Business Value through Standards

Increase Effectiveness and Lower Costs

Industry Challenges

Challenges

In the 21st century marketplace, consumer demands, increasing competition and thinning margins force wine makers to continue to look for ways to cut costs and plan for long-term growth in order to remain a leader in the global market.

Areas of focus

- Increase your throughput with a comprehensive production solution
- Ensure cycle times and changeovers are more efficient
- Optimise the way grapes are received, crushed and processed, in order to meet production goals and maintain critical quality factors
- Monitor and control production for increased uptime
- Address Compliance issues, such as Health Act for Plants, etc.

How can Standards help?

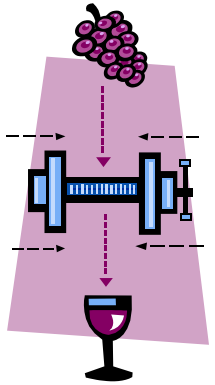
Flexible Manufacturing

- Batch Control Standard
  - Produced by the ISA SP88 Committee (ANSI Standard body)
  - Also published as IEC 61512
- Scope
  - Models and Terminology to assist verbal communication
  - Data models & Language guidelines for electronic exchange
  - “The continuing mission to seek out new batch issues and boldly go…”
- Parts
  - ANSI/ISA-S88.01-1995 – Models and Terminology
  - ANSI/ISA-S88.00.02-2001 – Data Structures and Guidelines for Languages
  - ANSI/ISA-S88.00.03-2003 – General and Site Recipes Models & Representation
  - ANSI/ISA-S88.00.04-2006 – Batch Production Records
  - dS88.00.05 – Recipe/Equipment Interface (preliminary work)

Agility within structure = Risk Mitigation

The Journey…

The biggest issue we see is companies assuming ***which systems will do what*** *before they do their mapping. The best tool we've found to help get everyone* ***speaking the same language*** *is Standards……..*



S88 Solution

S88 solutions can increase overall effectiveness by delivering the visibility, control and reporting needed to optimise manufacturing. With coordinated execution, you will:

- Improve consistency
- Increase throughput
- Reduce waste
- Improve product quality
- Reduce Compliance costs
- Reduce Inventory levels
- Reduce cycle times
- Improve customer service
- Maximize return on assets
- Improve data collection accuracy

ISA SP88

No Common Model for Blending Control

ISA-88.01

Models

Part 1 (ISA-88.01)

Difficult for Users to Communicate Requirements

ISA-88.01

Terminology

ISA Batch Control Standard

Integration of Different Vendors is Difficult

ISA-88.02

Data Structures & WBF XML

Part 2 (ISA-88.02)

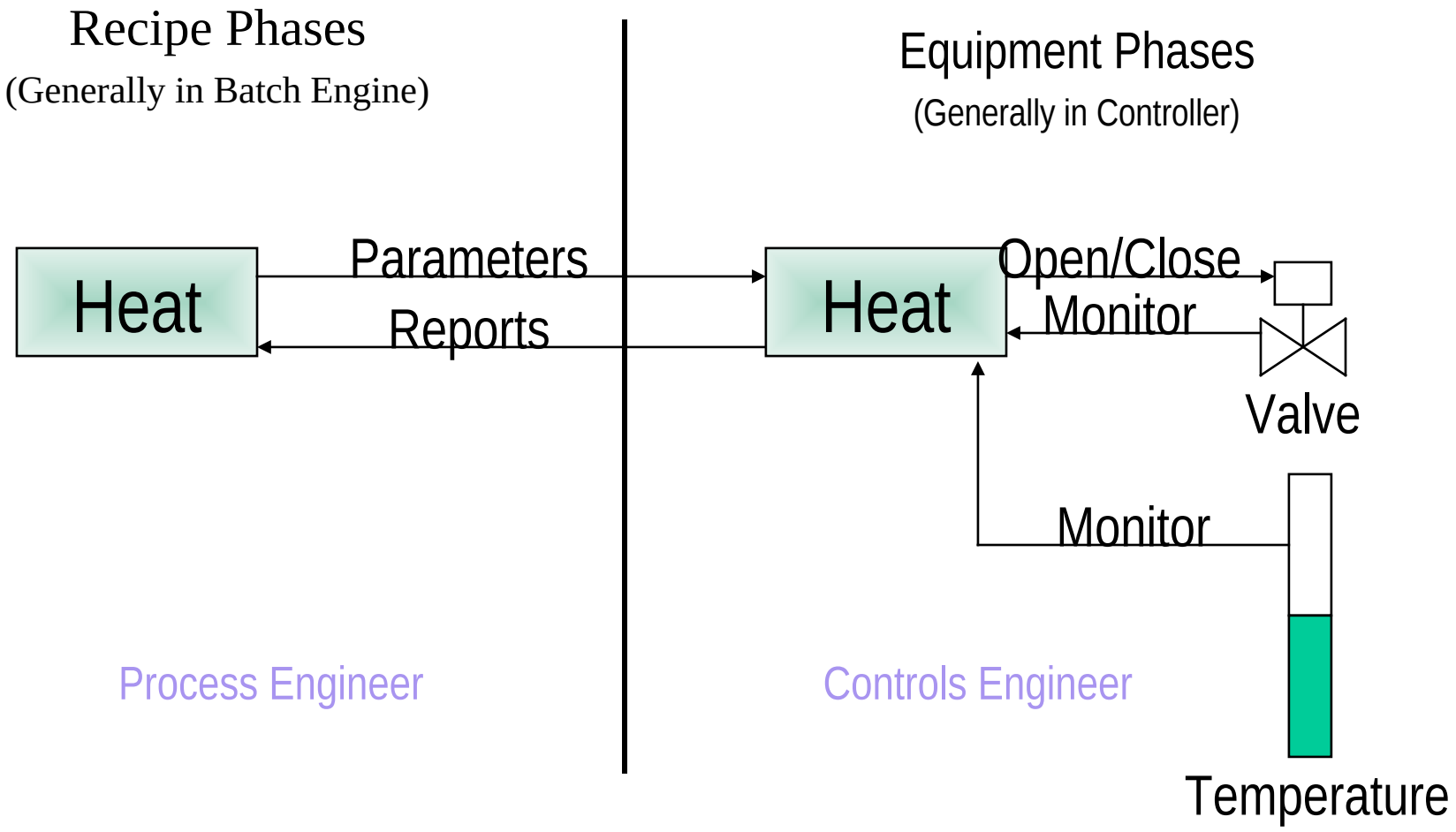
Batch Control Difficult to Configure

ISA-88.02 Languages

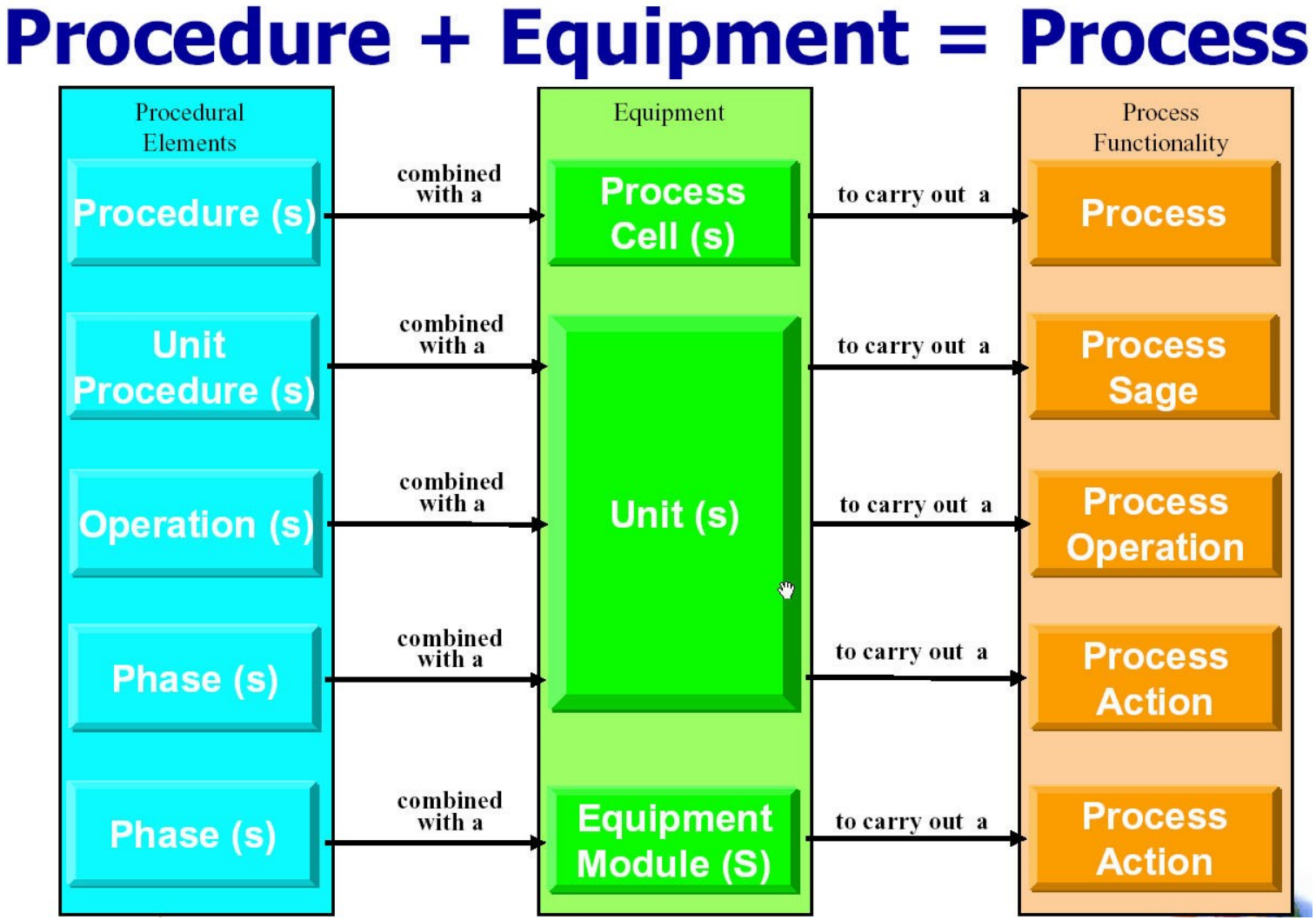
S88 – Goal

The goal for a good S88 based design is to separate

Process Control from Equipment Control



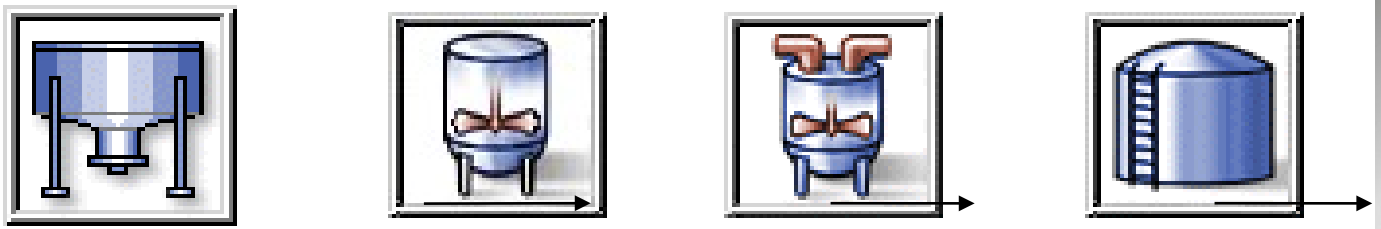
S88 Execution and Equipment Layer



Where ANSI/ISA-88.01-1995 Applies

- Flexibility in manufacturing and consistency
- Multiple products manufactured using the same set of equipment
- Output control for materials such as different varieties of grapes
- Built using a defined order of processing actions

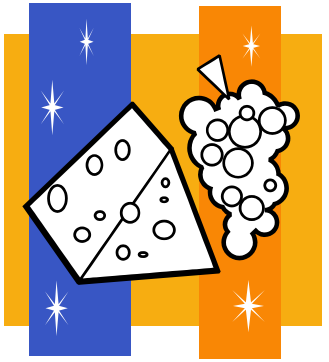
Flow – Temperature - Pressure



Benefits of using Standards

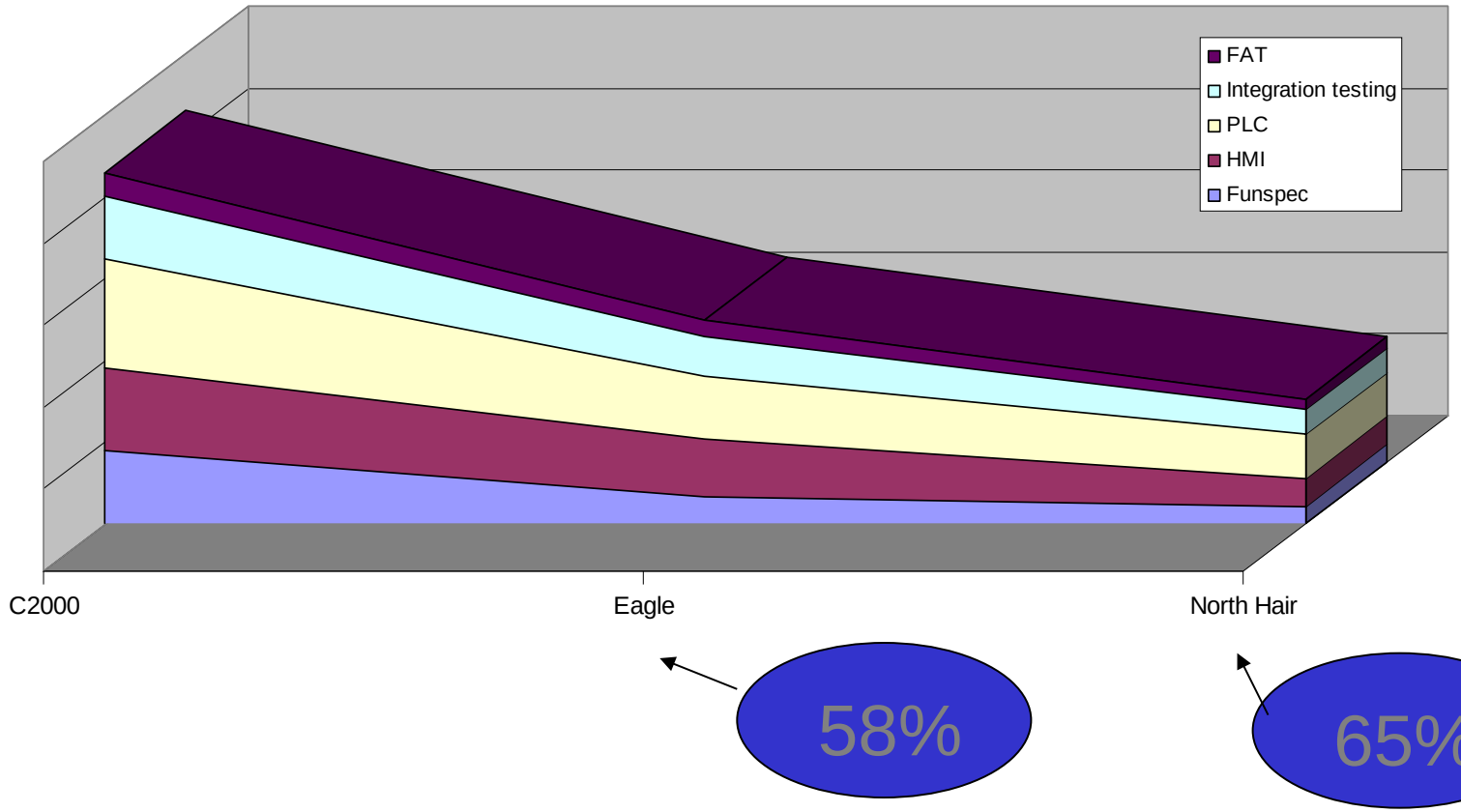
A key project had a timeline of nine months from the writing of the Functional Specification to the commissioning and handover including the development of S88 PLC code and HMI standards that were both validated. The project was also deployed using two competing integrators using the same standards, this provided flexibility….

Graeme Meyer, Fonterra

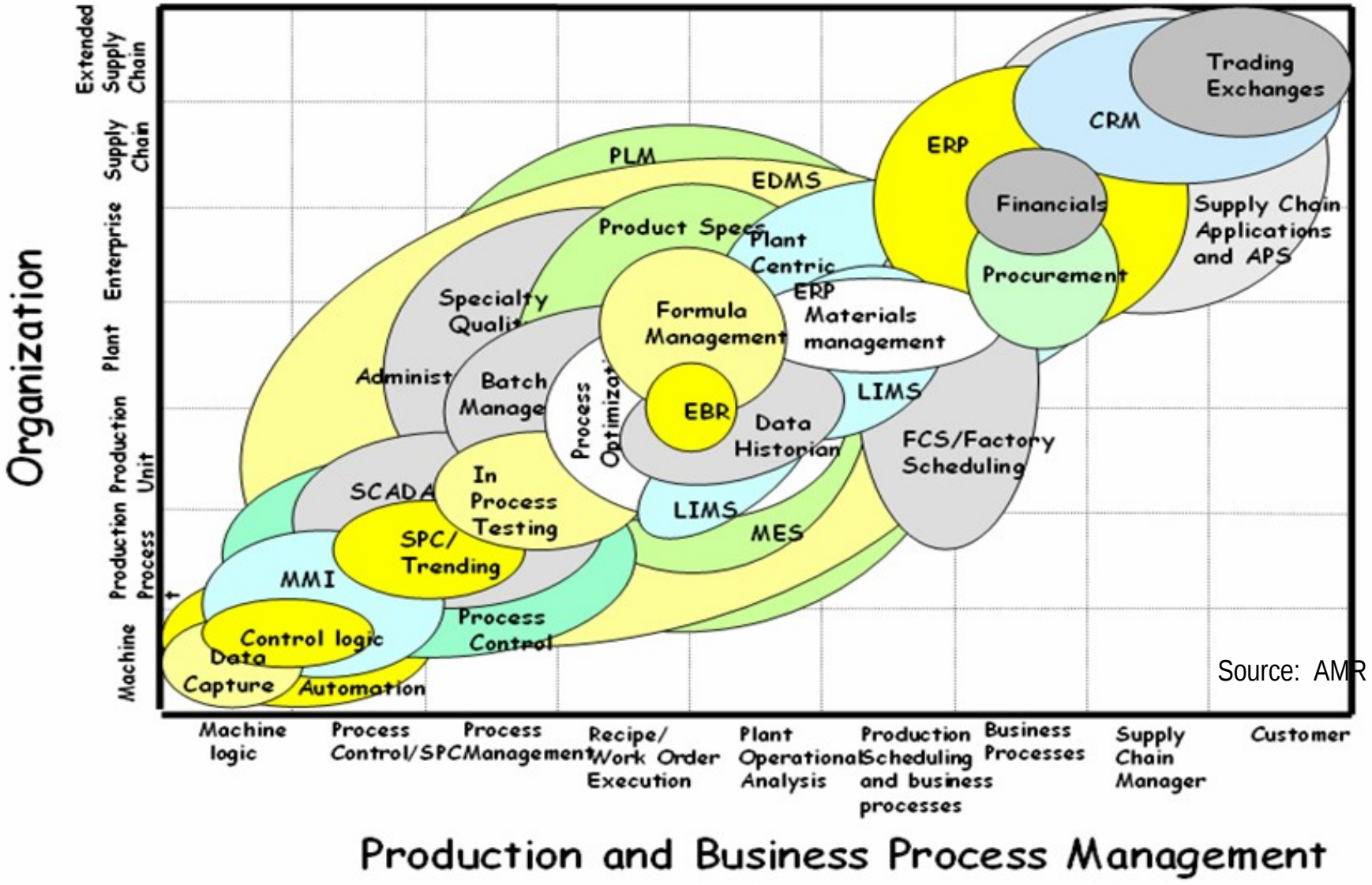


Unilever Case study 1: Batch Project savings utilizing reusable strategy

$450,000 Savings



Manufacturing and Process Industry Systems

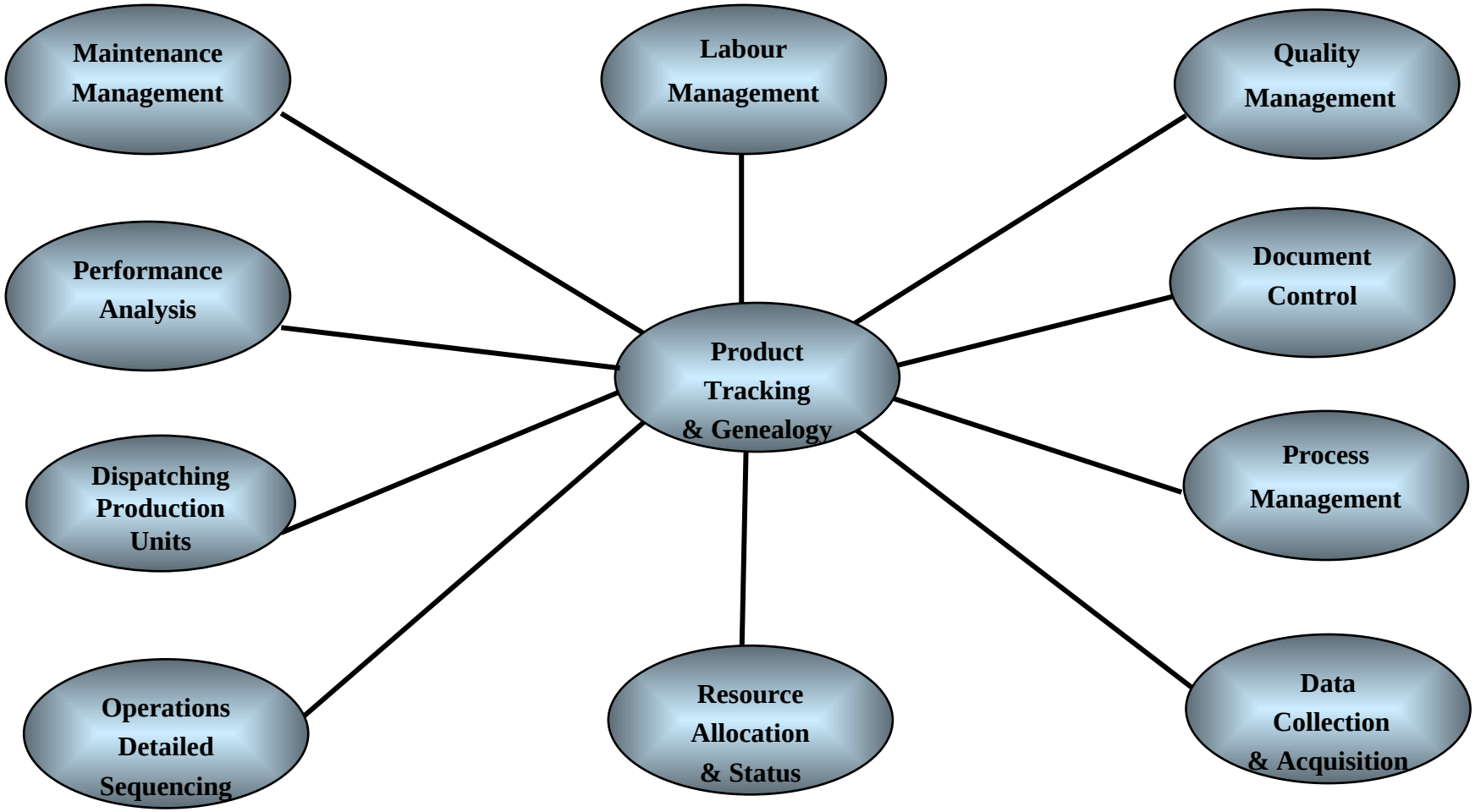


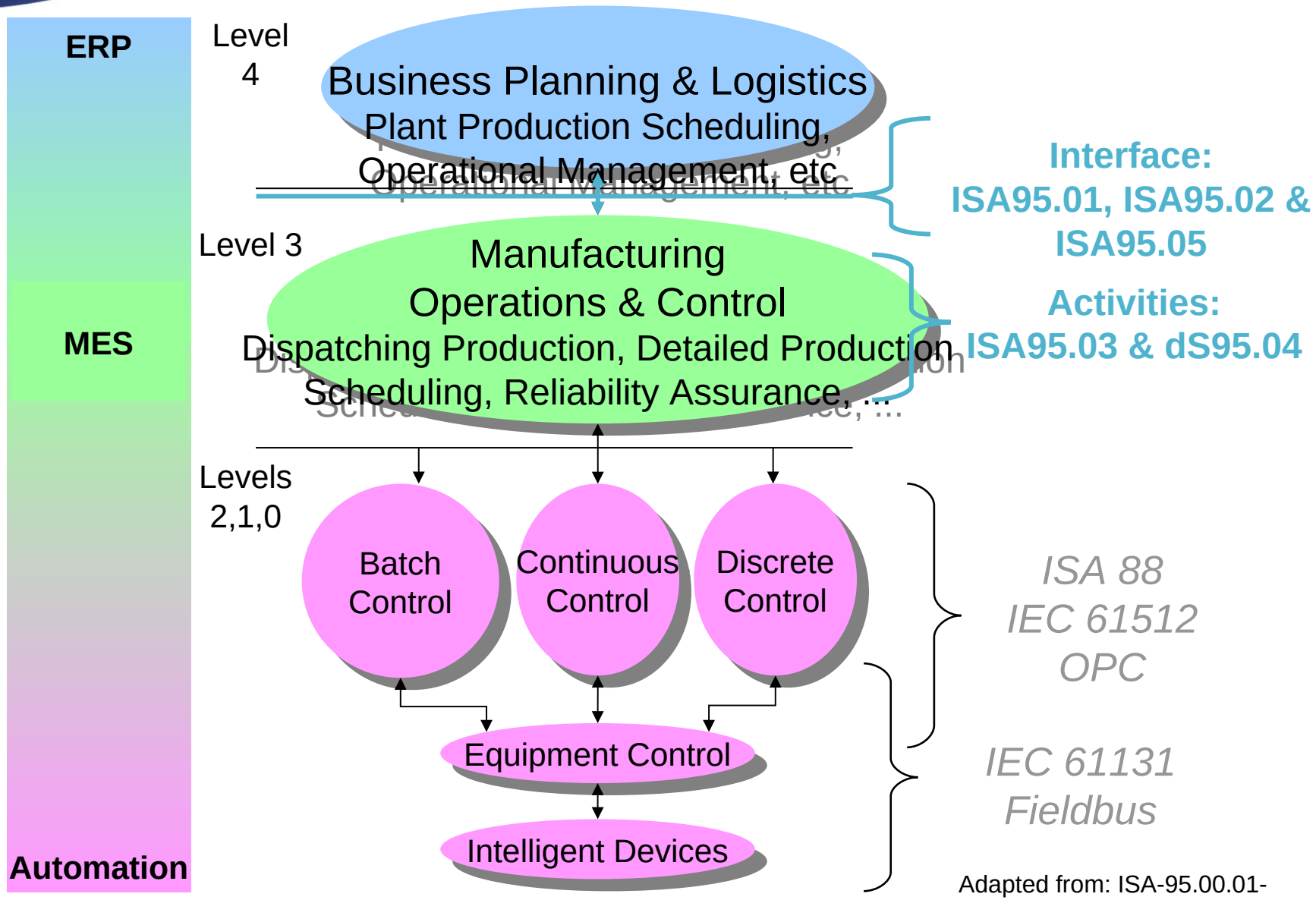
Source: AMR

ISA 95 – MES Functions

Instrument Society of America (ISA)

Standard for Enterprise System to Control System Integration





Adapted from: ISA-95.00.01-2000

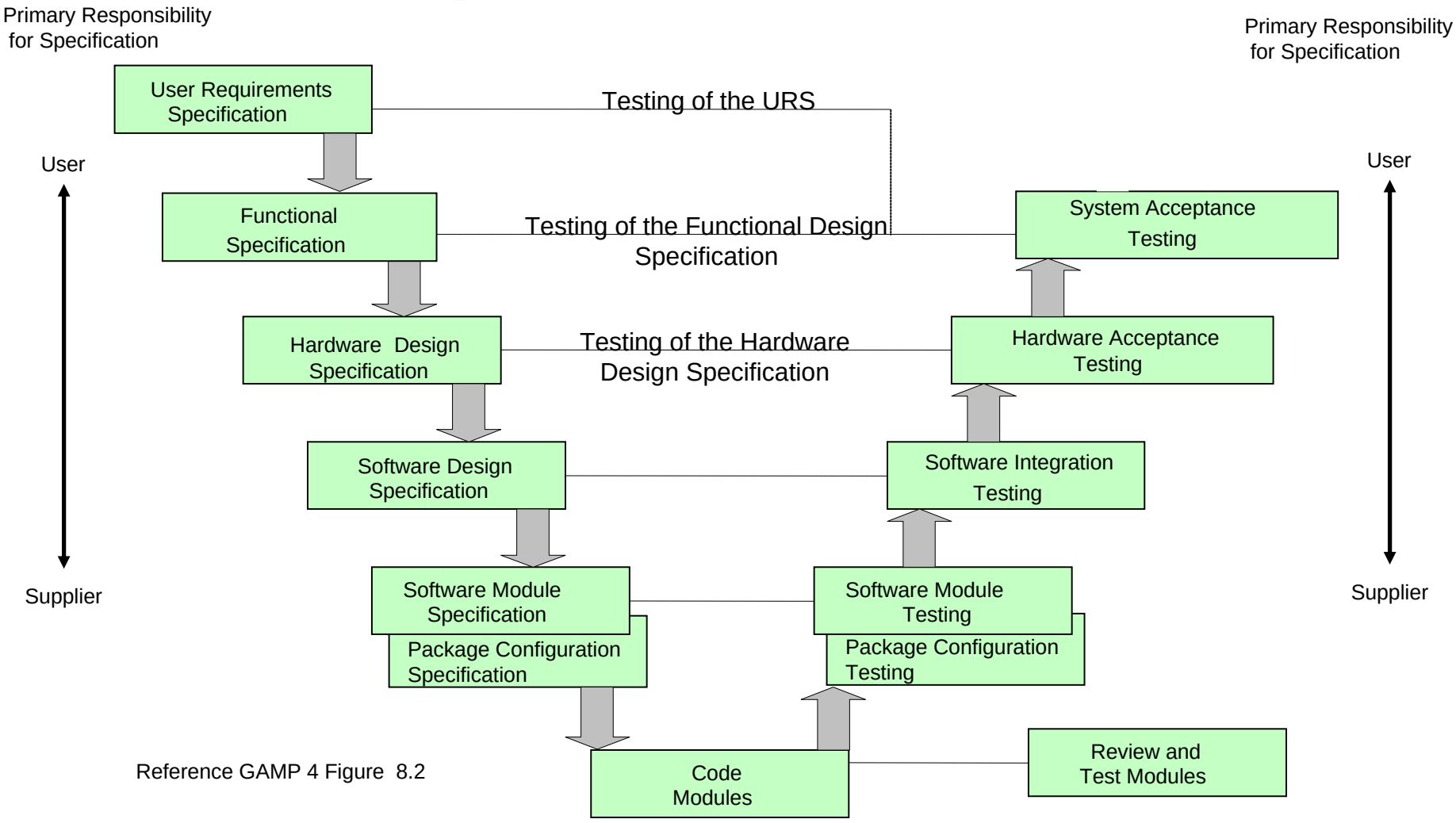
What has standards provided our customers?

Benefits of industry standards

- Products developed to international standards perform within known parameters and functionality
- Engineers around the world can work on common systems on a single project
- Multiple reuse of components of projects
- Standards changes are made by a community of users not single users or vendors
- Element of future proofing as standards are based on building on existing functionality
- Not locked in to a single vendor but also vendors acquire companies and products that are built to standards and are complimentary and make them their own.
- Company standards can be based on industry standards therefore giving some differentiation or IP protection

GAMP 4 Model Guidelines:

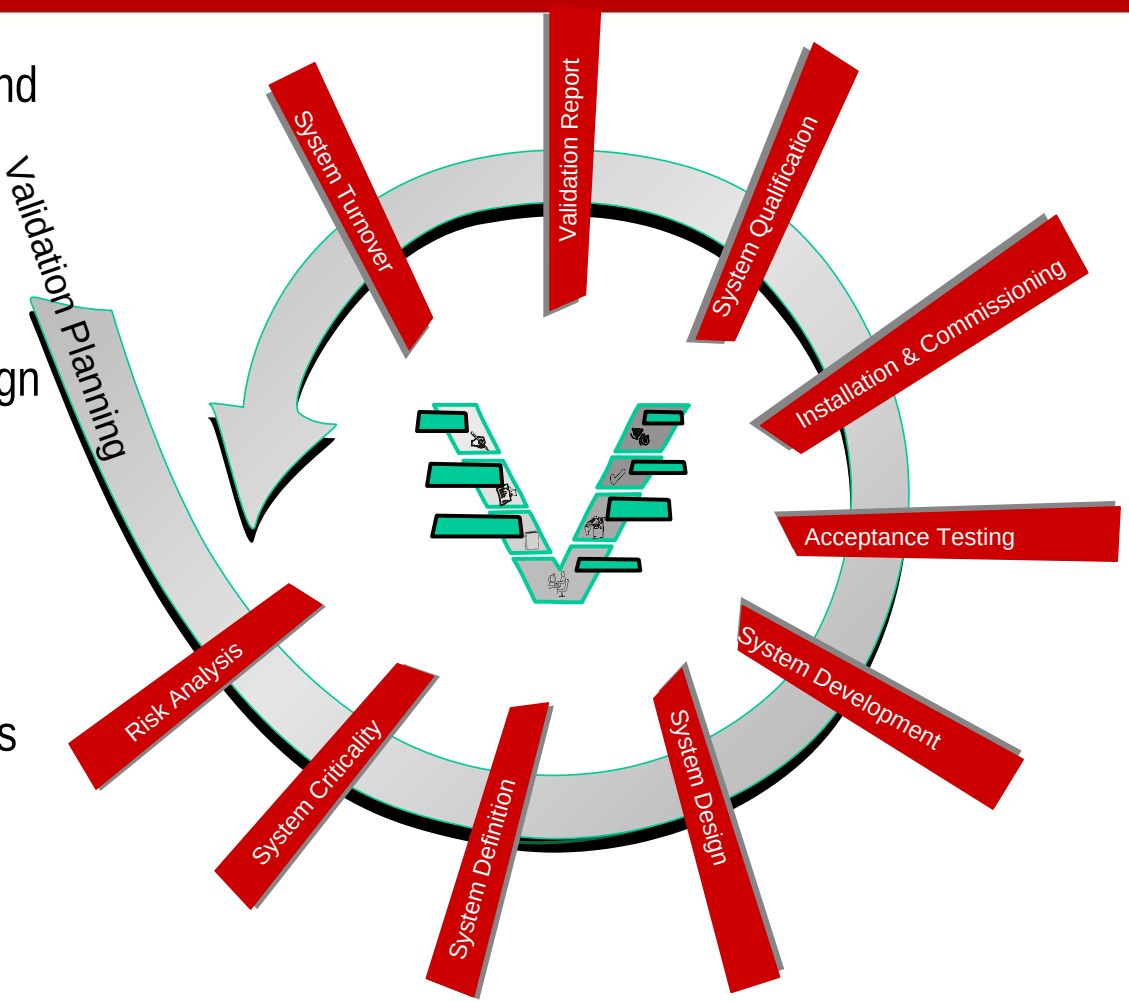
User-Supplier Relationship during Specification and Testing



Reference GAMP 4 Figure 8.2

Integrated Validation Methodology Tasks

- Develop validation plans (Master and Project)
- Project management
- Perform risk analysis
- 21 CFR Part 11 considerations
- Develop User, Functional and Design Specifications
- Create Traceability Matrices
- Develop and test system
- Installation and commissioning
- System qualifications
- Develop validation summary reports
- System turnover to operations



Life Cycle Activity	Milestone and Approval Activities	Risk-Based Approach to Validation

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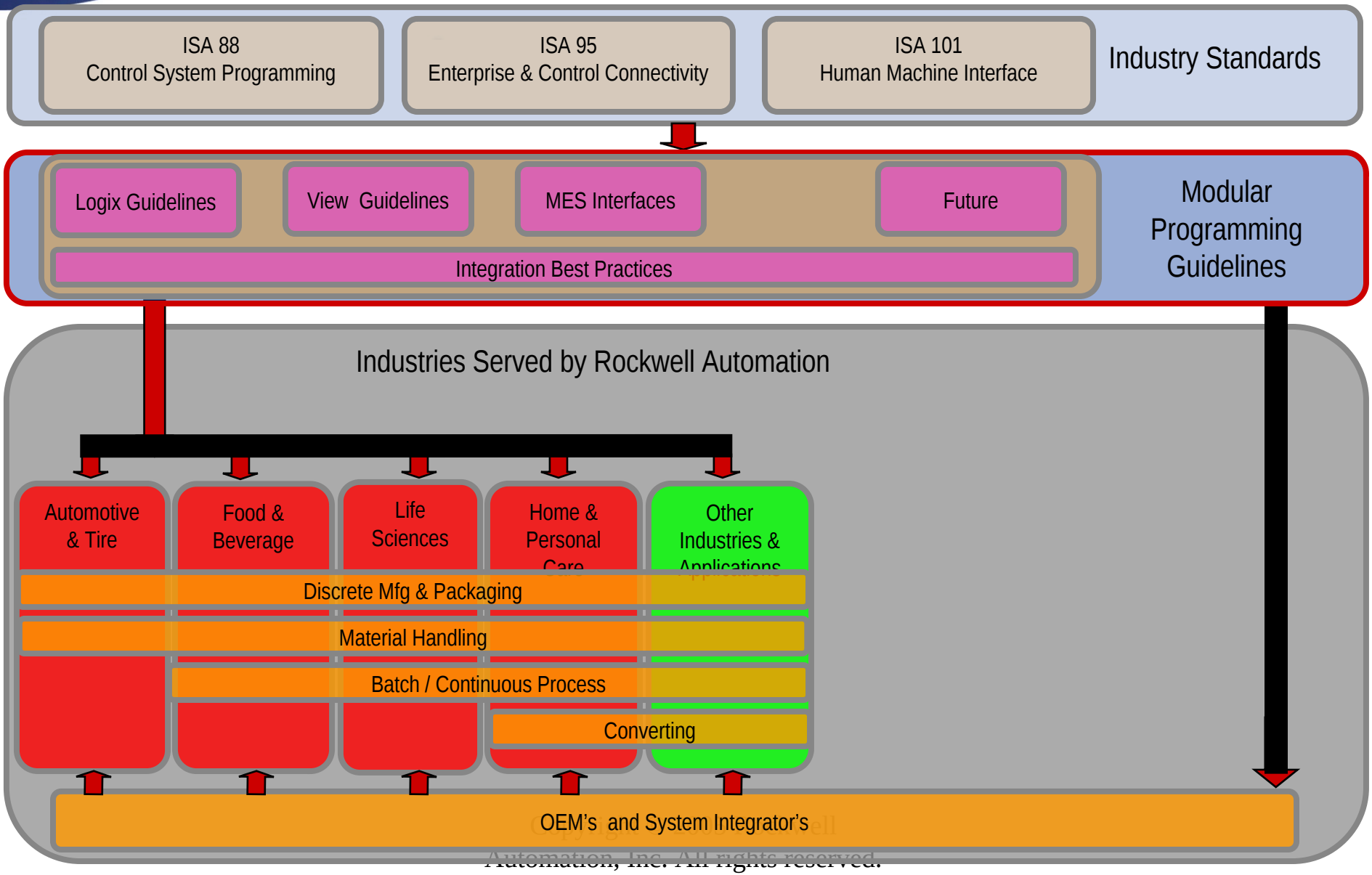
How has Fonterra benefited from GAMP?

Benefits of GAMP: Good Automation Manufacturing Process

- The best way of defining user requirements and ensuring they are met
- A co operative approach for end user and contractors in the joint development of documentation and testing
- A format that can be validated in sections or streams to build a complete project
- Allows a systematic approach to projects and fits well with contractual documents
- Documentation can be carried out as the project progresses
- After several projects the process is well known and can be very cost effective

RA Global Modular Programming Guidelines



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The Results of S88

The standard were published in 1995. Since then it has been applied all over the world. It is known that the application of S88 can provide many advantages.

Opportunity	Benefit
Batch Cycle Time	10 to 50% reduction
Engineering Cost	60% reduction over 3 Projects
Recipe Development	30% Faster
Re-validation	50% Faster
Throughput	3 to 20% Increase
Commissioning Time	33% Reduction

The Value of ISA-88

ARC Advisory Group, Oct 2006

What can MES/S95 Impact?

- Reduced manufacturing cycle time 45%;
- Reduced data entry time, by 75% or more;
- Reduced Work in Progress (WIP) 24%;
- Reduced paperwork between shifts by 61%;
- Reduced lead time by 27%
- Reduced paperwork an average of 56%
- Reduced product defects an average of 18%.

Source MESA International

The perfect Drop

Increase recipe changeover speed

Dynamic ingredients control for product consistency

Reduce lab test waiting time

Reduce quarantined, rework or scrapped product

Reduce capital investment

Thank You !

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