

# Getting ready for the Future

Piloting PCS neo

# 2019 Automation Summit



- **Title: Getting Ready for the Future - Piloting the Siemens PCS neo**
- **Track: Best Practices and Novel Approaches**
- **Presenter: Karen Pigler, Cassie Kottcamp**
- **Company: Pigler Automation, LLC**
- **Session # (for your survey): 6.6**



- Pigler Automation, LLC is a Siemens Solution Partner in Longmont, Co
- We are PCS 7 certified, involved with and utilizing PCS 7 since 1996
- 15 employees and growing
- 90+ % of our business involves the Siemens PCS 7 product spectrum
- Industries served: Power, Industrial Gases, Oil and Gas

# The Presenters



## Karen Pigler

CEO of Pigler Automation, LLC

- 30+ years of Process Control Experience
- 20+ years of PCS 7 Experience
- Long-standing Member of the PCS 7 Product Council
- Involved in the specification for Logic Matrix
- Pilot tester for Logic Matrix and Simit

## Cassie Kottcamp

Lead Engineer with Pigler Automation, LLC

- PCS 7 Experience:
  - APL Library
  - Building CMTs
  - PAA
  - Simit
- Cassie was the project lead engineer on the actual PCS 7 project that serves as basis for our PCS neo Pilot

# A new Process Control System

- How do we get ready for the future?
  - Functionality
    - Are all features that we currently use and some that we always wanted included?
    - What kind of project can start using the new Product?
  - Engineering
    - What is the impact on our engineering processes?
  - Training
    - How do we prepare our engineering team?
  - Taking care of our Customers
    - How can we make sure current projects using PCS 7 can possibly be upgraded?

## Becoming a Pilot User



- In 2018 Pigler Automation executed several small PCS 7 projects for a similar application
  - Standard APL / CMT based
  - PAA used to create project
  - Simit model from FAT available
- Similar projects are expected that are potentially a great candidate as early adopter for the new process control system.
- During the User Summit 2018 in FI initial discussions about Piloting a small application as a representative for the US – Market
- Winter 2018/2019 contract negotiation and initial training. Pilot activities since early 2019

# The Job of a Pilot User



- Pilot User will work with pre-release versions, sometime right out of development
  - The goal is to learn and apply the SIMATIC PCS neo workflows and provide feedback
  - Another goal is to test usability from an engineering standpoint
- 
- Great collaboration between Siemens and Pigler Automation
  - Siemens appreciate outside feedback regarding usability and functions
  - Several findings and suggestions are already addressed in current increments

# Pilot Environment



- SharePoint access to
  - Training Videos
  - Power Points and other training material
  - LOP
- Pilot Contacts:
  - Doug Ortiz
  - Matthias Schindler

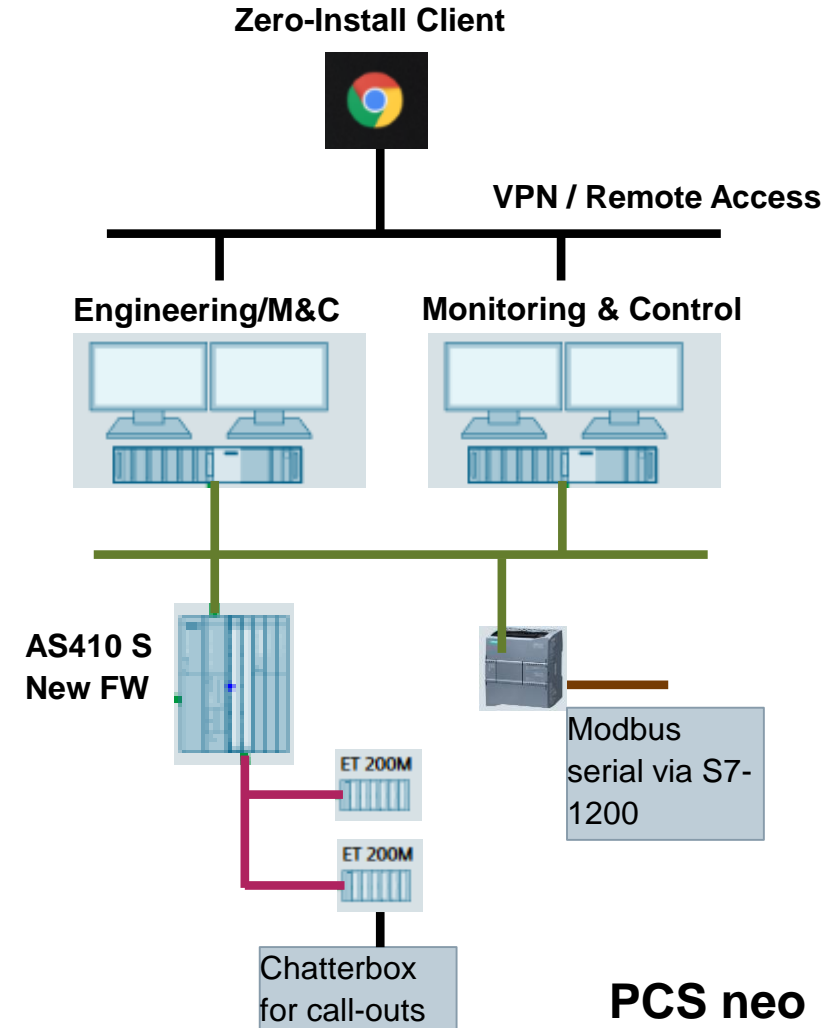
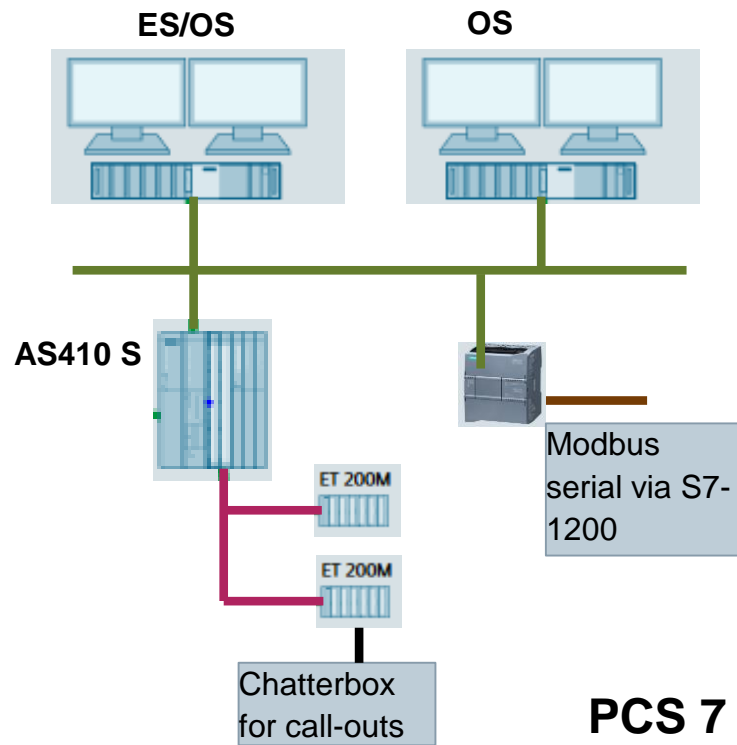
***Thank you for all your help!!!!***

The screenshot shows a SharePoint site titled 'Piloting Pigler Automation'. The site provides the platform for the system support of the pilot project team. It includes a navigation menu with links to Home, LOP, Documents, Innovation Platform, and FAQ. The main content area features a 'Piloting Pigler Automation' section with a description and a list of documents: 'nnn\_LOPDescription.docx', 'CMT\_Engineering\_PAA\_Workflow.pdf', and 'KickOff V3.0 V0.5.pptx'. Below this is a 'SIEMENS Partner Workspace' section with a 'BROWSE' tab selected. The 'LOP' (List of Problems) section is active, displaying a table of issues. The table has columns for ID, Issue Status, Title, Type of request, and Current Status. There are 16 issues listed, with various statuses like Open, Closed, Answered, and In work.

ID	Issue Status	Title	Type of request	Current Status
31	Open	Display Engineering: zOrder is not saved	Requirement	05/29/2019: PR to be created
26	Closed	Instances of CMTs do not raise alarms	Failure / Error	05/29/2019: fixed in Inc 73 => closed 04/30/2019: Validation with Pre-Released Version Inc 72
24	Closed	User defined unit texts	Know-How Topic	03/05/19: Workaround suggested by R&D does work, forwarded to pigler Clarification with R&D
19	Open	Simulated Hart analog inputs come with bad status code	Failure / Error	05/15/2019: PR created to track information 05/03/2019: waiting for SIMIT Inc that contains the fixes 04/30/2019: validation of new SIMIT pre-release to be installed with PCS neo Discussion with SIMIT&PCS neo development
30	Open	PCS neo export can not be imported in PAA	Failure / Error	
29	Open	Display objects loose rotation when grouped	Failure / Error	
28	Open	Negation of any boolean port in CFC	Requirement	05/03/2019: Change Request created
27	In work	Grouping display objects in layers	Requirement	05/03/19: Requirement 1650059 specifies exactly the behaviour required with t
16	Answered	CMTs containing CMTs	Concept question	05/03/19: this can be achieved by copying CFCs between CMTs 03/01/2019: Clarification with PRM on this as CMT concept enables just to mo trigger CMT
15	In work	Search functionality in project library	Requirement	03/01/2019: ChangeRequest created and linked
13	In work	EDC Ports in block interface	Requirement	03/05/19: forwarded to PRM for clarification
10	Answered	Scrollbar for Quenes Editor	Failure / Error	05/03/19: PR was sent for verification 14.02.19: PR created and RQ linked waiting to be solved 13.02.19 Validated with Inc 66 still valid

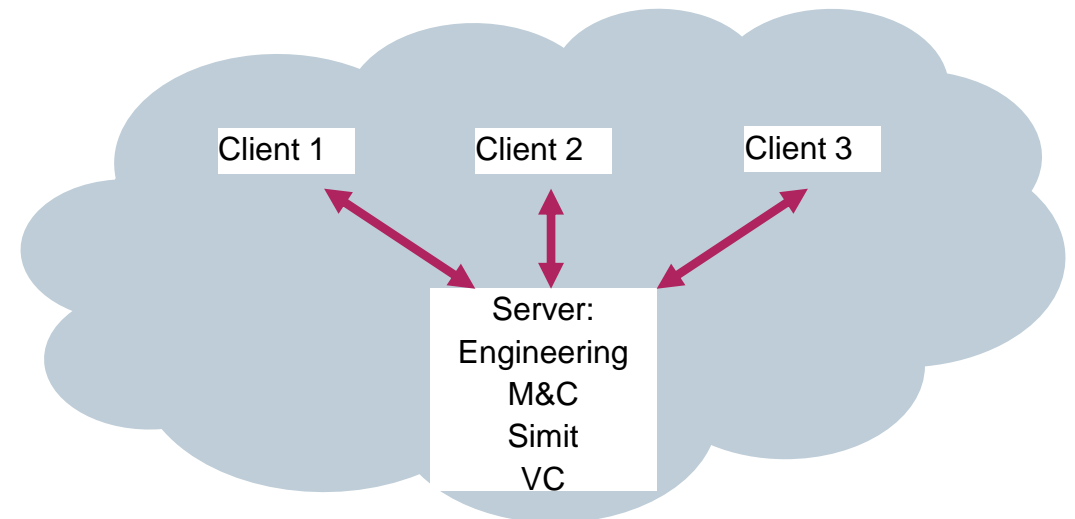


# Pilot Environment Project Scope



# Pilot Environment

- Access 100% Cloud-based, AWS in Germany
- Up to 4 users can work at the same time
- Simit & VC included in Engineering/M&C Server
- Any HTML5 browser can be a client (we used Chrome), zero-install clients
- Installation/Administration handled by Siemens
- Multiple Increments, all pre-release
- Restrictions
  - Single Monitor access to cloud based infrastructure
  - File upload/download only possible via Siemens



***Note: Cloud based infrastructure use will not be part of the first release for PCS neo***

# Functionality of pre-release piloting software versions

## Functional Requirements fulfilled/ new and improved Features

HW – could use all hardware from PCS 7 project

APL – all APL functions are included

CMTs – could rebuild CMTs as needed

Simit – could use Simit model

New Multi-User concept – works much better than PCS 7

Block Icons and faceplates for APL – improved, i.e. Note feature, selection of different graphical representation on block icon

Library Type Editor for graphical/faceplate adaptations

Spreadsheet Engineering – very powerful tool with user queries

Excellent Version Tracking, Recovery Points

# Functionality of pre-release piloting software versions

## Needs improvement/not available

Custom Function Block – not possible in current increment

XY-Trend and Online Trend – not available in increment available to us but already implemented (engineered trends and faceplate trends exist)

HMI symbols and features – limited in current increment














## Differences based on new PCS neo concepts

Logical function per chart – only one page in current increment, hurts readability

Chart in Chart no longer exists – hurt readability of logic

## Functionality – Ability for late hardware binding

- Can be very helpful for OEMs and other standard application, since HW can change from project to project, while charts can stay the same.
- No more channel driver:
  - Channel information still needed as before, just entered in table form
  - Channel simulation can be done via a table.
  - Dynamic simulation is done via Simit.

 TI-53_22_CH_AI_PV_In	AS1\DP-Mastersystem\Rack11\R11S09_RTD	2
 TI-53-3_CH_AI_PV_In	AS1\DP-Mastersystem\Rack11\R11S09_RTD	0
 TI-53-4_CH_AI_PV_In	AS1\DP-Mastersystem\Rack11\R11S09_RTD	1
 TI-53-44_CH_AI_PV_In	AS1\DP-Mastersystem\Rack11\R11S09_RTD	3
 TI-53A-1_CH_AI_PV_In	AS1\DP-Mastersystem\Rack11\R11S09_RTD	4
 TI-53A-13_CH_AI_PV_In	AS1\DP-Mastersystem\Rack11\R11S09_RTD	7
 TI-53A-2_CH_AI_PV_In	AS1\DP-Mastersystem\Rack11\R11S09_RTD	5
 TI-53A-4_CH_AI_PV_In	AS1\DP-Mastersystem\Rack11\R11S09_RTD	6
 TI-87-4_CH_AI_PV_In	AS1\DP-Mastersystem\Rack11\R11S10_RTD	0
 VAH-53-1_CH_DI_PV_In	AS1\DP-Mastersystem\Rack12\R12S12_DI	1
 YL-53-10_CH_DI_PV_In	AS1\DP-Mastersystem\Rack12\R12S12_DI	5
 YL-532-1_CH_DI_PV_In	AS1\DP-Mastersystem\Rack12\R12S12_DI	11
 YL-53-96_CH_DI_PV_In	AS1\DP-Mastersystem\Rack12\R12S12_DI	4

<
>
Details

### Analog input properties

Name  
TI-87-4\_CH\_AI\_PV\_In

Lock state  
UnlockedUpToDate

Enable simulation

Simulation value:  
0

Unit:  
0

Enable scaling

Scale high  
100

Scale low  
0

Use default NAMUR limits for limits check

Namur High limit  
21

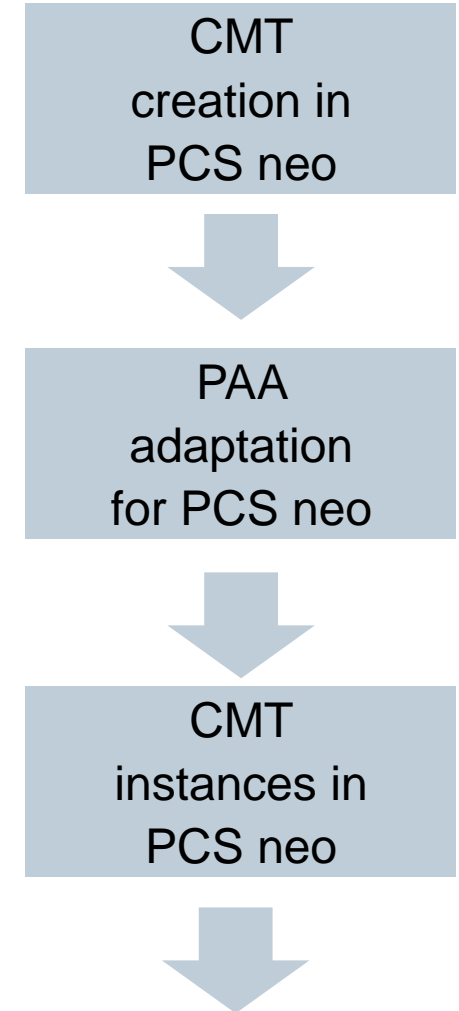
Hardware Addresses

Properties

## Engineering process used in the pilot (PAA not a mandatory part)

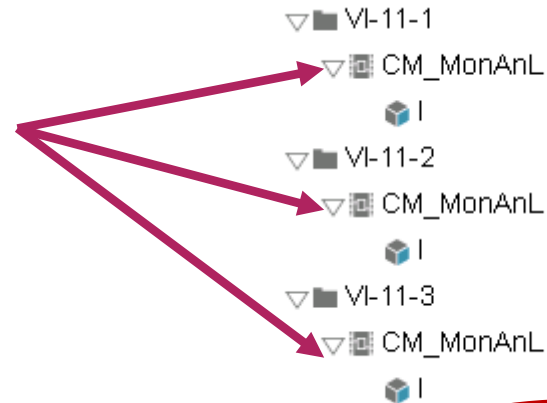
- Step 1: Re-create CMTs in PCS neo
  - New Template Management Tool
  - Assignment of signal and parameter, as well as variants is different from PCS 7
  - Because a chart has only one page, multiple charts are needed for complex CMTs
  - No run sequence pre-sets
- Step 2: PAA adaptation in PAA (current commercially available version)
  - Due to “no channel driver” concept, interfaces need re-work in PAA
  - Signal adaptation needed for different naming rules (reported to development and fixed today)
- Step 3: Import into PCS neo based on PAA export XML (same function as PCS 7)
  - Supported by Matthias Schindler

**SIEMENS**  
*Ingenuity for Life*

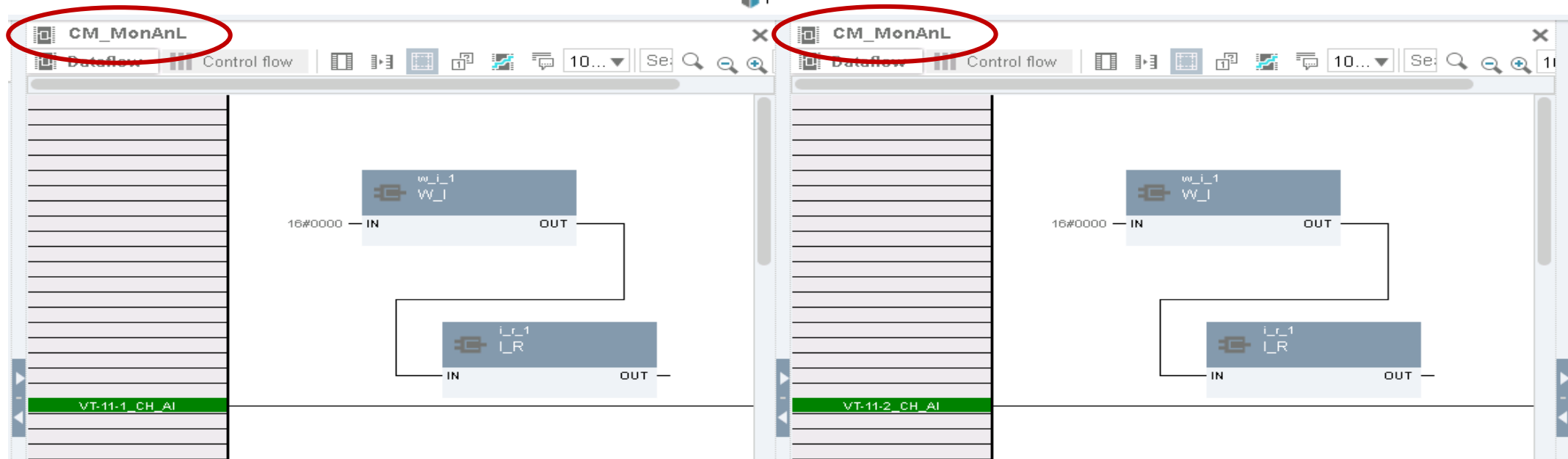


# PAA import into PCS neo (current increment)

Chart names are not unique –  
recommendation to add folder  
name to the chart for better  
readability



Remedy:  
Use EXCEL add-in for PCS neo  
to facilitate bulk changes of  
engineering data



# Message texts

The screenshot displays the SIMATIC PCS neo interface. On the left, a tree view shows the project structure with 'Equipment' and 'Hardware' sections. The main window shows a process diagram for 'CP-53B' with various control elements like 'STARTER READY', 'VIBRATION HIGH', and 'SHUNT TRIP'. A central window displays a list of alarm messages:

Time Stamp	Tagname	Message	P...	Are
2019-05-31 22:...	CP-53	Info		
2019-05-31 22:...	TI-53-4	HH		
2019-05-31 15:...	Count	LLL	-15689...	/PI
2019-05-31 15:...	Count	LL	-15689...	/PI
2019-05-31 15:...	PY-53A-3	LLL	0,00	/PI
2019-05-31 15:...	PY-53A-3	LL	0,00	/PI
2019-05-31 15:...	HS	Error		

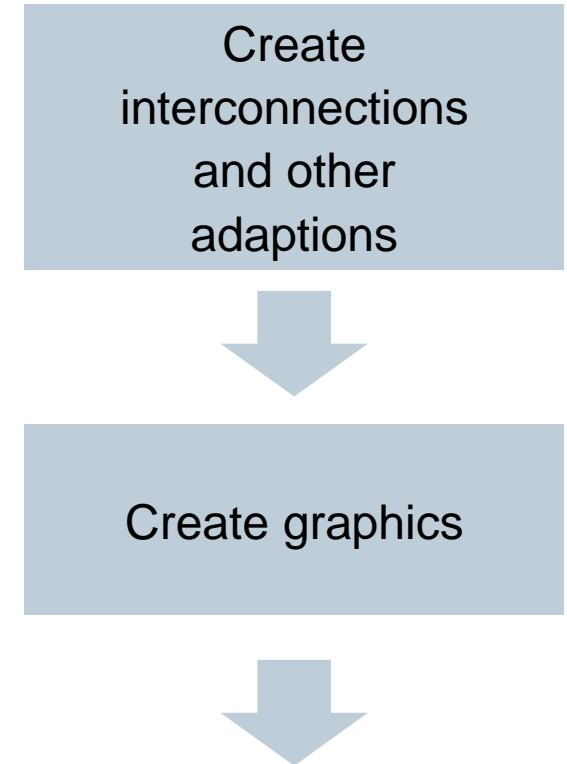
The diagram also shows a temperature control loop for 'CP-53 AFTER-COOLER OUTLET TEMPERATURE' with a setpoint of 150.00 F and a current value of 150.00 F. A 'CP-53 STATUS' panel is visible at the bottom left of the diagram area.

- Manual entry of block comments in alarm text
- Alarm message displays the setpoint of alarm as well as current value



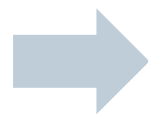
# Engineering process

- Step 4: Create interconnections between CMTs
  - Chart connections are harder to make than in CFC in current increment if only single monitor is available
  - Spreadsheet engineering helpful
- Step 5: Create graphics
  - No OS Compile anymore to make tags available to M&C
  - HMI engineering more time consuming:
    - Lots of edits to objects in current increment
    - Static graphic are very hard to manipulate in current increment



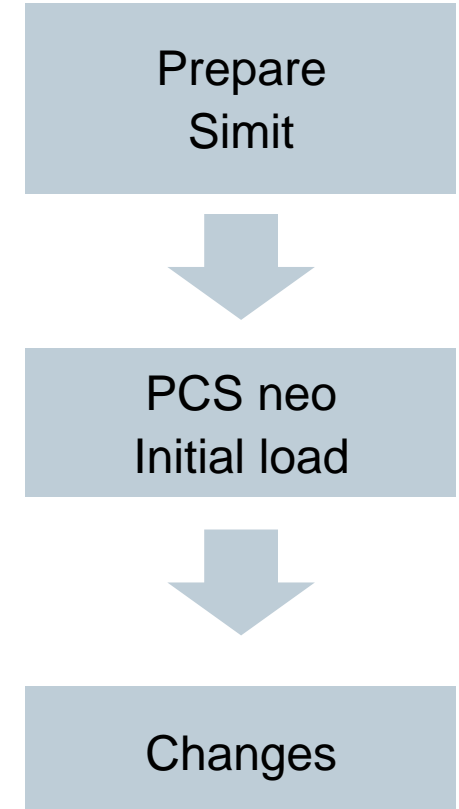
# Engineering process

- Step 6: Prepare Simit
  - Simit and VC fully integrated in Engineering
- Step7: Initial Compile and Download
  - Hardware specific full downloads (VC, M&C)
- Step 8: Engineering Changes
  - Publish changes with one click
  - Excellent version tracking
  - Compile and download to impacted devices in one step



Lots of Engineering process improvements, but current increment needs usability enhancements

**SIEMENS**  
*Ingenuity for life*



# Training



- PCS 7 engineers need very little time to learn new tools
- TIA Portal and Simit know-how/experience helps
- APL functionality is exactly the same
- Need to understand CMT concept
- Better training support available i.e. Videos
- Presentations made available to us were very helpful
- In-product PCS neo documentation needs work

# Reusing PCS7 Engineering Data for PCS neo



Ideal World	Pre-release	Comment
Export Hardware configuration	Export from PAA source for Pilot could have been reused	PAA to be used as data hub
Export CFCs and SFCs to PCS neo	CMTs via PAA after removing channel driver, renaming signals, interconnection re-done	PAA to be used as data hub
Export PCS 7 OS to PCS neo M&C	New graphics from scratch	
Re-use Simit model	Simit needs very minor adaptations	
Reuse Hardware	No Problem for Pilot project, AS-410 and I/O modules released for neo	ET200M still supported AS-410 only controller to be used in PCS neo

Use today's innovations for tomorrow



=> use APL and CMT now to help future projects

## What's Next



- Pre-release version still in development
- Pricing not yet announced
- In discussion with Product Management to identify first customer PCS neo project
- Pigler Automation will continue to use APL, CMTs, PAA and Simit for our projects

# Getting Ready for the Future - Piloting the Siemens PCS neo

**SIEMENS**  
*Ingenuity for life*



Name: Karen Pigler and Cassie Kottcamp

Company: Pigler Automation, LLC

Email: karen.pigler@piglerautomation.com

Phone: (720)-899-4650

Session # (for your survey): 6.6

# Thank you!