

*Trials, testing, validation wrt Welding Variables:*  
 Design / Configuration?  
 Materials & Weldability?  
 Environment: Welding / Service?  
 Methodologies?  
 Processes & Techniques?  
 Equipment?  
 Consumables?  
 Gravitational position, access?  
 Sequences of Assembly / Welding?  
 Tools, Jigs, & Fixtures?  
 Skill & Human Resource Dev?  
 In-Process Controls & Adaptation?  
 Operating Parameters?  
 Heat-input?  
 Destructive & Non-D Testing?  
 Remote Operation & Monitoring?  
 etc

Rig-up, Weld & Test SOP # 8919

SOP # 9508

Gap Analysis

Re-adapt, standardize, verify Bought-outs, test & validate the sources / vendors, etc

Review existing Applications for Proven Track Record [PTR]

Access key data & results of experimentation

R&D Survey

Institutional Network

"Technology-Management"

Welding Technology Development: DKE\* & Expert Systems

"Project - Management"

Field-specific Applications: Projects & Programs

"Order-Management"  
 Bifurcation SOP # 11711

Organize Deliverables for Products & Weldments?  
 Industry-Clusters / types?  
 Clients' Deadlines?  
 etc

Proposal to match & optimize Best-in-Class approach

Interface with Industry / Users:  
 Welding Demonstrations & Consultancy

Understand the User's Needs, Aspirations, Concerns, Constraints & Requirements [refer # 10297]

See # 9508

"Problems"

"Solutions"

Deliverables (see # 11711)

Users & Customers

Industry / Sector  
 Client Base  
 Prospective Clients / Users

\*DKE = Domain-Knowledge Expertise (a critical & core Human Resource required for rapidly absorbing innovations in the Industry)

**Flowchart depicting a mechanism for industrially oriented welding technology to be developed for solving critical welding problems**