

# Polymer AM Shop Floor Overview

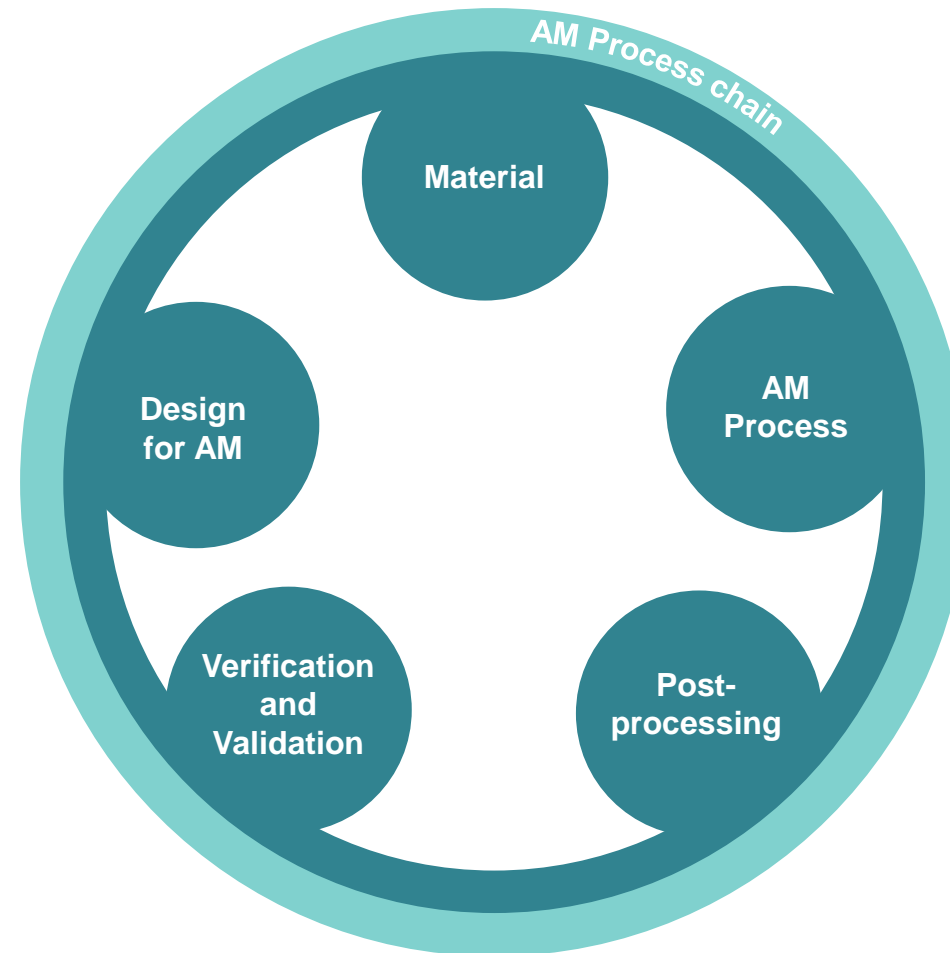
(20 minutes)

# Session Objectives

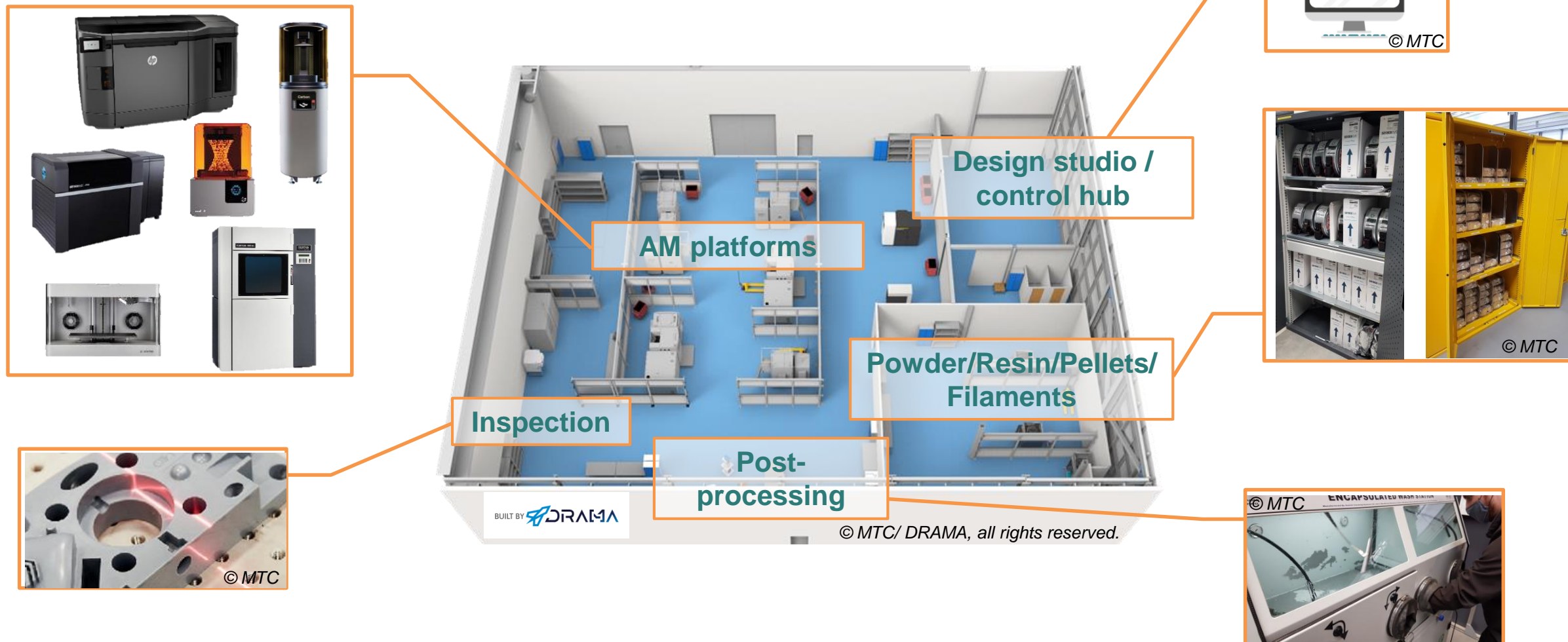
- In this session, you will learn about the key areas of a polymer AM production facility
- The shop floor layout presented enables streamlining of all the individual processes associated with AM production
- The information shared should be taken as a guide

# AM process chain has multiple segments

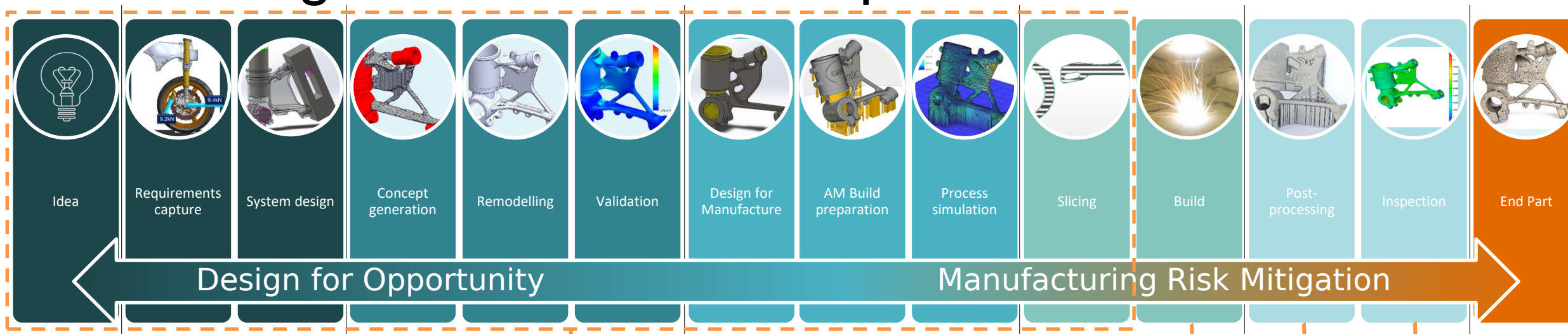
- Each segment is crucial in making the outcome successful
- An AM designer wears multiple hats and should have an idea of the entire AM process chain
- It is important to note that design can impact all the subsequent operations



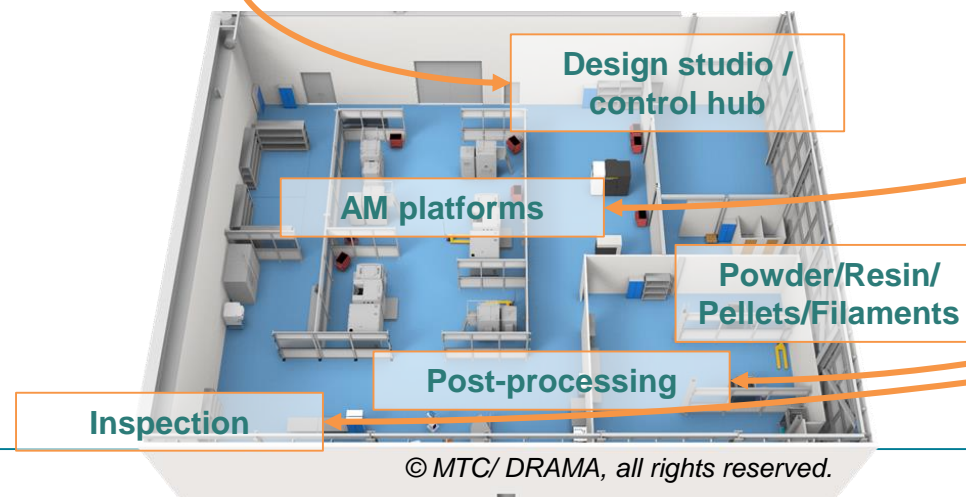
# An example AM shop floor



# AM Design workflow with shop floor overview



- Remember – design has impact on all aspects!



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# Post-processing

## Common post-processing operations

- Colouring
- Machining
- Surface finishing
- Bonding/Joining
- Process specific
  - Powder bed fusion-Laser beam or thermal reaction bonding/Polymer (PBF-LB/P, PBF-TRB/P)
    - Powder removal
    - Pellet/air blasting
  - Material extrusion (MEX)
    - Support removal
- Vat Photopolymerisation (VPP)
  - Resin stations
  - Washing
  - Support removal
  - Post-curing
- Binder jetting (BJT)
  - Powder removal
  - Support removal
  - Glue/epoxy/gloss infusion



Source:3DHubs



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# Other considerations

- Health & Safety
  - PPE
  - Ventilation
  - Material
  - Filtration of fumes
- Staff training
- Material handling, recycling and disposal
- Other relevant regulations to follow for each stage on the shop floor

# Summary

- This session highlighted key areas of a polymer AM production facility
- The shop floor layout presented enables streamlining of all the individual processes associated with AM production
- The information shared should be taken as a guide