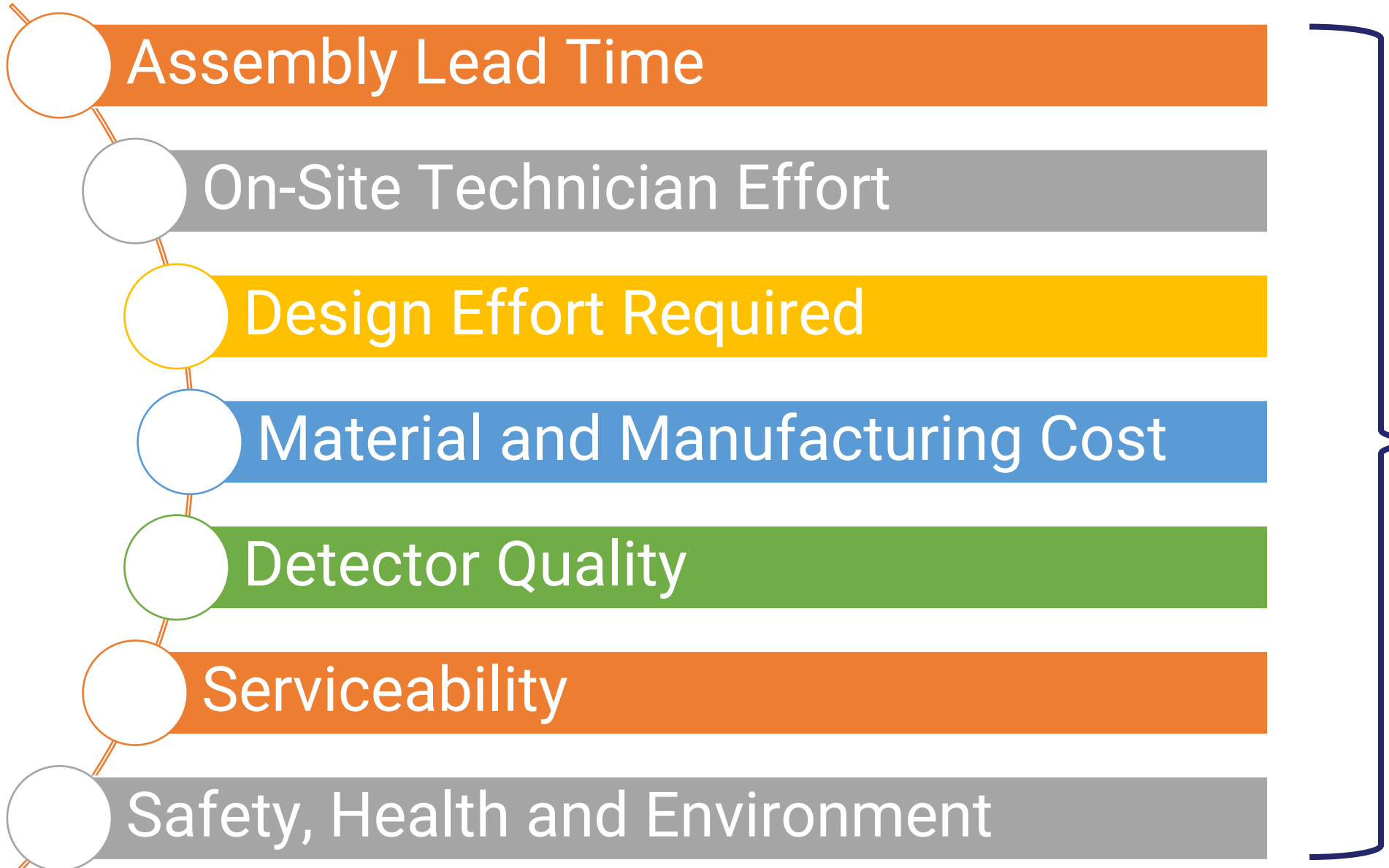


XLZD UK – Assembly Integration Development

Alex Jones – Assembly Integration Engineer

The assembly integration of the XLZD detector subassemblies is in the early stages of conceptual analysis. The bulk of the work focusses on establishing all possible assembly staging options and comparing them in terms of several key factors.



The key criteria used are not comprehensive of every consideration that needs to be made. They do however provide a quick method of comparison with the most critical of these criteria being the assembly lead time and the material/manufacturing cost. Quite often the two are in opposition, with decreased lead times achievable through greater investment.

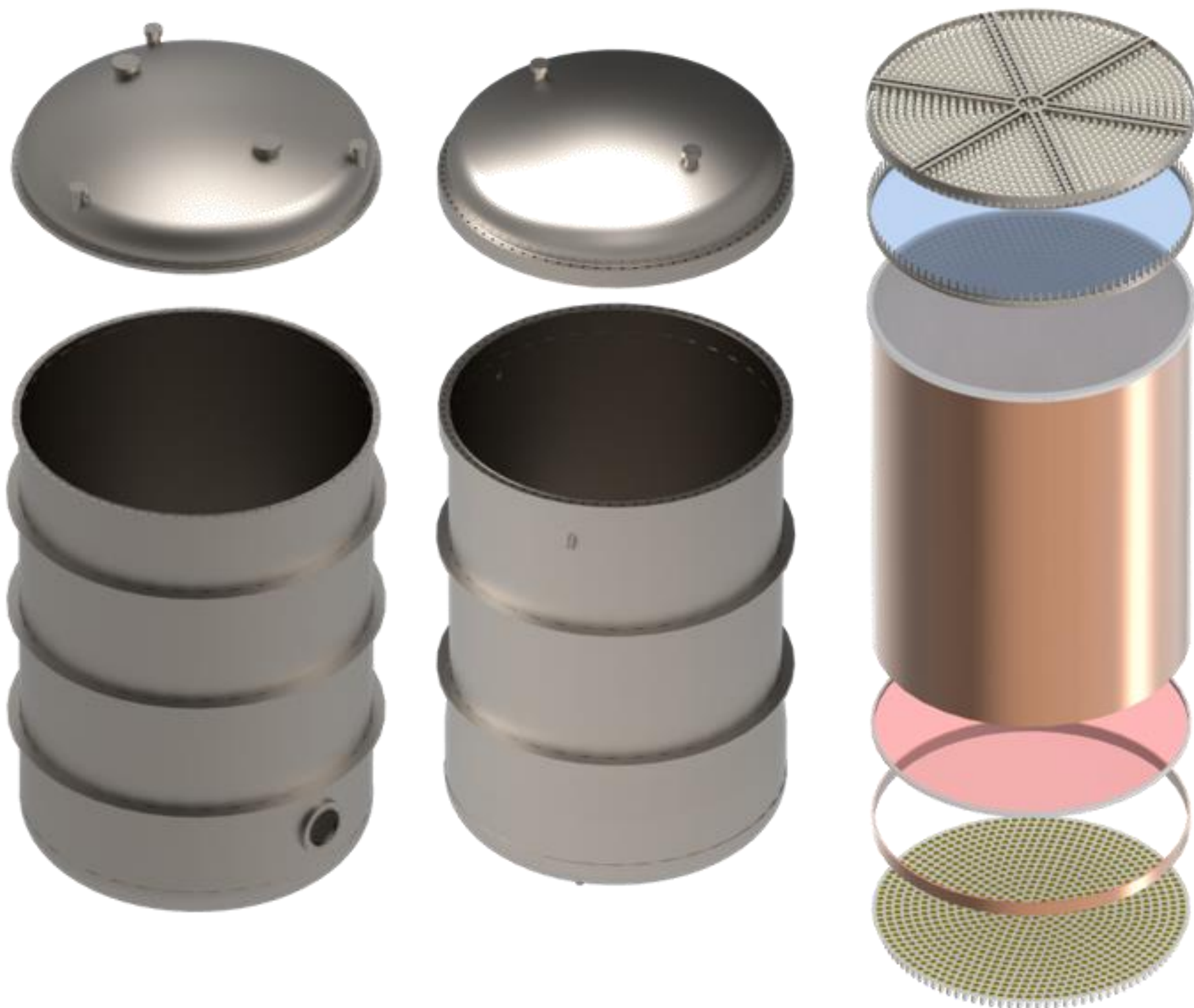


Figure 1 – Placeholder Detector Sub-Assemblies: OCV (left), ICV (middle), Xe Detector (right)

The staging process selection involves outlining primary and branching options, presenting these options to work package holders, trimming away those that are not possible and shifting focus to those that are favoured. For example, the focus area for the early stages of analysis has been the insertions of the Xe detector sub assembly into the ICV and OCV. These sub-assemblies can be seen in Figure 1. This has narrowed the options to two primary methods each with numerous variants related to assembly location and lifting equipment used.

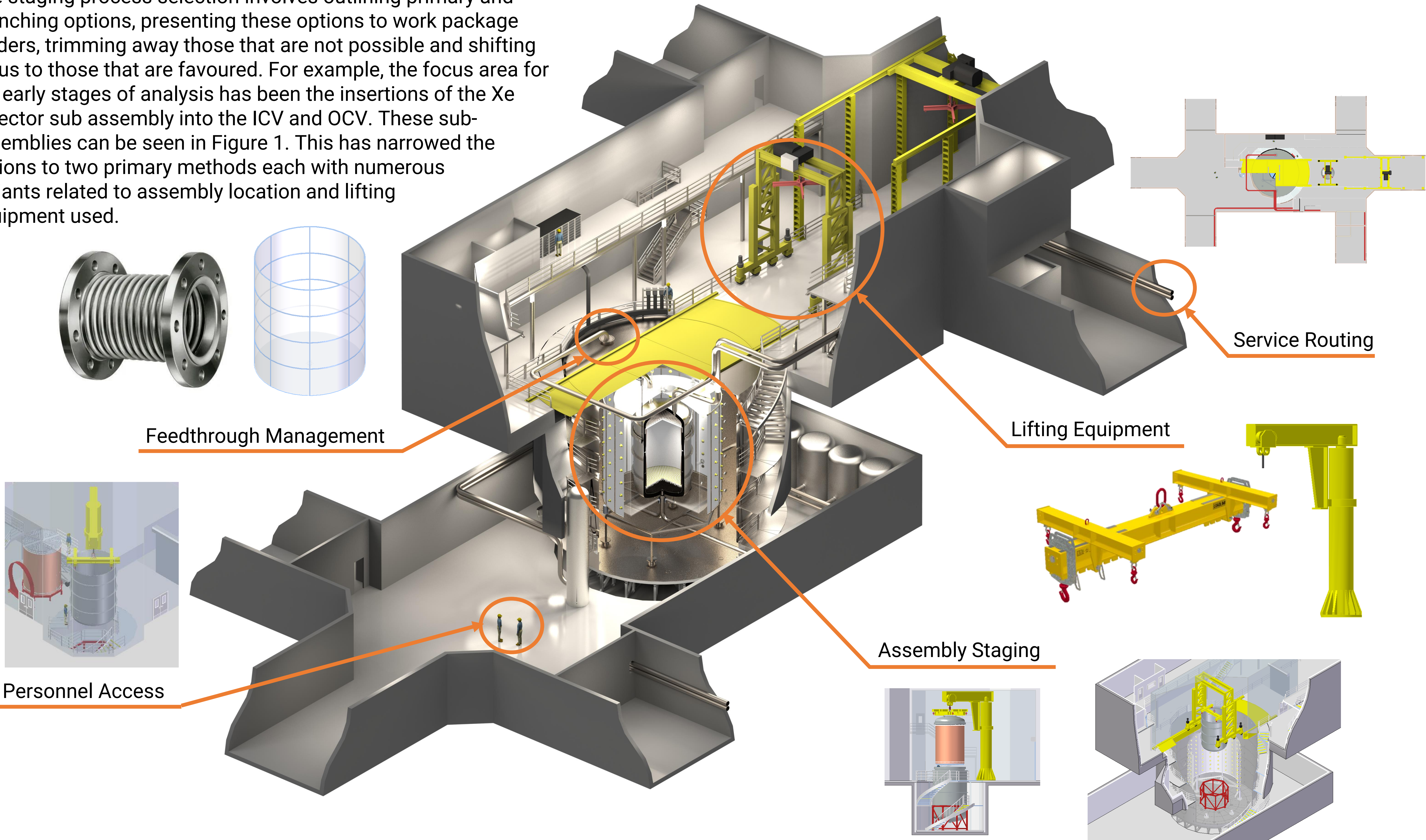
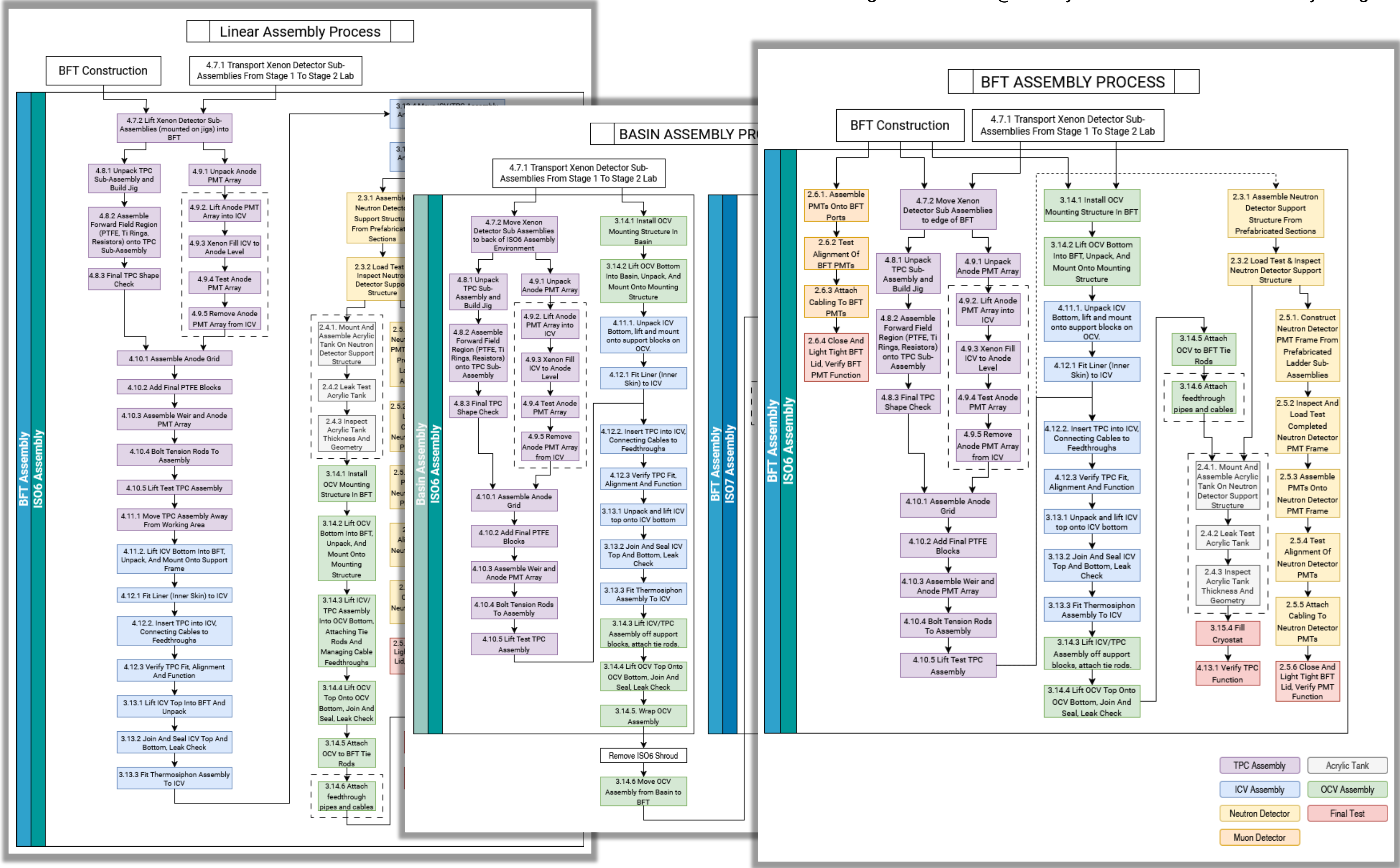


Figure 2 – XLZD@Boulby Site Render with Assembly Integration Design Considerations Encircled



For the integration of the several different sub-assemblies there must also be an integration across the associated work packages. For this reason, the main options are relayed to the work package holders regularly. Examples of the considerations that are shared with both the work package holders and the assembly integration are shown in Figure 2. In all the examples shown, work has been done with the relevant work package holders to narrow down the options. This will continue throughout the project.

When a unique option is developed for the assembly staging, an assembly flow diagram is made to aid in the comparison of some of the criteria mentioned previously (especially assembly lead times). Examples of these flow diagrams can be seen in Figure 3. These are also accompanied by staging models showing each step in the process as can be seen in Figure 2 – Assembly Staging.

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Figure 3 – Assembly Integration Staging Flow Diagram Examples