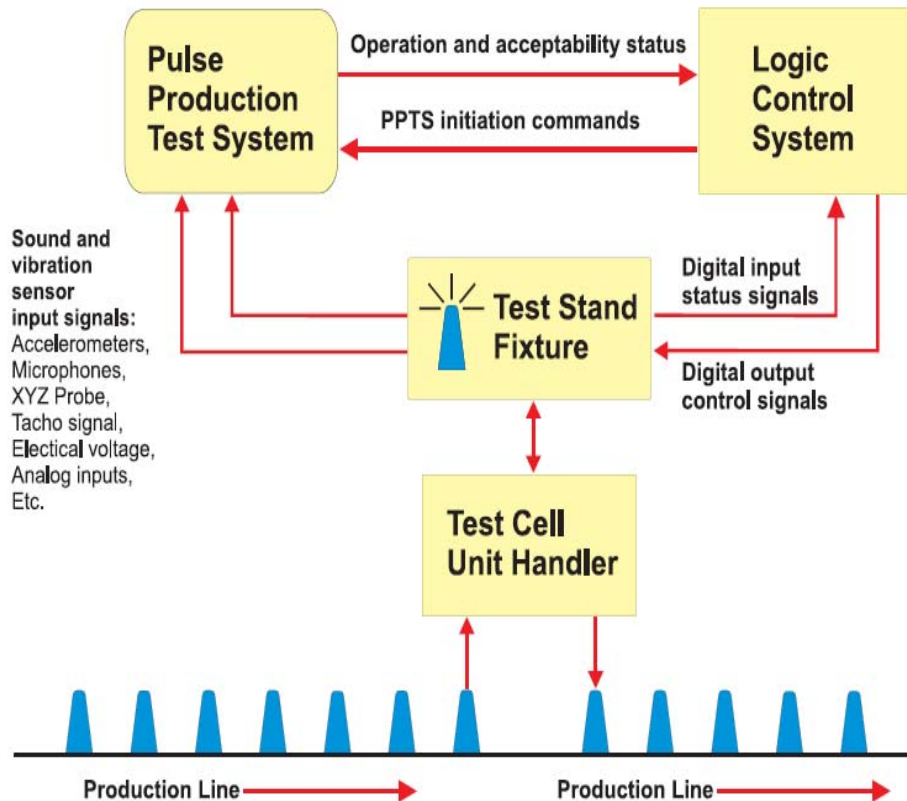


S&V Production Test Solution

PULSE™ Production Test System

The PULSE™ Production Test System (PPTS) is a turnkey system intended to provide a fully automated solution to objectively measure sound and vibration performance in the production environment.



The system is designed to interface with a production test stand for complete automation while performing the required analysis techniques to detect product sound and vibration faults. The system consists of the PULSE™ Multi-Analyzer and the Production Test Advisor software.



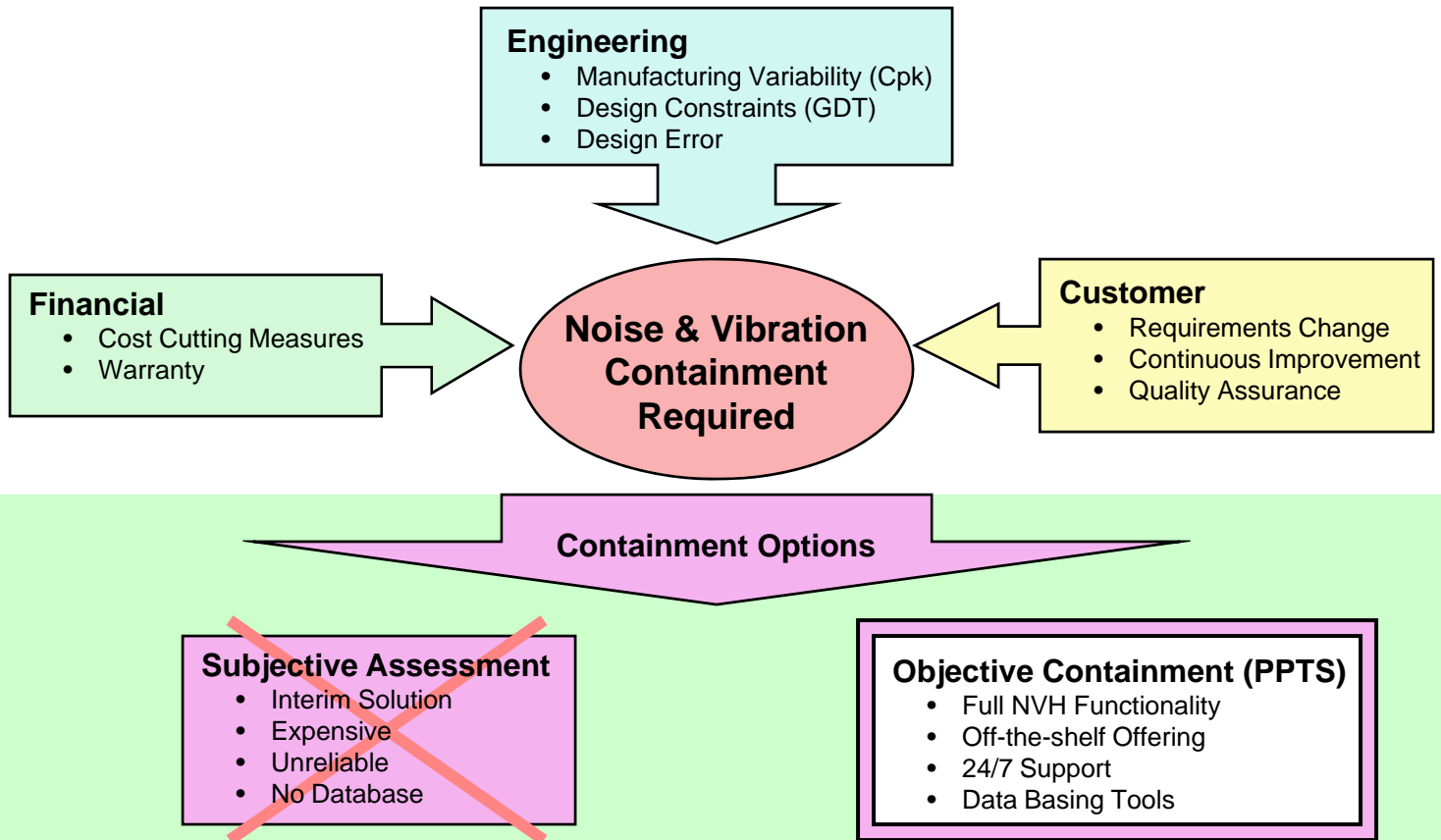
PPTS Solution Includes:

Sound Answers, Brüel & Kjær's Strategic Services Partner, leverages S&V consulting expertise to provide a complete S&V offering to the manufacturing environment.

- Implementation to existing or new production line
- Turn-key system including PC, software, hardware and transducers
- Test Stand Development
- Determine Acceptance Criteria
- S&V Troubleshooting Services
- Application Specific Training

A new approach to End of Line Production Testing

Why test for Sound & Vibration in Production?



Regardless of the catalyst (Financial, Engineering or Customer), containment usually starts with a subjective listener, and becomes more efficient once targets are established and can be implemented into an objective system.

Sound Answers, Inc can help:

- Provide consulting expertise to help Customers define the necessary targets to move from Subjective Assessment to Objective Containment
- Implement a S&V Objective Containment system based on **Brüel & Kjær's PULSE™ Production Test System (PPTS)**
- Identify how the Customer can best utilize the data from the PPTS for Process Control and/or Product Re-design

Brüel & Kjær's PULSE™ Production Test System (PPTS)

The PULSE™ Production Test system utilizes an off-the-shelf system for NVH data acquisition and analysis that is continually developed and improved by the world leader in Noise and Vibration solutions, Bruel & Kjaer.

- PPTS is based on PULSE™ hardware & software (Over 7,500 systems installed)
- The system is delivered as a stand alone system with strong data basing capabilities that can be used for statistical target setting, process control and failure mode identification
- The turnkey system can be implemented for a variety of different applications utilizing state-of-the-art NVH analysis techniques
- Along with strong technical capabilities the PPTS system has a range of support including on-site, 24/7 support hotline and Webex

A new approach to End

SOUND *answers*



Application Examples:

AC/DC Motor Mechanisms

- Power seat tracks
- Window regulators
- Sunroofs
- Electric Steering

Gears / Driveline

- Axles
- Driveshafts
- Transmissions
- PTUs

Pumps/Compressors

Bearings

Consumer Goods

Get the most out of your S&V containment system

Objective Data

Product Design Improvement

- Noise contribution assessment
- Root cause analysis
- Target cascading
- CAE analysis
- Product DOE
- Counter measure development

Process Improvement

- Local SPC with Hardware Analysis
- Setup Database and Network
- ISPC with Reaction Plans
- Define Management Infrastructure
- Defect Diagnostics and Notification
- Functional Integration

Once objective data is being used to successfully contain the problem, the next step is to reduce the reject rate. A long term fix can be implemented either by addressing up-stream manufacturing performance or developing a more robust product design. Sound Answers, Inc. has the expertise to successfully address the long-term concerns by executing the most appropriate strategy for each Customer situation.

Brüel & Kjær

Brüel & Kjær is the world leader in sound and vibration measurement for over 60 years. By offering both hardware and software, their products make measuring easier, faster and better, saving time while ensuring accurate results. Through worldwide sales and service centers offering local application and technical support, Brüel & Kjær provides complete measurement solutions.

Sound Answers, Inc

With over 50 Customers in their first 2 years, Sound Answers has successfully continued the Sound & Vibration consulting business that started over 40 years ago at Structural Dynamics Research Corporation and later at MTS Systems. Sound Answers focuses on 5 areas of expertise:

- S&V Target Development
- Standardized Test
- Troubleshooting
- Technology Transfer
- Production Test

For more information please contact:

Glenn Pietila
Production Test Project Manager
Sound Answers, Inc
Application Research Center
6855 Commerce Boulevard
Canton, MI 48187
glenn.pietila@soundanswers.net
810-923-5802



Application Research Center