Tips for Managing a Successful Vibration Project

The owner and EPC have an important role in avoiding vibration and integrity issues. The following are owner/EPC tips to ensure that these vibration issues are properly addressed during the design, construction, and start-up phases.

1. **Define Scope in Compressor Specification**
   - Pulsation and vibration analysis is recommended, but not automatically included, in a new compressor or pump package, or for the piping system.
   - Unless the analysis is clearly specified by the owner/EPC, it is unlikely that the correct work will be done or, even worse, the vibration issue may be left out. The scope would include the facility-wide issues, such as off-skid piping, machinery problems, etc.
   - Refer to BETA's Knowledge Center for vibration design specifications.

2. **Early Involvement**
   - Modifications and improvements to the design are easy to make early in the design cycle (and will have minimal costs). Having BETA involved early in the planning phase will pay dividends.
   - If BETA is involved late in the design stage, or during fabrication, it can be too late to implement recommendations such as piping layout changes. This will create vibration problems, delays or unnecessary costs to remedy a vibration issue.

3. **Define the Range of Operating Conditions**
   - Include all anticipated operating conditions in the design scope. This ensures the full operation will be evaluated for dynamic and vibration risks.

4. **Field Vibration Baseline**
   - Industry best practice is to conduct a baseline vibration survey to measure mechanical natural frequencies, pulsations and vibration amplitudes and compare them to guidelines. Especially important is to properly evaluate small bore connections.

5. **Participation in Review Meetings**
   - Milestone meetings will review risk areas, proposed recommendations, and the implication for operational reliability and flexibility. These reliability decisions should be made in conjunction with the owner and EPC.