1) Inflation in cost and supply chain times and impact on machine reliability and availability
    a. Lead times for equipment has increased significantly
        i. What were/are the most shocking experiences?
        ii. Some unexpected equipment that suffers from long lead times? (e.g. electronics is clear, but what about e.g. cables or pipes, or mechanical equipment?)
        iii. How are you responding to that?
        iv. Could you identify mitigations?
        v. How are your management/sponsors responding to the delays imposed by long lead times? Are they supportive, understanding?
        vi. What mitigations have your management/sponsors/government put in place?
        vii. Have procurement strategies changed? How? Is it effective?
        viii. What mitigations have the suppliers put in place? Is it effective? Have you changed suppliers due to too long lead times or non-responsiveness of suppliers? What were the important criteria for you to stick to a supplier or to change to an alternative supplier?
    b. Are there proposals for alternative solutions?
        i. Are you working on alternatives in house?
        ii. Are you involved or planning on being involved in next generation technology development for semi-conductor alternatives? (Gallium nitride (GaN) and silicon carbide (SiC)
    c. Inflation in cost (e.g. due to the pandemic, or war between Russia/Ukraine)
        i. Which experience do you have?
        ii. What mitigations were put in place?
        iii. Can/will your management/sponsors/government support the cost increase or were you asked to stick to the budget as originally provided? If no budget increase, what are you doing? Is it possible to procure e.g. less reliable equipment but for less money? Or is it possible to reduce operations hours (if high electricity cost)? What are the consequences? What are the compromises taken?
        iv. Are there developments planned to e.g. operate equipment with less electricity consumption? Or to produce electricity in house at a low cost? (which labs are most vulnerable)
        v. Any development on new technologies that allow electricity production and transportation without significant losses?

2) Reliability during testing/commissioning and upgrades
    a. Integrated testing of new or upgraded systems before e.g. beam commissioning
        i. What approaches are taken?
        ii. Is it possible to define reliable and clear testing strategies for e.g. accelerators and their systems?
        iii. How do you ensure that a minimum of equipment reliability is provided before testing starts?

iv. What are the criteria to be fulfilled before integrated testing is allowed to start? How are these enforced? What are typical scenarios that you wish would not happen?
v. How can integrated testing be optimized? What lessons learned do you have?
vi. How much do you manage to stick to your initial systematic plan when testing has started?
vii. Are you given sufficient time to do integrated testing? If not, why? How do you push back? Who is blocking and with what kind of arguments? How does this compare to the time given for the design phase?
viii. What importance level does integrated testing have at your facility? What are the consequences?
ix. How do you address situations where not all the systems are fully ready for integrated testing, but integrated testing has to start regardless? What mitigations have been put in place? Which ones do work out well, which one cause even more issues?
x. Any specific feedback on testing new technology-based equipment and related obstacles?
xi. Impact of highly experienced teams (who have done plenty of integrated testing) versus little experienced teams or teams with no experience at all. How do you train your testing/commissioning crews?
xii. Impact of personnel availability. Did you have everyone you needed in place, or did you have to recruit and add to staff? How fill in testing/commissioning crews?
xiii.

b. Did you experience specific issues during integrated testing/commissioning that are due to the design strategies applied to develop the equipment?
    i. Robust individual components that may have fewer failure modes but inflexible during non-standard operation or commissioning.
    ii. Highly integrated flexible components that may introduce more failure modes, but aide in non-standard operations or commissioning.
    iii.
c. What are you doing after integrated testing but before beam commissioning?
    i. Any specific other tests? Which ones and why? How beneficial are these?
    ii. Any specific reviews? Like readiness reviews? How beneficial are these?
d. Has your facility engaged in integrated testing and/or commissioning activities during the past 3 years?
    i. Accelerator commissioning (with beam)
    ii. Support systems commissioning, e.g. RF, cryoplant, power converters, etc
    iii. What was your experience from planning to execution? Pitfalls to watch for/lessons learned

    iv. Could you be efficient when working remotely? Could you establish new (and maybe even better) ways of working due to having to work remotely?

e. Transition to Operations
    i. Does your commissioning team have to integrate operations (train)?
    ii. Is this a dedicated planned period or happen organically over time?
    iii. At what point does this transition take place?
    iv. Criteria for different labs?