1. Training Training Dimension Model Reduction Fitting Runs  $\{y_i^{\text{train}}\}_{i=1}^{n_{train}}$  $d_2$ TRACE  $x_1$ 2. Validation and Selection Validation Dimension Validation Met-Model Prediction ric Calculation Reduction Selection Runs  $Q_2(\hat{f}(\mathbf{x}_i^{\text{valid}}), y_i^{\text{valid}})$  $\{y_i^{\text{valid}}\}_{i=1}^{n_{valid}}$  $\hat{f}(\mathbf{x}_i^{\text{Valid}}) \approx y_i^{\text{Valid}}$ 3. Testing Testing Dimension Prediction Reduction Runs  $\hat{f}(\mathbf{x}_i^{\text{test}}) \approx y_i^{\text{test}}$  $\{y_i^{\text{test}}\}_{i=1}^{n_{test}}$ 

Final Error

Assessment

Design

 $x_2$ 

Generation

 $\overline{x_1}$