freq | PV – 4-5 – shared vision/communications  Freq – 5 |
| **Process / Diagram / Tool** | - Many candidate methodologies for sys arch  - UML/SysML diagram tips: Pkg diagrams, BDDs, Class diagrams |
| **Pre-condition** | 1. Architectural approach/methodology adopted 2. Modeling languages and tool(s) selected 3. Profiles exist and have been imported |
| **Post-condition** | System architecture (logical/conceptual) captured in system model and validated |
| **Sequence of tasks** | 1. Specify architectural properties and constraints/drivers 2. Consider arch alternatives 3. Describe architecture (use views/view points) 4. Refine requirements and design 5. Develop scenarios |
| **Group Number** |  |