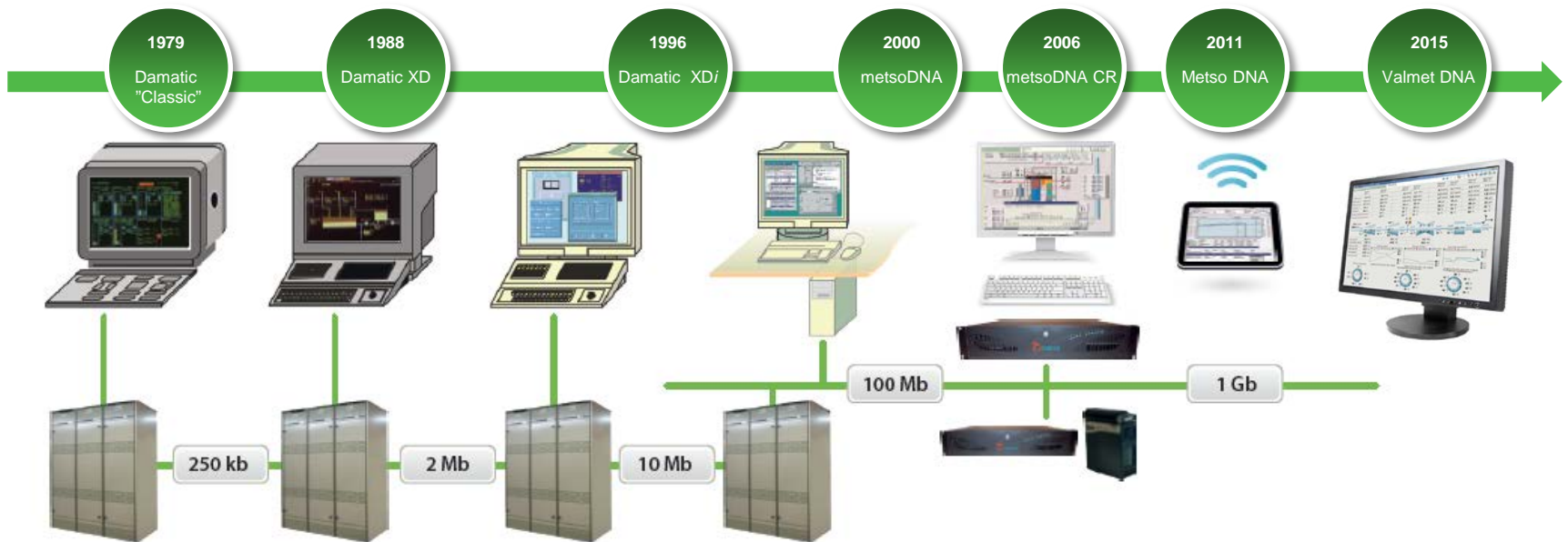




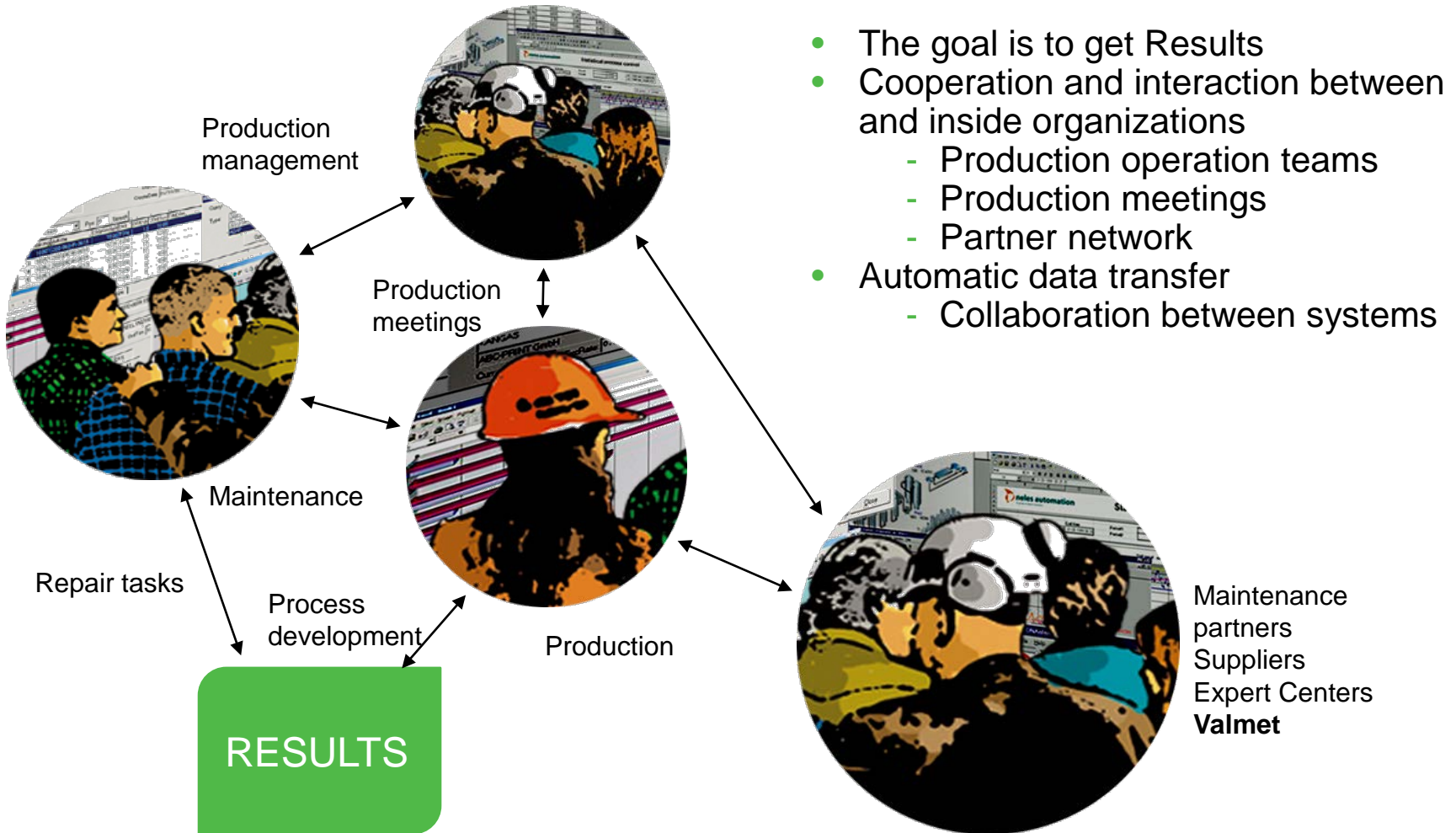
# Valmet DNA

# Upgradeability with innovative evolution

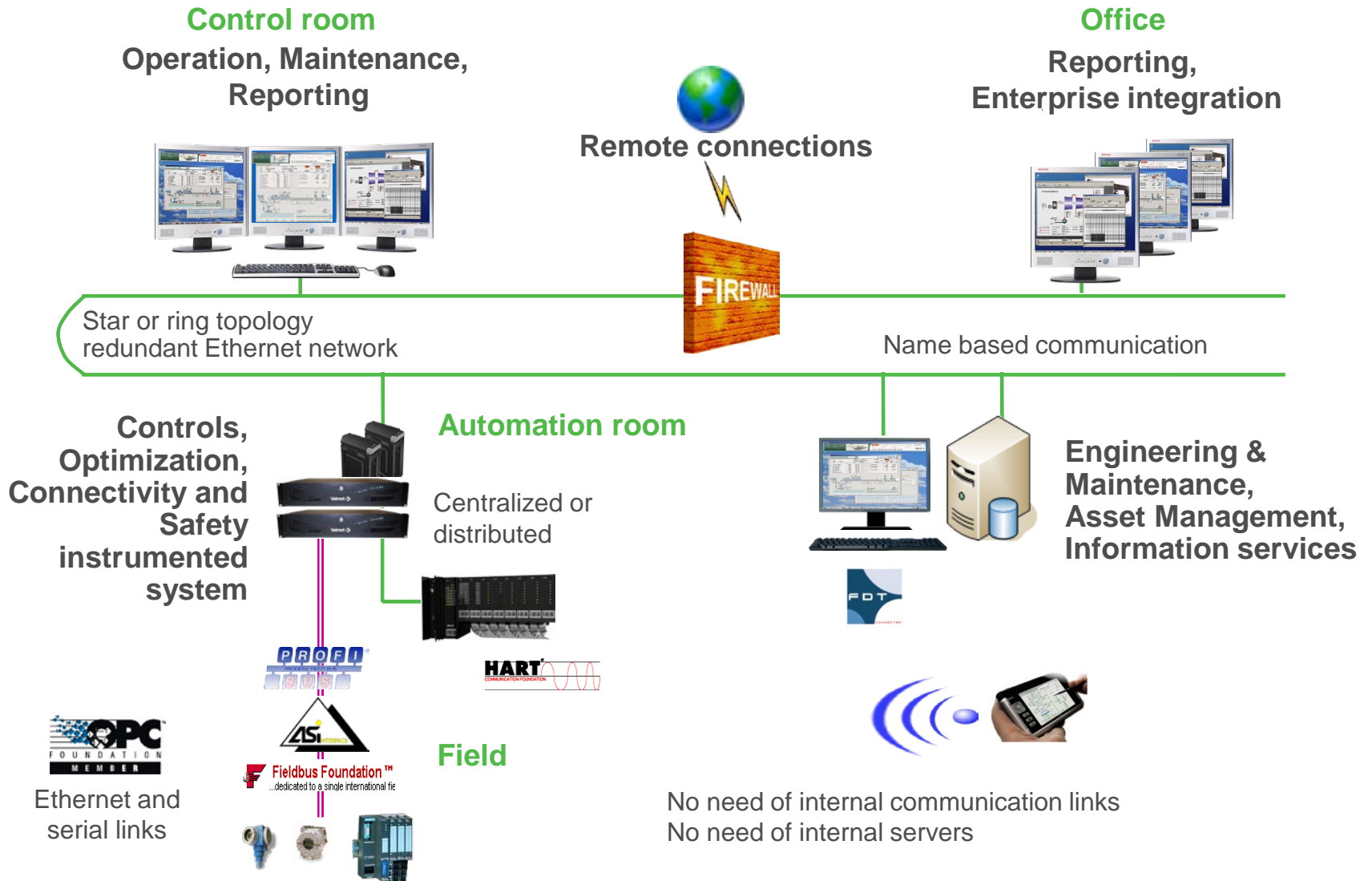


- Application compatibility since 1988
- Connectability
- Upgradeability
- Openness
- Same platform for all applications
- User friendly
- Flexible
- Reliable
- Long experience of developing control systems

# The production organization is a community



# Valmet DNA architecture



# Powerful Architecture

## One platform

- for all type of controls and user requirements

## High availability

- due to industrial components
- security plus redundancy on all levels

## Easy maintenance

- extensive diagnostics and
- straightforward spare part concept

## True scalability

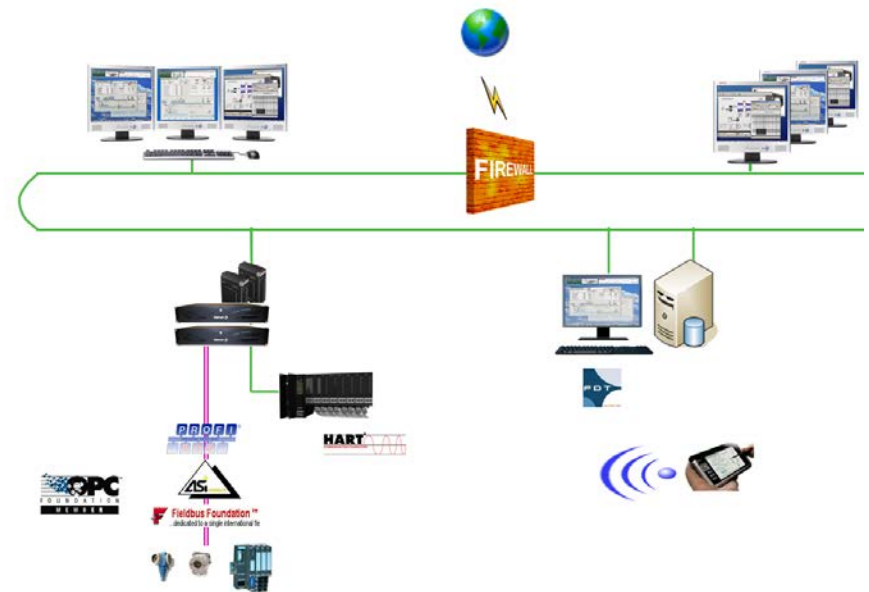
- from smallest to largest solutions
- one set of modular components

## Open standard communication

- system and business integration plus field buses

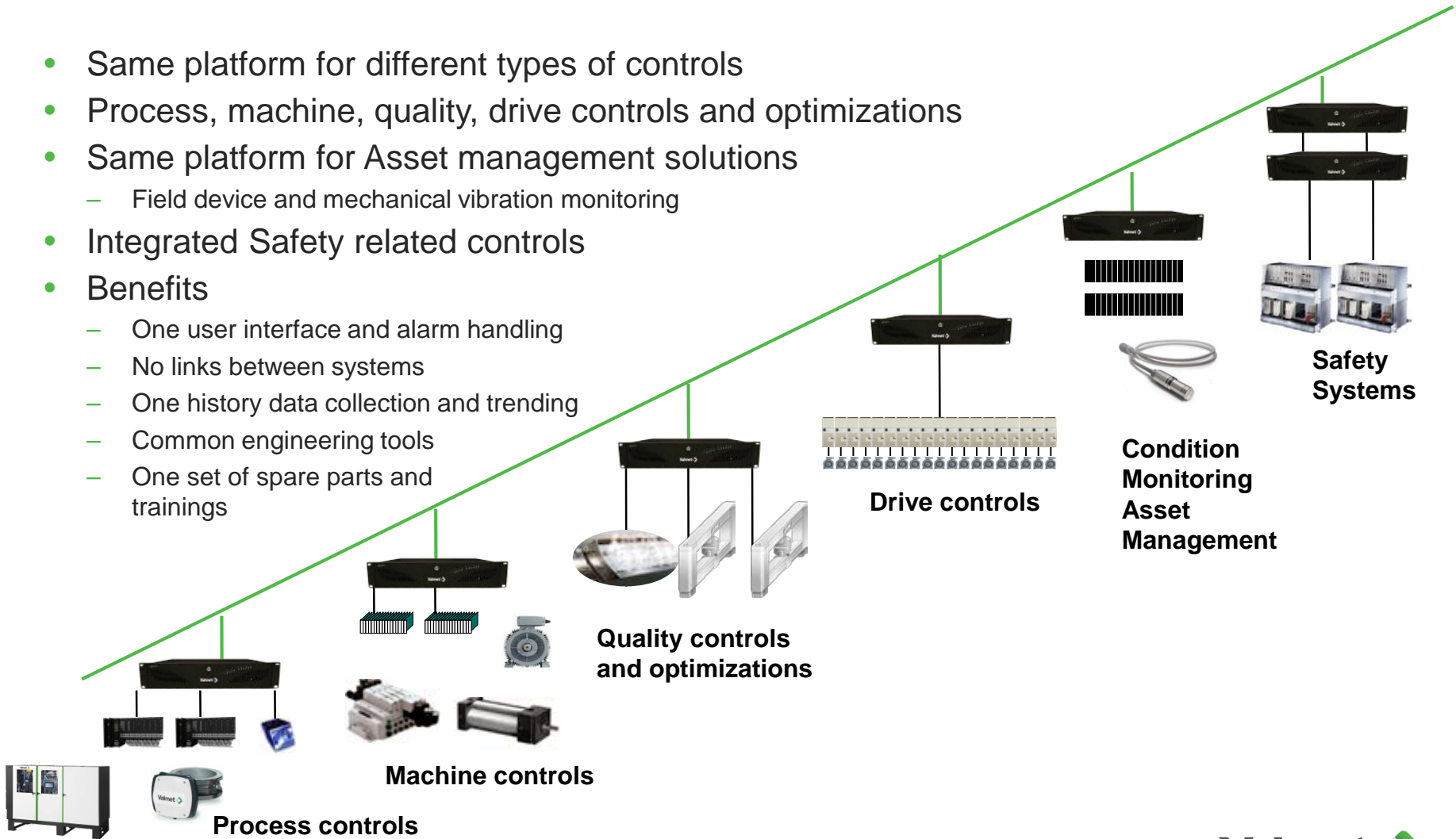
## Efficient engineering and maintenance

- through uniform engineering tools and re-use of applications



# One Platform for All Needs

- Same platform for different types of controls
- Process, machine, quality, drive controls and optimizations
- Same platform for Asset management solutions
  - Field device and mechanical vibration monitoring
- Integrated Safety related controls
- Benefits
  - One user interface and alarm handling
  - No links between systems
  - One history data collection and trending
  - Common engineering tools
  - One set of spare parts and trainings



# Scalable Valmet DNA – From Tiny Embedded Powerful Architecture

## Tiny embedded application

- 10 - 250 IO's
- typically installed to field or embedded to machines

## ACN SR1 and IO

- ACN SR1
- ACN IO
- Backup functionality



## Operator Interface

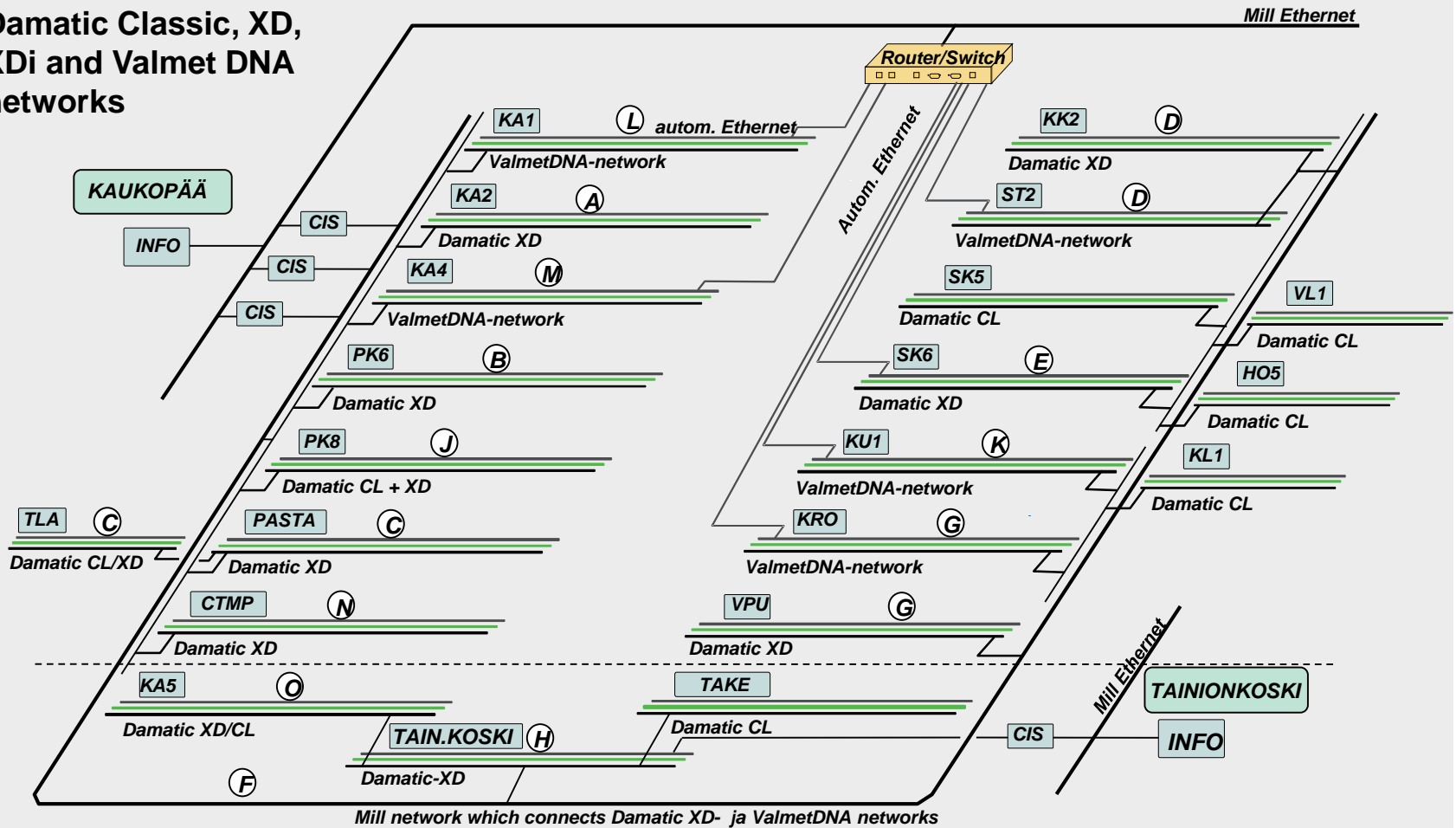
- Valmet DNA Operate
- Alarm processor



# ...To Large Network

## Powerful Architecture

### Damatic Classic, XD, XDi and Valmet DNA networks







# User Interaction

Intuitive Tools for Users  
and Communities

# User Interaction Activity

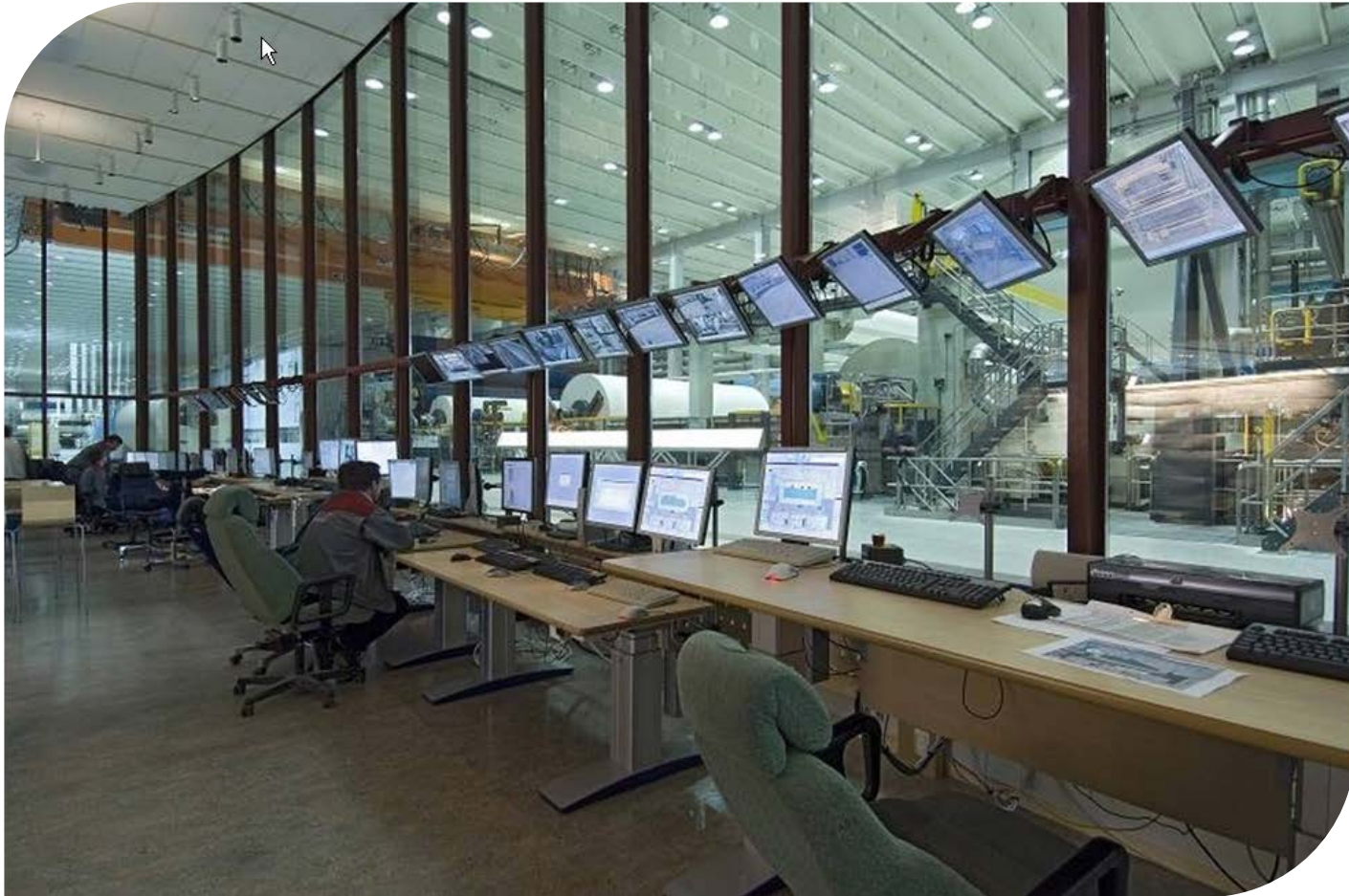
Intuitive role based user interfaces

- Operation tools
  - Intuitive and straightforward
  - Tools analysis and problem solving
  - Adapted to tasks and roles
- Reporting and Analysis tools
  - Flexibility in content formats, distribution and visualization
  - Native element in operation and community tools
- Community tools
  - Collaboration of teams and systems
- Scalable environment from field to office



# Stora Enso, Kvarnsveden, Sweden

Valmet DNA control room



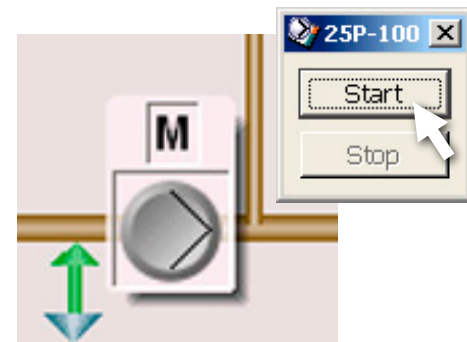
# Valmet DNA Operate – Intuitive and Straightforward Operation Tools

- Functions developed for production professionals
- Graphical navigation
- Relevant information brought to the foreground
- Select object to get related information
- Point and click, drag and drop principle



High usability comes from

- Extensive research and experience in process control
- Application of systematic usability methods like contextual inquiry and usability tests
- Hundreds of studies and thousands of deliveries through 20 years



# Valmet DNA Operate – Efficient Problem Solving Operation Tools

- Efficient alarm analysis with 1 ms Sequence of Events (SOE)
- Replay history from any picture, “time machine”
- Drag and drop trend analysis
- Dynamic function and interlocking descriptions for machine and process
- Integrated diary entries for trends and loops

**Start History mode**  
**History mode indication**

The screenshot displays the Valmet DNA Operate interface. The main window shows a process diagram for 'Feedwater and Steam' with various parameters and controls. A 'Timeline' window is open at the bottom, showing a 'Display moment' of 02.05.2005 18:45:12. The timeline has a scale from -48 to 48 hours. A green arrow points to the 'Timeline' window, and another green arrow points to the 'Start History mode' button in the top right corner of the interface.

**Select displayed moment and replay**

# Integration Builds Awareness of The Situation

## Reporting and Analysis tools

- Valmet DNA Report integrates events, operations, log book entries and process data in one trend or report
- Integrated with Valmet DNA Operate
  - Fast analysis by one click
  - Predefined parameters automatically
  - Further analysis online
- Alarm analysis from trend – Valmet DNA Report Alarms and Events Analyzing
- Search similar situations from logbook - Valmet DNA Report Diary

**Trends with alarms & events**

**One click**

**Deeper alarms & events analysis**

**Exception entry using DNAdiary**

Tapausno	Prioriteetti	Alue	Duration
FPOS2-MEAS	BATTERY VOLTAGE	MEAS. < LL	700 FAHW53 1.01:14:41
BOU8-12	DISTURBANCE	FAHW53	700 FAHW53 1.01:06:28
IV.PIDURP2	IV.PIDURP2	CNTPL DISTURB.	700 CAXA45 23:25:49
	TURB.	CAXA45	700 CAXA45 23:25:47
	TURB.	CAXA45	700 CAXA45 18:43:22
		FAHW52	49 FAHW52 15:14:10
		IA64	283 IA64 15:12:24
		IA64	85 IA64 15:12:24
		IA64	853 IA64 15:12:24
		IA64	463 IA64 15:12:24
		IA64	723 IA64 15:12:19

**Disturbance entry** [Back] [Save] [Delete] [Cancel]

Process Area: No selection | Process Situation: No selection  
 Classes: No selection | Shut Down

Entry tag: \_\_\_\_\_  
 Date/Time\*: 6/1/2006 10:25 AM  
 Author/Entry group\*: \_\_\_\_\_  
 Title\*: \_\_\_\_\_

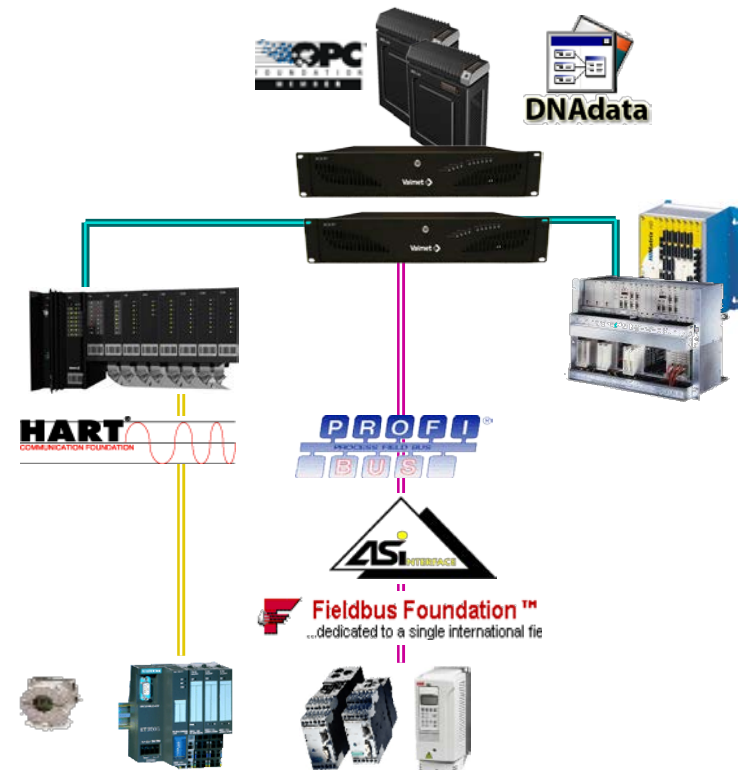


# Versatile High Availability Solutions for Automated Processes

# Versatile High Availability Solutions

## Automated Process Activity

- Efficient ACN controllers and I/O as well as Profibus & FF & AS-i buses
- Advanced platform for all control needs
  - process, machine, drives and quality controls as well as optimization
  - basic controls, fast logic and advanced controls
- Integrated Safety Instrumented System
- Consistent information services
  - Uniform solution for data storage, calculation and enterprise application integration
- Migration paths and connectivity with standard links to third party systems
  - Field terminal assemblies, OPC, Ethernet and serial links...





# Powerful Controllers with Built-In Reliability

## Reliable Controllers with Flexible Field Options

A complete controller family for process control applications and external interfaces

- ACN RT large expandable controller
  - all field buses supported
  - centralized installations
- ACN CS compact controller
  - all field buses supported
  - field and centralized installations
- ACN MR compact controller
  - all field buses supported
  - field and centralized installations
- ACN SR1 small rail mounted controller
  - with ACN I/O
  - for embedded field installations



ACN MR



ACN SR1



# Freedom to Choose Preferred Field Solution

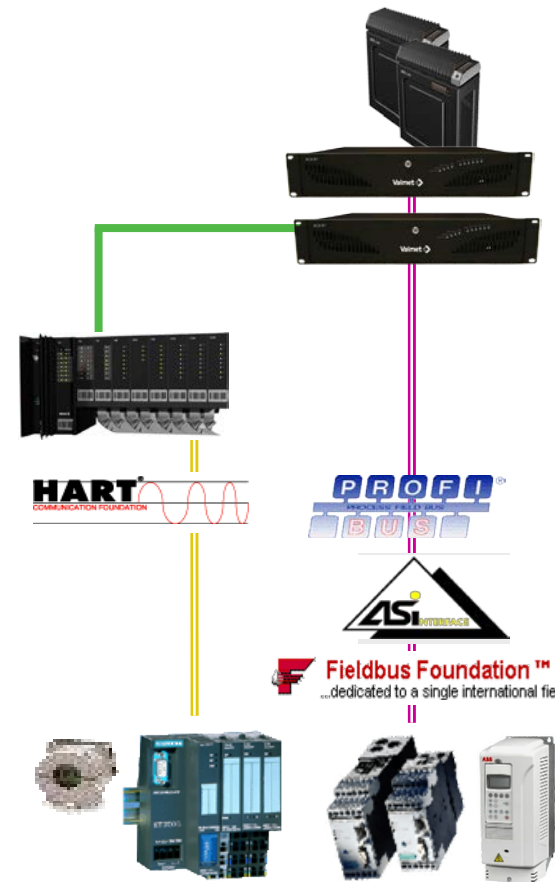
## Reliable Controllers with Versatile Field Options

One versatile process controller supporting IO and major field buses

- Field buses
  - Profibus DP/PA, FF, AS-i
- ACN IO
  - same components in centralized and distributed architectures
  - build-in HART connectivity

Which ever you choose, you have

- Uniform configuration for all field interfaces
- Extensive diagnostics
- Integrated field device configuration in Valmet DNA Explorer



# Compact Multipurpose I/O that is Easy to Use

## Reliable Controllers with Flexible Field Options

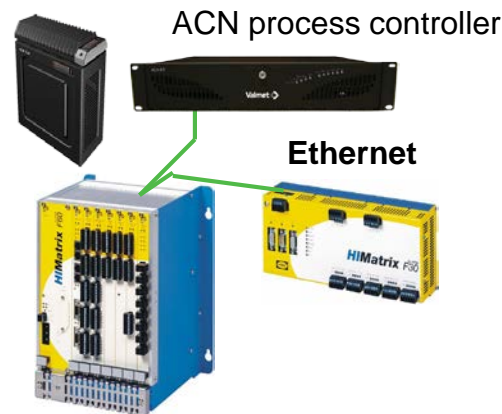
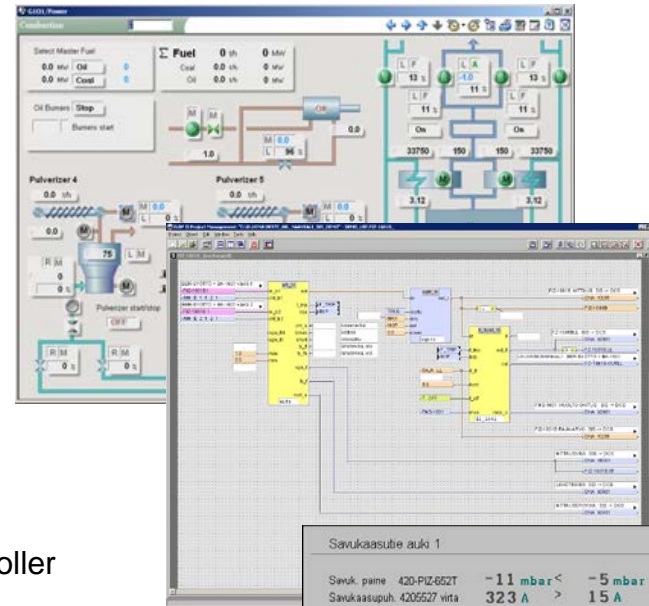
- ACN IO is modern I/O family which combines the best features of centralized and distributed I/O in one compact design
- Simplifies system design, cabinet assembly and commissioning
- Best performance and features
  - speed - fast controls down to 20 ms
  - extensive diagnostics
  - high accuracy of AI and AO
  - 1 ms sequence of events (SOE)
  - hot swapping
  - HART
  - G3 environmental specification
  - operating temperature 0...+70 °C
  - high packing density
- Connected with Ethernet to ACN controller



# Valmet DNA – HIMA HIMatrix integration



- Integrated safety concept
  - Uniform user interface
  - Integrated alarm processing
  - Event recording
  - Fast Ethernet connection (100Mbit/s)
- High availability and safety
  - Safety integrity levels 1 – 3
- HIMatrix products cannot be redundant



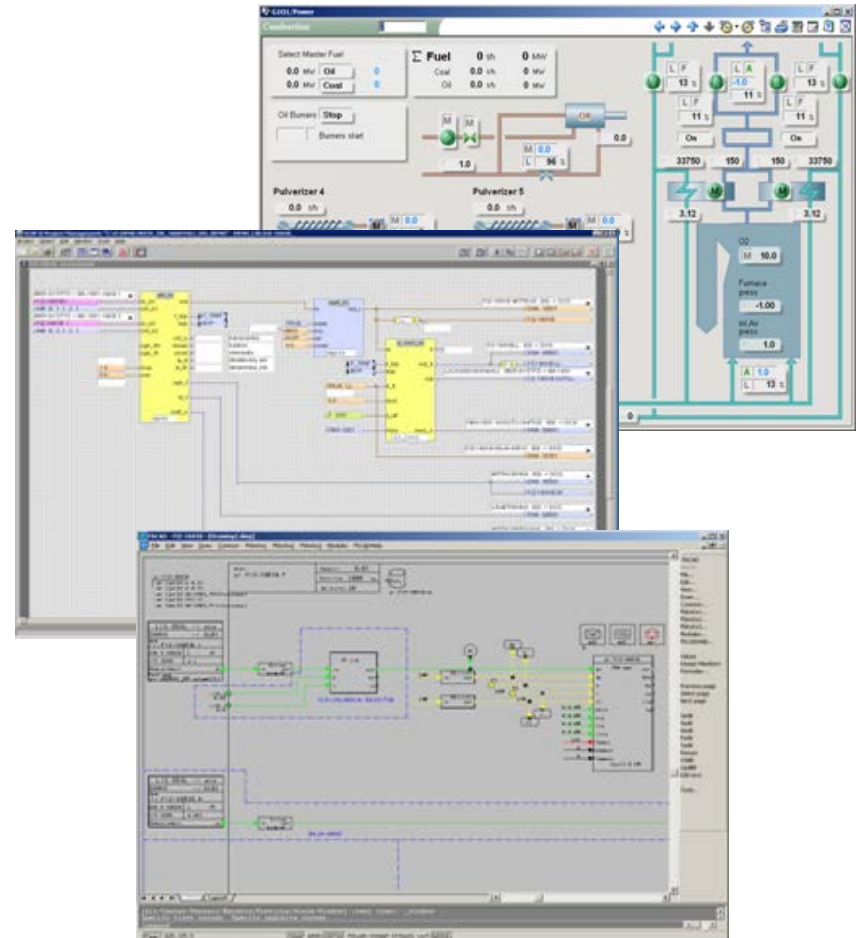
Savukaasutite auki 1	
Savuk. paine 420-PIZ-652T	-11 mbar < -5 mbar
Savukaasupuh. 4206527 vika	32.3 A > 15 A
Sähkösuuttimen 1 sisäänmenopellin 1 raja 420-GZ-1601.1	Auki
Sähkösuuttimen 1 sisäänmenopellin 1 raja 420-GZ-1601.2	Auki
Sähkösuuttimen 1 sisäänmenopellin 1 raja 420-GZ-1601.3	Auki
Sähkösuuttimen 1 sisäänmenopellin 2 raja 420-GZ-1602.1	Auki
Sähkösuuttimen 1 sisäänmenopellin 2 raja 420-GZ-1602.2	Auki
Sähkösuuttimen 1 sisäänmenopellin 2 raja 420-GZ-1602.3	Auki
Sähkösuuttimen 1 ulosmenopellin 1 raja 420-GZ-1611.1	Auki
Sähkösuuttimen 1 ulosmenopellin 1 raja 420-GZ-1611.2	Auki
Sähkösuuttimen 1 ulosmenopellin 1 raja 420-GZ-1611.3	Auki
Sähkösuuttimen 1 ulosmenopellin 2 raja 420-GZ-1612.1	Auki
Sähkösuuttimen 1 ulosmenopellin 2 raja 420-GZ-1612.2	Auki
Sähkösuuttimen 1 ulosmenopellin 2 raja 420-GZ-1612.3	Auki

# Integrated but Safely Separate

## Integrated Safety Instrumented System

- Uniform user interface, alarm management and trending
- Fast Ethernet link with full redundancy
- Diagnostics covering IO's and communication link
- Safety application made with IEC 601131-3 configuration
- Up to Safety Integrity level (SIL) 3

ACN process controller





# Secured Life Cycle

# Easy and Flexible Tools with Full Compatibility

## Secured Life Cycle Activity

### Engineering and maintenance tools

- Easy to use
- Powerful functions

### Field asset management

- User friendly
- Integral part of operation and maintenance

### Process Condition Monitoring

- Combining information from field, control and process level creates more value

### Secure Valmet DNA

- Industrial grade security

### Upgradeability and compatibility

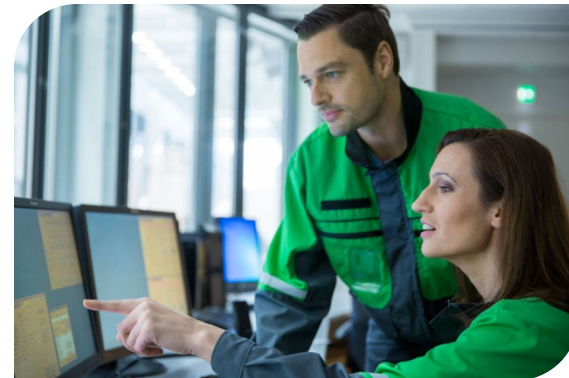
- Valmet DNA grows according to your needs



# Extensive set of engineering features

## Engineering and Maintenance Tools

- Scalable multiuser environment for concurrent engineering
- DNA Explorer – one configuration and maintenance tool for control applications, field bus, field devices and network document management
- Uniform configuration for all field interfaces
- WYSIWYG Graphical User Interface design tool
- Integrated testing environment
- State of the art network design, hw-engineering and documentation tool DNA Network Designer
- Point and click operation for all tasks: edit, online, check etc. Efficient bulk data handling





# Valmet DNA Explorer for Plant Management

## Engineering and Maintenance Tools

- One powerful tool for engineering and maintenance of
  - field devices
  - HW and network documents
  - user interface
  - control application
  - field bus
- Explore through the network
- Intuitive to use

The screenshot displays the Valmet DNA Explorer software interface. At the top, the 'DNAexplorer' window shows a menu bar (Object, Edit, View, Insert, Tools, Window, Help) and a toolbar. Below the menu is a 'Process Area' tree view with folders for 'Power Plant', 'Boiler', and 'Feed Water'. To the right, a table lists various identifiers and their categories:

Identifier	Name	Category
FD: 42-905-PT	Condenser Pressure	HART Field Device
42-905	42-905-IO Cabinet	HW Document
GD:W1-Power:PDB	Feed Water and Steam	Graphic Display
42-905-A005-210	FeedWater Pump	Function Bloc Diagram
PVP_m2	Feed Water Network	Profibus Network
FF:Refinery-Dep.1	Refinery Network	FF Network
PressGuide1.1	Device Guide	Pdf Document

Below the table, the 'DNAfieldAssessor' window shows a detailed diagram of a field device rack labeled 'ND9000™'. The rack contains several modules, with two specific units labeled '42-950-KK053' and '42-950-KK054'. A 'DTM Disconnected' status is shown. Below the rack diagram, there are control elements including 'M L T.3' and 'P OT.4' buttons, and a 'T OT.4' button. To the right, the 'FF Explorer - Topology' window displays a network diagram for 'FF-Network ( Refinery Dep.1 )', showing a hierarchy of nodes: Heating (172.29.29.1), AP01 (172.29.29.10), AP01\_LD01 (172.29.29.20), and AP01\_LD01\_H1\_1 (4101-16), which is further divided into TV-100 (20), TV-101 (21), and TV-102 (22).

# Valmet DNA diagnostic

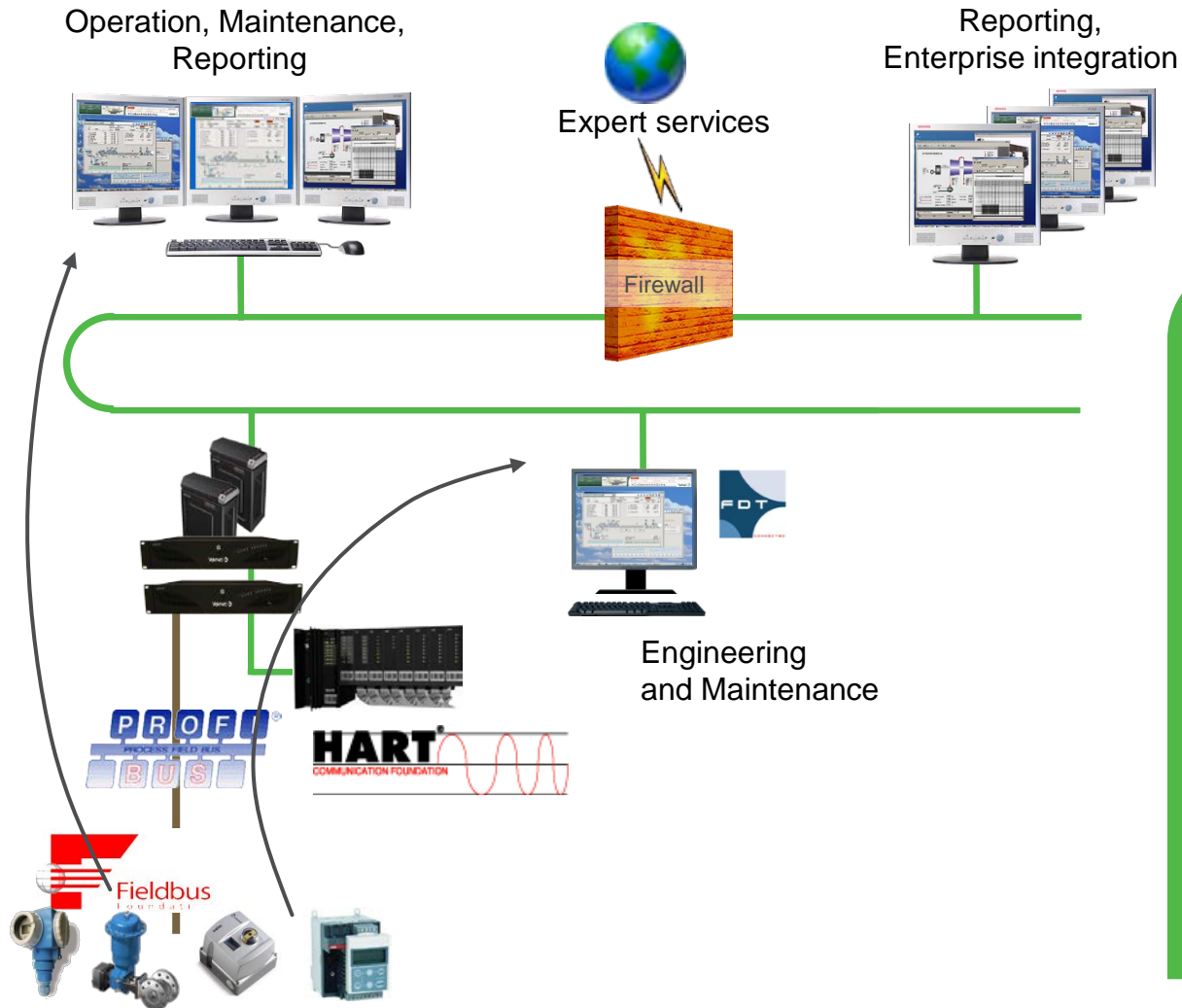
## Field devices

- Valmet DNA Field Device Manager brings field devices for process operators and engineers
  - device condition monitoring
  - device report
  - asset management report
  - device configuration
- Proactive field asset management
  - helps to see device performance
  - helps to plan maintenance work

The screenshot displays the Valmet DNA diagnostic software interface. At the top, the 'DNAexplorer' window shows a 'Network Hierarchy' tree on the left and a table of field devices on the right. The table lists devices like ND9000PA, 55PT-239, and 55PT-235, categorized as 'Field Device' with 'Profibus' bus protocols. Below this, the 'DNAfieldAssessor' window is open, showing a 'Status Tree' on the left with a hierarchy: All > Production site > Power plant > Feedwater > Fuel. The main area shows a detailed view of an 'ND9000™' device, including its 'Device Type' (ND9000P), 'Device Revision' (SW 1.30-1.50), and 'DTM' status (Disconnected). A 'Multipoint Step Test' section lists parameters like 'Number of Steps', 'Start Position', 'Stop Position', 'Init Time', and 'Duration'. A 'Test Results' section shows a progress bar from 90 to 100. A context menu is open over the 'Fuel' section, listing options such as 'Loop Window', 'Interlockings', 'Trend', 'Picture...', 'Analysis...', 'Diary...', and 'Maintenance...'. The 'Maintenance...' option is expanded to show 'Device Diagnostic'.

# Communication through network

## Valmet DNA Field Device Manager

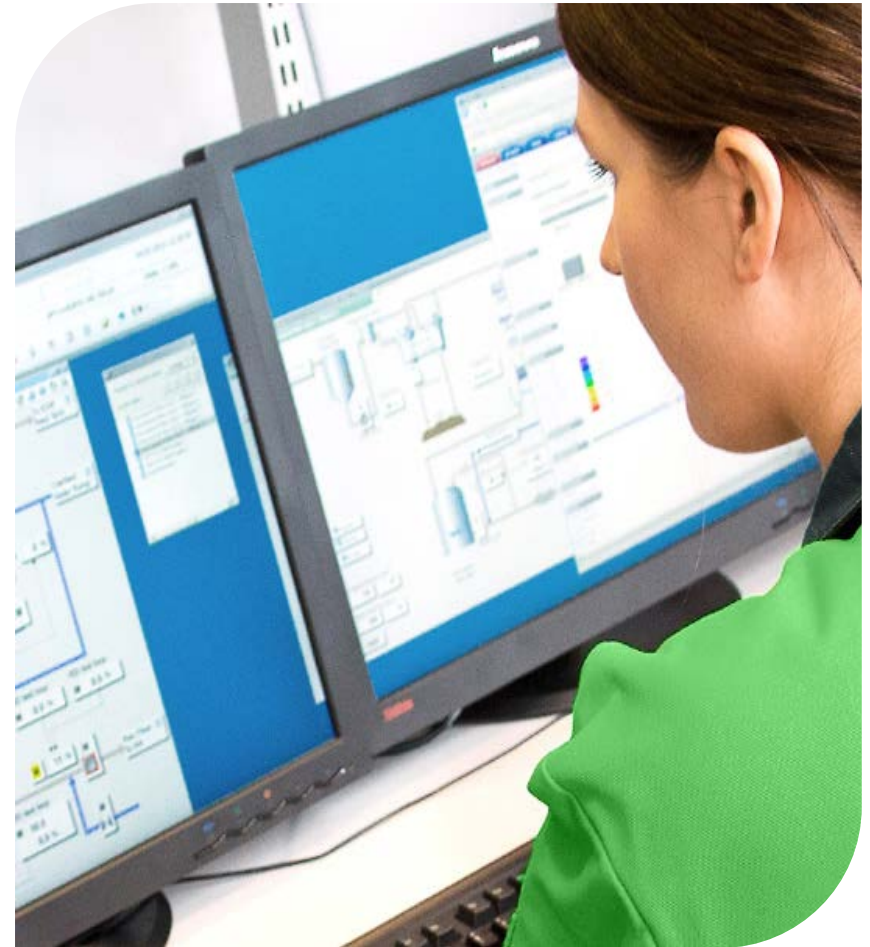


- Transparent communication through Valmet DNA – no multiplexers
- Information available in operator interface and engineering tools
- Configuration and diagnostic information
- HART, Profibus and Foundation Fieldbus routing

# Secure the Production Environment

## Valmet DNA Security

- Security in critical real time production environment
  - High standards and quality
- Layered Security - meet it in all levels
  - Configuration, hardening and patching for all active components
  - Antivirus software, firewalls
  - Secure network architecture, Security frontier
  - Password and user identification
  - Secure connections between customer and Valmet
- Life cycle support: security update, training, communication, audits and services



# Automation projects

Results start from project delivery

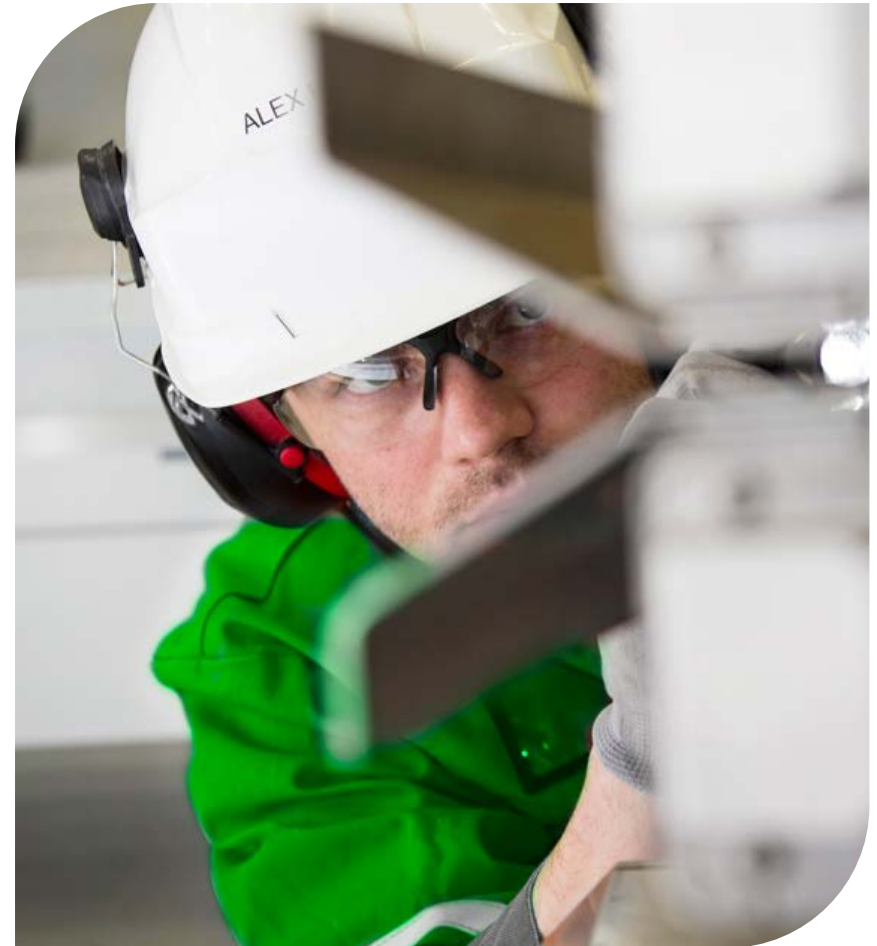
- The full scope of project services:
  - Project management
  - From pre-engineering and basic engineering to application engineering
  - Extensive Factory Acceptance Testing
  - Commissioning and turnkey projects
- Professional project execution - people and experience
  - In-depth process knowledge
  - Thousands of automation projects over the past 30 years
  - Any project size - throughout every project stage



# Services

More results from high availability and performance

- The full scope of customer services:
  - Customer Advantage Agreement for corrective, preventive and predictive maintenance - from help desk to 100% availability agreement
  - Automation engineering, extension projects and upgrades
  - Customer training
  - Spare parts
- Improved results
  - Process performance
  - Process availability
  - Maintenance cost management
  - Asset management



# User Centric Environment

Valmet DNA

## UPM Shotton PM2 Automation Upgrade

“With the old machine controls we couldn’t see what was going on. We had no visual information”

*David Green, Technical Manager*

“We can see everything on the paper machine and how it is behaving. It has opened our eyes. Clearly **the biggest benefit is in our ability to solve problems.**”

*Pasi Häyrynen, PM2 Production Line Manager*



