



**Honeywell Users Group 2010**

**Dynamic Solutions. Endless Possibilities.**

**Marjorie Ochsner**

**Migration Solutions for Non-Honeywell  
Systems**

**Honeywell**

## Agenda



- **Justification**
- **Upfront Assessment**
- **HMI Migration**
- **Controller Migration**
- **Recommendations and Summary**

## Justification Process – Cost of Doing Nothing

- **Decreased Reliability causes Unplanned Shutdown**

[PROVOX system caused 3 unplanned shutdowns in 1 year-Petrobras](#)

- **High Maintenance Cost due to Parts obsolescence, High Cost of Spares**

[“SKC had various issues with the service provided by Emerson since our old RS3 system was archaic and the price of spare parts was not realistic,” said Hyun Cho, General Manager, SKC Chemicals.](#)

- **Inadequate Response**

[Experion alarm system identifies process conditions that the Moore system was too slow to capture – HSM Metropolis](#)



## Justification Process – Increased Benefits

### Benefits of Moving from Stagnant Technology

- Operator Effectiveness
- Better Process Control
- Safety Standards (safety shutdowns embedded into DCS /PLC changed to Safety manager and Experion)

Irving Oil - 45% decrease Daily Alarm Rate

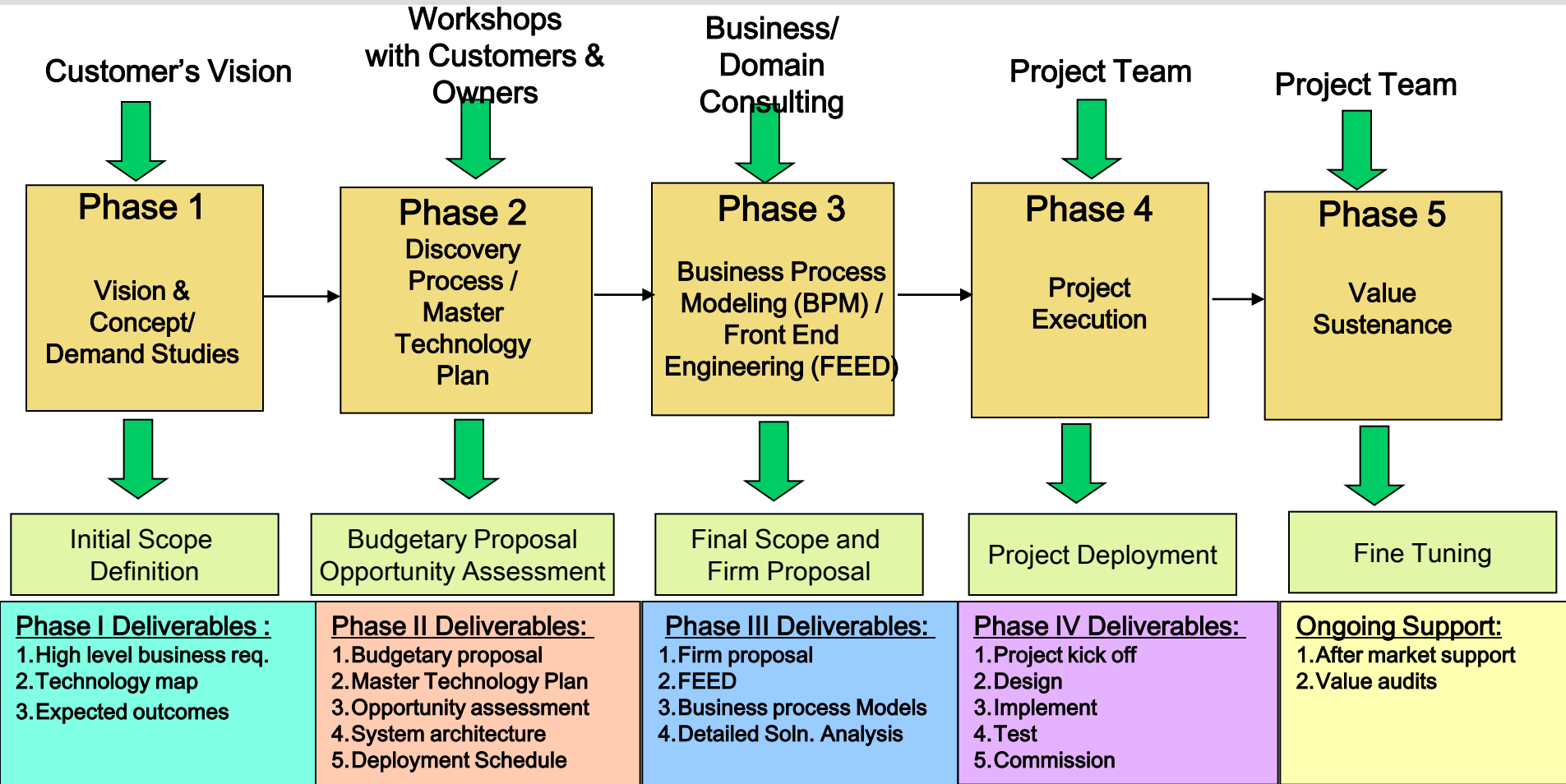
Konya Sugar – 17 % Increase in Quality

IRPC Makes Significant Gains in Plant Safety, Reliability and Efficiency

Migration to Experion = Increased Revenue, Increased Production, Lower Cost



## Program Engagement & Lifecycle Execution



**"Honeywell helped us develop a plan to migrate our product and supplied both the justification and economic benefit analysis for us to do so,"- RVA**

## FEED & Pre-FEED Activities

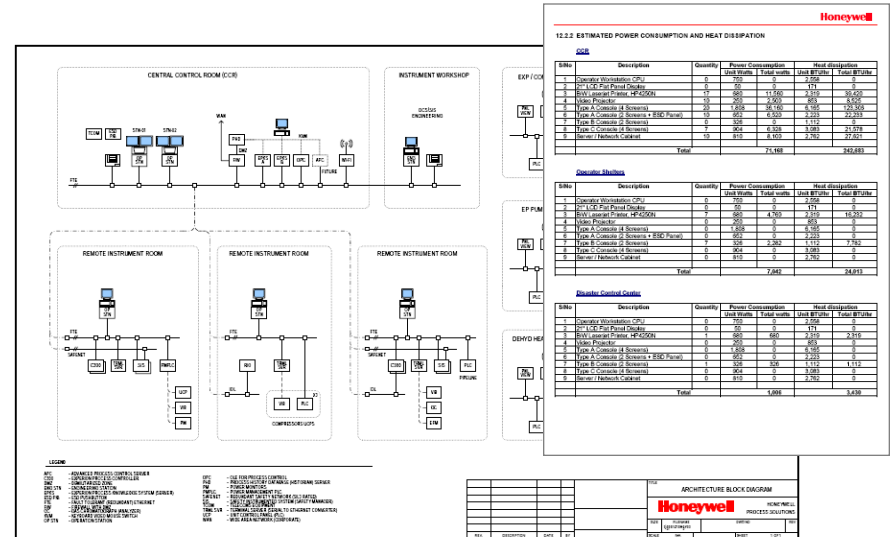
### Conceptual Design

- Philosophy Documents
- Vision Documents
- Guideline Documents
- Design Studies and Recommendations



### Front-End Engineering & Design

- Philosophies and the visions developed during conceptual design are transformed into actual designs
- Project standards are critical in ensuring consistency across the facility
- Project execution strategies



## Migration Options

Incremental HMI Migration



Incremental Controller Migration



Rip and Replace



## Why Honeywell HMI Migration?



Operator Effectiveness



Integration To Other Applications



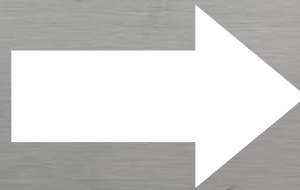
“We needed a solution that would improve process performance while still leveraging our investment in the Bailey and Foxboro controllers.” - Alexandre Gershberg, Head of Instrumentation and DCS, Kirishi Refinery.

**Transition To Experion, Minimize Risk**



## HMI Migration Overview

- More than an OPC interface
  - Optimal architecture
  - Performance limit tests
  - Faceplate and Detail Displays
  - Bulk build database utility
- Experienced with Bailey, Foxboro IA, Fisher PROVOX, RMV 9000, Siemens Teleperm M, Moore APACS, Rockwell and Yamatake



## Standard Faceplate and Detailed Display

Station - Default - Analog Point Detail(sysdtlppvpid.htm)

Station Edit View Control Action Configure Help

Zoom To Fit Command

**PID Point Detail** /Assets/ASST/FIC-300

**FIC-300**  
PROVOX Loop Point PID

100.00  
%  
0.00

Alarm A

**Dev Low**

SP **86** EU  
PV **74.75** EU  
OP **75.78** %  
MD **AUTO**

**Local** Remote-General Remote-LoopTune Remote-Others Alarms

**Range**

	PV	SP	OP
Upper Limit	100.00 EU	100.00 EU	100.00 %
Lower Limit	0.00 EU	0.00 EU	0.00 %
Units	%		

**Services**

- Scanning and Control enabled
- Alarms enabled

**Displays**

Associated Display

**Algorithms**

PV Algorithm 0 Performing Detail (or double clicking) on the Algorithm No.  
Action Algorithm 0 will callup the Algorithm Configuration Page

Performing Detail (or double clicking) on the PV, SP, OP or MD will callup details from the controller (where the controller interface supports this)

23-Oct-06 14:52:16 CDA Comms CDA Comms COMMS U 15 Server: Lost comms with CDA Server

Honeywell 23-Oct-06 18:49:15 Alarm System trnpksa Stn01 Mngr

Start Station - Defaul... NetMeeting - 1 Co... TIPS B's desktop... RSI - OPC Test Cli... untitled - Paint 4:49 PM

## Bulk Build Points

Externally addressable Parameters:   
 Database Native Parameter:   
 User Define Parameters:

1 PlantScape point  
 1 Bailey Point

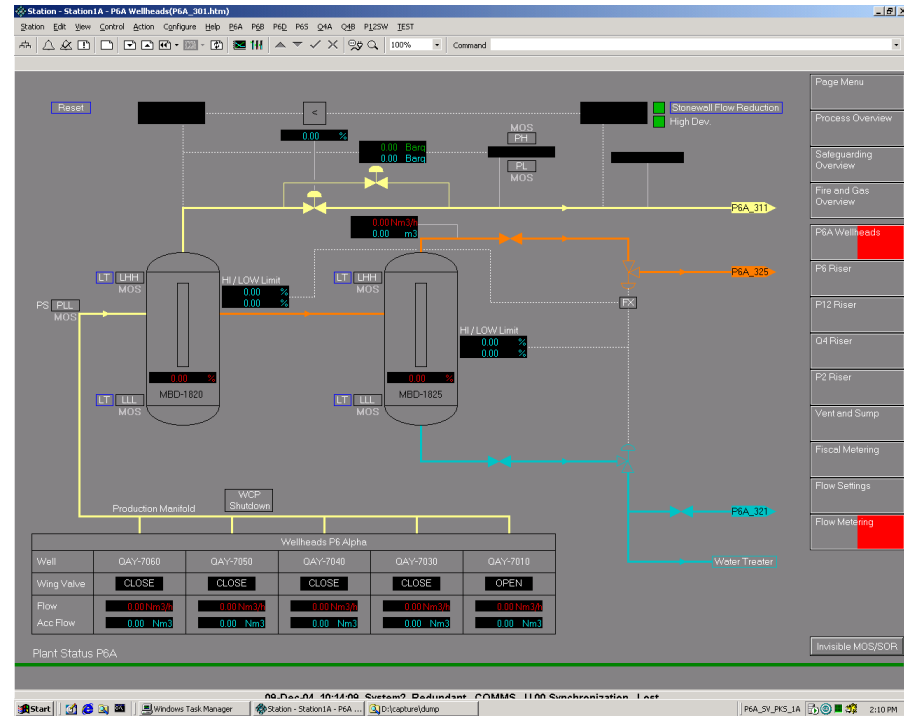
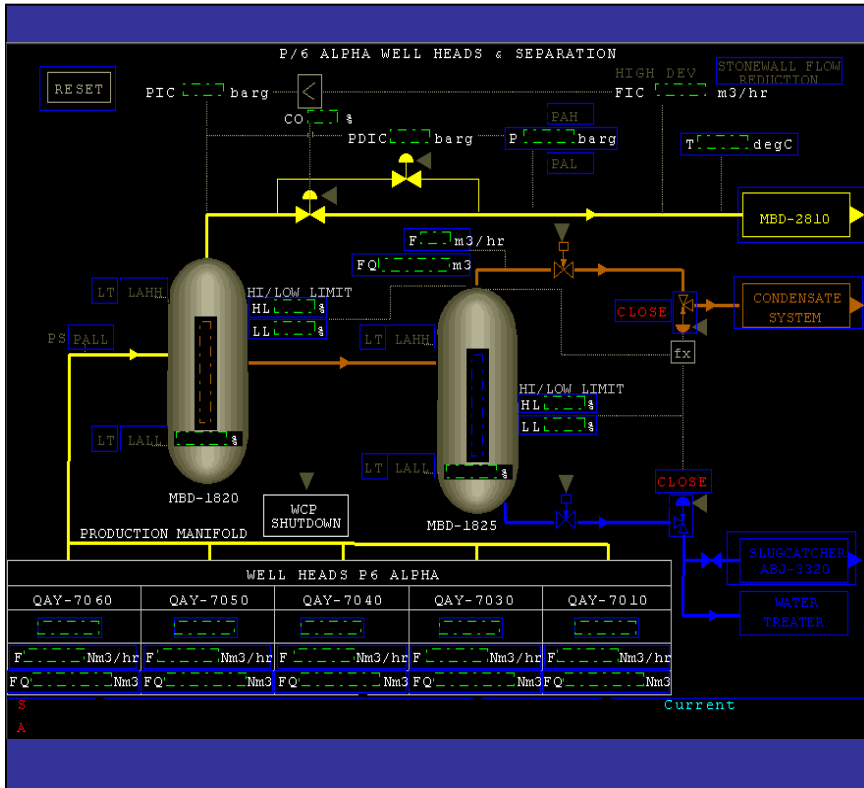
Experion SCADA Database Point Structure					
Analog Point					
Scanned Point Parameters	Pscape. Param.	Data Format	Access	Channel	Controller
Direct Access	PV	Float	Read Only	OPC	OPC
OPC Client Data Access Interface	SP	Float	Read / Write	OPC	OPC
	OP	Float	Read / Write	OPC	OPC
	MD	Boolean	Read / Write	OPC	OPC
Database Point Parameters	Pscape. Param.	Data Format	Access	Pscape to Bailey	Bailey to PlantScape
OPC accessed OPC Integrator Interface	SetpointHighLimit	Float	Read / Write		✓
	SetpointLowLimit	Float	Read / Write		✓
	OutputHighLimit			✓	✓
	OutputLowLimit			✓	✓
	EUHI				✓
	EULO				✓
	AlarmLimit1	Float	Read / Write	✓	✓
	AlarmLimit2	Float	Read / Write	✓	✓
	AlarmLimit3	Float	Read / Write	✓	✓
	STN_TYPE	Boolean	Read / Write		✓
	STN_LEVEL	Boolean	Read / Write	✓	✓
	STN_OK	Boolean	Read / Write		✓
	STN_TIMER	Float	Read / Write		✓
	MODE_LOCK	Boolean	Read / Write		✓
	SP_TRACKING	Boolean	Read / Write		✓
	OUT_TRACKING	Boolean	Read / Write		✓
	AO_BYPASS	Boolean	Read / Write		✓
	RI	Float	Read / Write	✓	✓
	HI_ACT	Boolean	Read / Write		✓
	LO_ACT	Boolean	Read / Write		✓
	DV_HI_ACT	Boolean	Read / Write		✓
	DV_LO_ACT	Boolean	Read / Write		✓

OPC Exposed Point Structure		
Station PID Control (STN)		
Bailey Param.	Data Format	Access
PV	VT_R4	Read Only
SP	VT_R4	Read Only
OUT	VT_R4	Read / Write
MODE	VT_I2	Read / Write
Bailey Param.	Data Format	Access
SP_HI_LIM	VT_R4	Read Only
SP_LO_LIM	VT_R4	Read Only
OUT_HI_LIM	VT_R4	Read / Write
OUT_LO_LIM	VT_R4	Read / Write
PV_HI_LIM	VT_R4	Read Only
PV_LO_LIM	VT_R4	Read Only
HI_LIM	Float	Read / Write
LO_LIM	Float	Read / Write
DV_LIM	VT_R4	Read / Write
STN_TYPE	VT_I2	Read Only
STN_LEVEL	VT_BOOL	Read / Write
STN_OK	VT_BOOL	Read Only
STN_TIMER	VT_I4	Read Only
MODE_LOCK	VT_BOOL	Read Only
SP_TRACKING	VT_BOOL	Read Only
OUT_TRACKING	VT_BOOL	Read Only
AO_BYPASS	VT_BOOL	Read Only
RI	VT_R4	Read / Write
HI_ACT	VT_BOOL	Read Only
LO_ACT	VT_BOOL	Read Only
DV_HI_ACT	VT_BOOL	Read Only
DV_LO_ACT	VT_BOOL	Read Only

OPC DA

OPC I

## Graphics Improvement



## Why Honeywell Controller Migration?



Better Support & Increased Reliability



Improve Process Control



Integrate with Field Networks

## Controller Migration Productivity Opportunities

Automate

Standardize

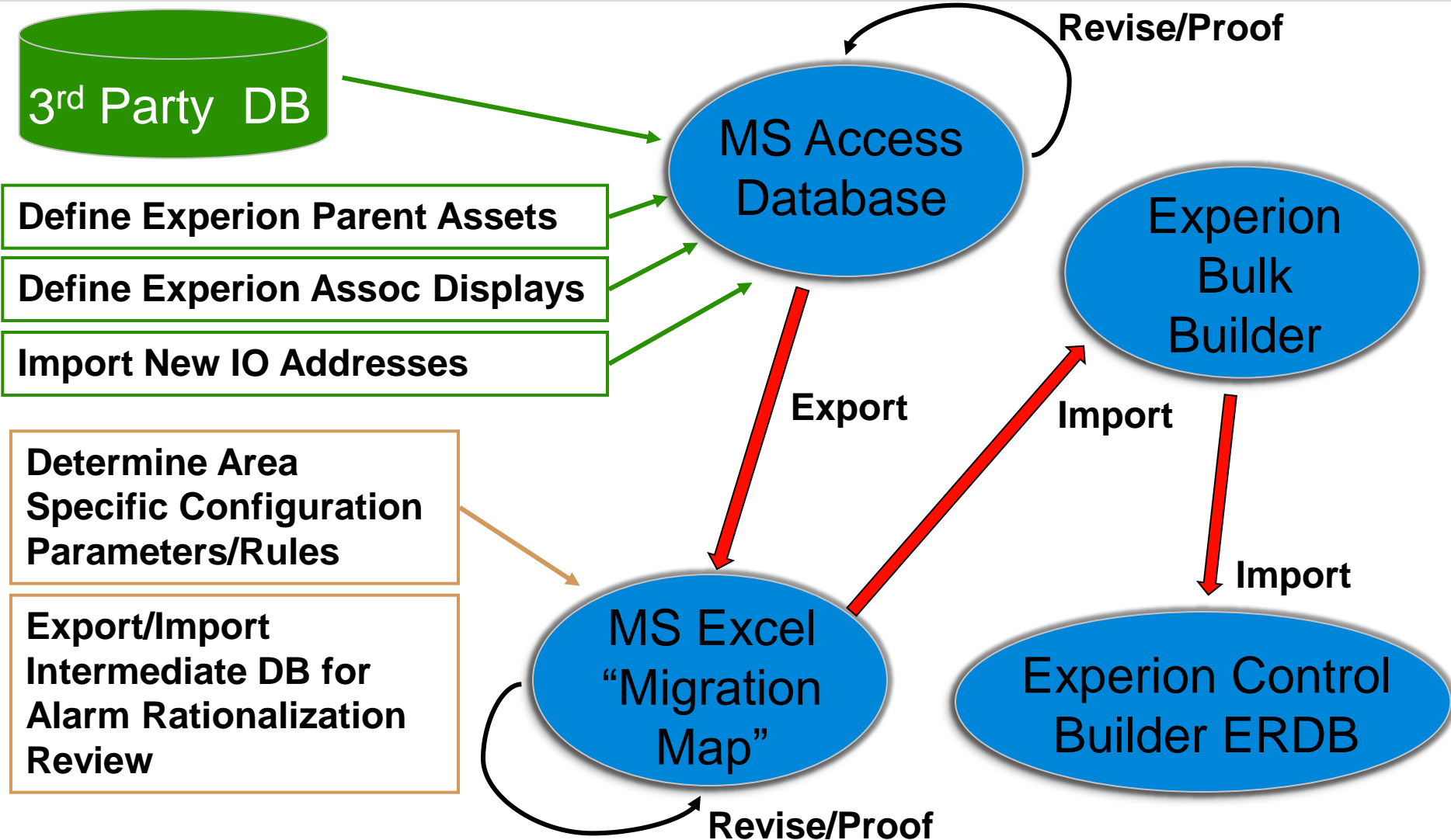
Data  
re-entry

Re-use

Reduce  
work

**Global Honeywell Project Operations  
Knowledge Sharing  
Flexibility to Add New Learnings**

## Tools & Methodology



## Capture Honeywell Controller Migration Knowledge

**Control Match for Bailey**

**Bailey Database Migration**

- Submit Bailey Database (.mdb)**  
Select Bailey Database: To submit Bailey Database (.mdb) in Migration tool.
- Parse Bailey Database**  
Parse Bailey Database: To parse the selected Bailey Database.
- Import Analysis Data (.xls)**  
Import Analysis Data: To import Analysis Data (.xls) in Migration tool.
- View or Edit Tag Information**  
View/Edit Experion Tags: To view or edit Tag information from the selected Bailey Database (.mdb).
- Migrate Bailey Database**  
Migrate: To migrate Bailey Database(.mdb).
- Save Bulk Build Output**  
Generate SB Bulk Build XLS: To save Bulk Build XLS for migrated strategies in Smart Builder compatible format.
- Save IOM Output**  
Generate SB IO XLS: To save IO XLS for migrated strategies in Smart Builder compatible format.

**Bailey database path**  
d:\My\_Data\Legacy Migration\Project Services Tools\Bailey Files\BaileyDB.mdb

**Bailey Database parsed.** 6/1/2009 4:16 PM

**Bailey Tool Configuration**

- View or Edit Bailey Templates**  
View/Edit Bailey Templates: To view and edit Strategies defined on 'Strategy Identifier' worksheet.
- View or Edit Experion Templates**  
View/Edit Experion Templates: To view or edit Experion Templates in Migration Tool.
- Clear project**  
ClearProject: To clear all the data generated during the migration of currently selected Bailey database.



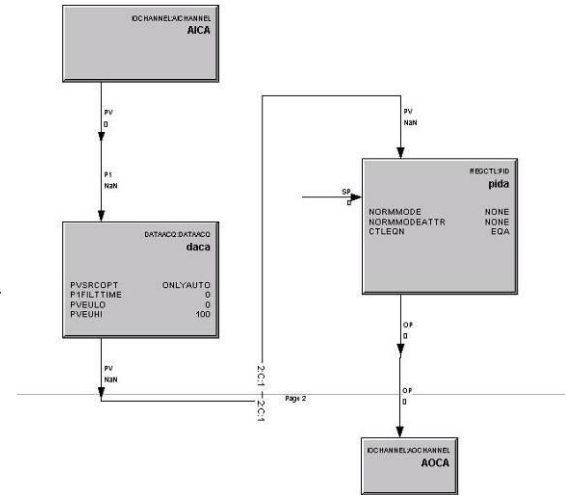
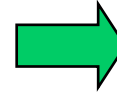
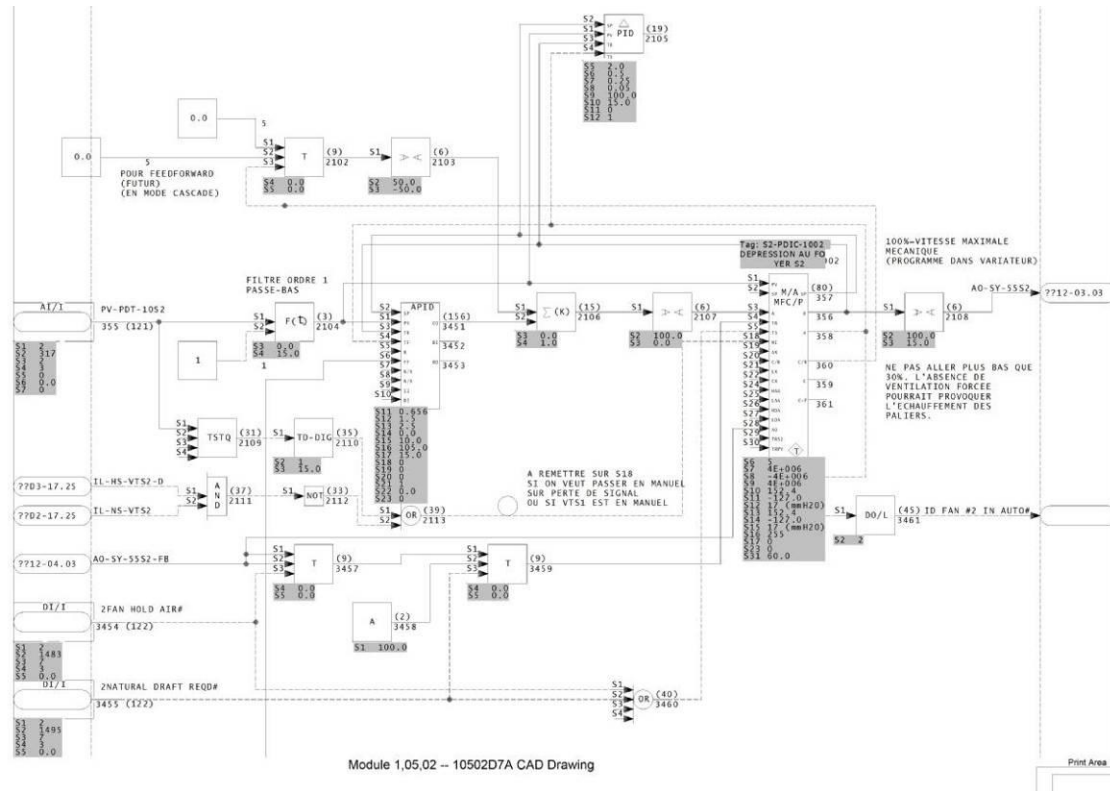
## Database Migration – MS Access

Query to capture PROVOX DB configuration:

The screenshot shows the Microsoft Access interface for creating a query. The query design grid is as follows:

Field:	point_tag	device_tag	type	alarm_display	alarm_display_tag	ppa_tag	alarm_a_group	alarm_b_group	alarm_c_group	alarm_d_group
Table:	dbo_target_data_c	dbo_target_data_c	dbo_target_data_c	dbo_target_data_c	dbo_target_data_c	dbo_target_data_c	dbo_target_data_c	dbo_target_data_c	dbo_target_data_c	dbo_target_data_c
Sort:										
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:		Like [Forms][I]Provox:tc								
or:										

## Bailey to Experion Example



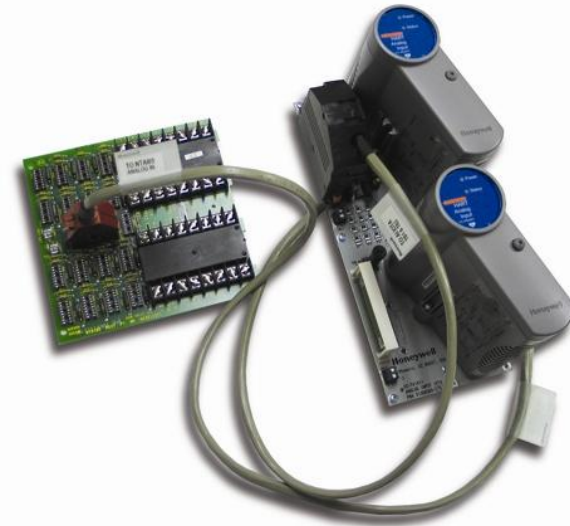
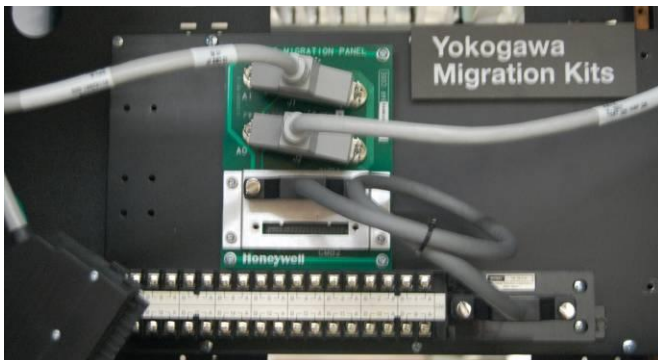
## Controller Types Addressed

- Bailey
- PROVOX
- Foxboro
- Others to be added

**See Demo Room**

## Wiring Kits

- Bailey Infi 90/Net 90
- PROVOX
- Yokogawa
- GSE



## HART Access Using Bailey TU

- Many plants have existing HART devices connected to Network 90 or Infi 90 as an Analog Input/Output
- Migration kit connection to Series C HART I/O reveals HART information
- Enables maintenance, operations and process improvements

**HART, Analog Input Device Details** Area HT

**TT\_1002A** ACTIVE

PV (Analog) NaN

**HART Field Device**

Valves

Transmitters

Tag: STT25T  
MFG: Honeywell  
Type: STT25T  
ID (SN): 61523  
Revision: 1  
HW Revision: 1  
SW Revision: 4

**HART Communication:**

Primary Variable Out Of Limits	Digital PV	<span style="background-color: cyan; color: black;">NaN</span>
Variable Out Of Limits	Digital SV	<span style="background-color: cyan; color: black;">NaN</span>
Loop Current Saturated	Digital TV	<span style="background-color: cyan; color: black;">NaN</span>
Loop Current Fixed	Digital QV	<span style="background-color: cyan; color: black;">NaN</span>
More Status Available	Slot 0 Variable	<span style="background-color: cyan; color: black;">NaN</span>
Cold Start	Slot 1 Variable	<span style="background-color: cyan; color: black;">NaN</span>
Configuration Changed	Slot 2 Variable	<span style="background-color: cyan; color: black;">NaN</span>
Device Malfunction	Slot 3 Variable	<span style="background-color: cyan; color: black;">NaN</span>

**HART Notifications** | Server History | Server Displays | Control Confirmation | Identification | Dependencies | Template

Main | Configuration | **HART Configuration** | HART Device Status | HART Identification | HART Ve

**General Device Status**

- Device Malfunction
- Device PV Range Mismatch

**Communication Status**

HART Communication Status	OK
Last Communication Failure	None
Failed Command	None
Failed Response Code	0
Communication Errors	0

**Device Specific Status (Command 48)**

- Nvm Calib failed
- BYTE 0 BIT 5 is set
- Input out of Spec
- Output Saturated

## Migration Summary

Migration takes advantage of new Experion benefits:

- Operator effectiveness
- ASM standards
- Custom Algorithm Block
- Profit Loop
- Sequential Control Module
- Unit Control Function and Batch Manager

## Recommendation #1: Comprehensive Engineering & Design

- Reduction in Project Risk
- Design Consistency
- Project Cost Savings
- Change Management
- Operational Readiness
- Business Readiness
- Lifecycle Sustainability



Every dollar spent in project scoping returns three dollars in reduced project cost, reduces project schedule and reduces risk.

## Recommendation #2: Incremental Migration When Possible

Incremental HMI Migration



Incremental Controller Migration



Rip and Replace



**Rip and Replace Can be Very Costly**



## Recommendation #3: Improve Operator Effectiveness

**Safety**

**Reliability**

**Efficiency**

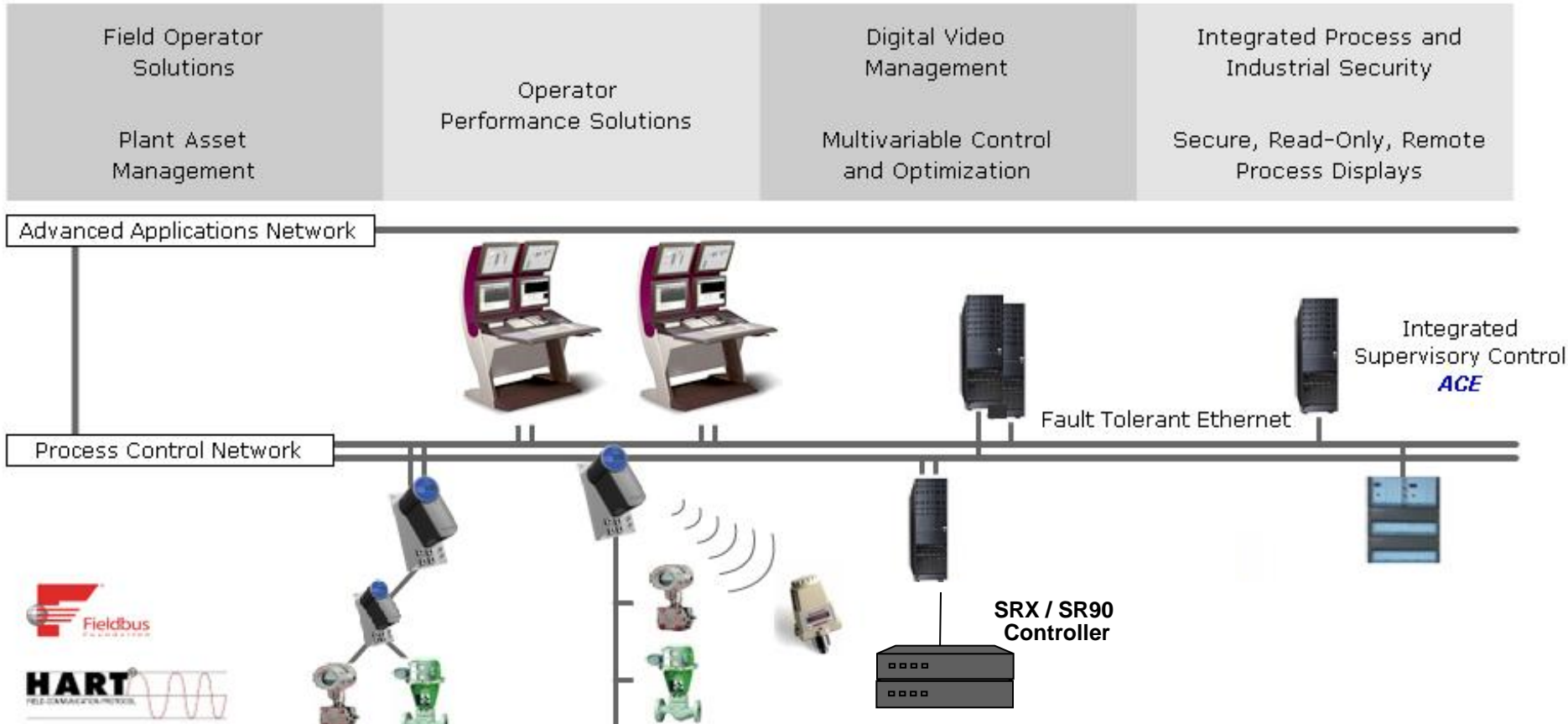
**Reduced  
Incidents**

**Effective Alarm  
System**

**Improved  
Throughput and  
Operator  
Productivity**

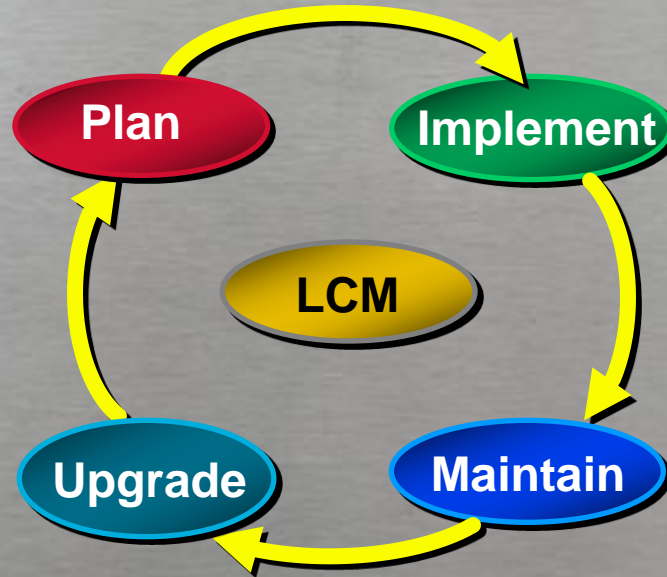
**Be Cognizant of Changing Operator's Role When Migrating**

## Recommendation #4: Leverage Upgraded Infrastructure



## Recommendation #5: Develop Long Term Automation Plan

# Lifecycle Management



**Improve Process Automation Lifecycle**

## Summary

Improve Your  
Business  
Performance



- **Migrate to Someone You Trust**
- **Low Risk**
- **Global Skills**

**Honeywell**

# Honeywell



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