Workshop Scope

- **MBSE implies data (model) relationships/integration**
- **Design Integration implies a process for exchanging data**
- **Concurrent Design implies we all start work at the same time**

During the workshop we will define, design, manufacture, and qualify a box (made from paper). We will divide the audience into teams and assign Roles:

- **Stakeholders: what to create**
- **Define and Optimize Design: concepts (size, folds, strength)**
- **DEIX Team: create, share, manage package process**
- **Fab Planning and Mfg: verify consumption, execute**
- **Regulatory/Quality: product, design, build rules**
- **Scoring Team: audit each team's output, completeness**

Activity Guidelines:

- **We provide handouts to each team with directions and rules for their deliverables.**
- **30 minutes to create deliverables and exchange, then everyone will switch teams.**
- **Identify one manager for each team, and one scribe with laptop (ppt, excel, docs, images), and one folder for each team (to collect paper deliverables).**
- **Each Team is a separate supplier, owns their IP, and success. Integrate with other teams as required, but maintain 30 minute rule.**

Product Stakeholders

what to create

1. What will the box be used for (mission)? Will the box be sealed?
2. How big should it be? How much weight should it hold?
3. Does it need to be recyclable? Can it be made from single sheet of paper?
4. What features matter (e.g. color, shape, folds, complexity)?
5. How much should be defined digitally with requirements traceability?
6. What MBSE capabilities (model/doc relationships) matter?
7. Packaging of deliverables: risks and value.
8. Should you request Prototypes? Examples for use and longevity.
9. Expectations that validate manufacturing quality, mfg capacity, mfg rate,
10. Optional: Operations, Cost & Schedule, Performance, Training & Support, Test, Disposal, Manufacturing

Rules to consider:

- Assume every team is a different supplier, and they are all customers
- Ask for status, milestones, reviews
- Provide samples, and specify 8.5" x 11" paper (sheets)
- Keep requirements simple, and prioritize expectations

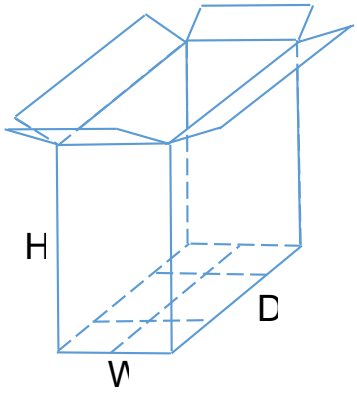
Define and Optimize the Design

concepts (size, folds, strength)

1. Design Requirement:
    - Volume = H*W*D = x
    - Assume infinite number of design solutions, but optimize
2. Add Production Requirement:
    - Minimize surface area: S = 2*(H+W)(D+W) (production cost requirement)
    - Fold methods, and designs for best fabrication rate
    - Minimize use of raw material for box system (zero waste,
    - Options for producibility (with and without fasteners)
3. Consider Support and Services Requirements
    - Define specifications, limits, characteristics, stability and safety restrictions
    - Define product options

Rules to consider:

- Assume every team is a different supplier
- Identify your customers and define plan for status, milestones, reviews
- Provide samples, and maintain limitation of 8.5" x 11" paper (sheets)
- Keep requirements simple, and prioritize expectations.
- Create a common design package for all of your customers



DEIX Team

create, share, manage package process

HOW to assemble/bundle/couple/package the MBSE business objects that need to be exchanged (architecture of the process). What is the architecture of the process, and **HOW** should the exchange/sharing/access occur?

1. WHAT information should be part of the package.
2. Assume you know the examples: AP232, MIL-STD-31000, NASA and INCOSE SE Handbooks
3. Create a checklist for process and deliverables
4. Define and demo MBSE capability based on model/doc relationships.
5. Consider Data/Process Conformance and requirements traceability (origination, consumption, V&V)

Rules to consider:

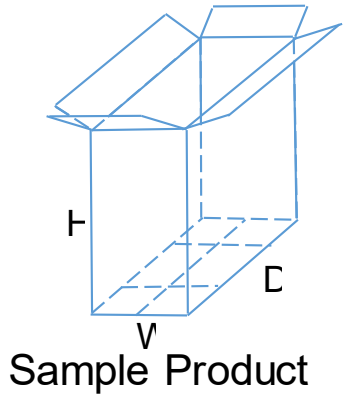
Assume every team is a different supplier, and they are all your customers

Include a plan for status, milestones, and reviews (based on a 30 min process)

Provide process samples, and maintain limitation of 8.5" x 11" paper (sheets)

Keep requirements simple, and prioritize expectations.

Create a common process package guidelines for all of your customers



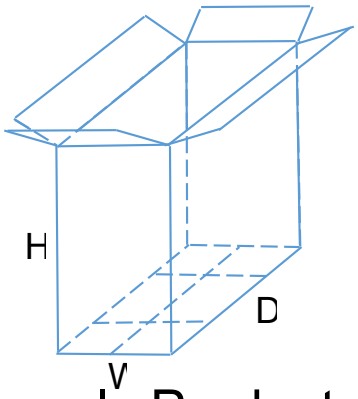
Fab Planning and Manufacturing

verify consumption of packages (planning) and execute fab

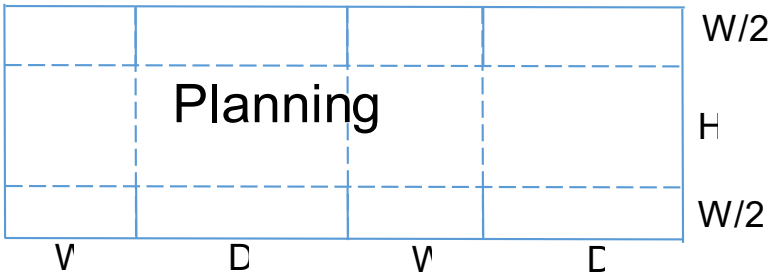
1. You are independent of all teams and define the manufacturing allowables
2. You will be rated based on consumption of requirements from other teams (30 minute rule)
3. Define capacity, rate and limitations based on your requirements
4. Consider how to communicate requirements with prototypes
5. Define verification rules for data consumption and requirements compliance
6. Define how to validate process and manufacturing quality.
7. Identify guidelines for operations, team qualifications, product testing

Rules to consider:

- Assume every team is a different supplier, and they are all your customers
- Include a plan for status, milestones, reviews (based on a 30 min process)
- Provide process samples, and maintain limitation of 8.5" x 11" paper (sheets)
- Keep requirements simple, and prioritize expectations.
- Create a package of capabilities for all of your customers



Sample Product



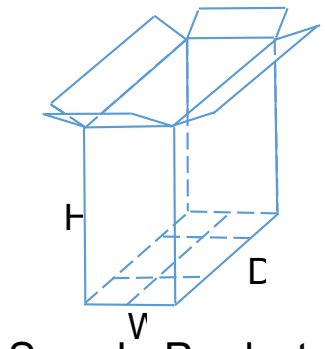
Regulatory/Quality

product, design, and build rules

1. You are independent of all teams and define the regulations for conformance
2. You must drive each team's execution to achieve the 30 minute rule
3. Define mission/product scope and limitations based on your rules
4. How much should be defined digitally with requirements traceability?
5. Identify data retention requirements and provisions.
6. Expectations to validate process, design, and manufacturing quality.
7. Identify guidelines for operations, team qualifications, product performance, Test, Disposal, Manufacturing

Rules to consider:

- Assume every team is a different supplier, and they are all your customers.
- Ask for each team's plan for status, milestones, reviews (based on a 30 min process)
- You govern the success of the BOX manufacturing industry that uses 8.5" x 11" paper (sheets)
- Keep requirements simple, and prioritize expectations.
- Create a common package of guidelines for all of your customers



Sample Product

Scoring Team

audit each team's output, completeness

1. Packaging - unpacking (containers, media, data types, etc.)
2. How did each team define and maintain model/doc relationships?
3. Generate a scoring model and rate each team
4. Evaluate the manifest of package contents and features (plus manifest history)
5. Emphasize scoring of the model's/doc's meta-data (pedigree and intent, AP243)
6. Add value for Config and Quality criteria for V&V and SDRL purpose/compliance
7. Define score for Marking and Security of package and contents (object tagging, package, IP classification, system managing the package)
8. Separate score for the DEIX team: Reference a WHAT and HOW doc/process for creating and exchanging the TDP
9. Notification of TDP exchange action and method

Rules to consider:

- Assume every team is a different supplier, and they are all independent
- Define your intention to audit each team's progress (based on a 30 min process)
- Recognize product limitations of 8.5" x 11" paper (sheets), and minimal digital deliverables
- Keep scoring process simple, and prioritize scoring categories
- Create a common process package guidelines for all of your customers