

Process Industry Specific Industry Group (PI-SIG)
Focus Group Meeting -- October, 1991
Meeting Notes

The PI-SIG sponsored a meeting to discuss the business issues of the Process Industry in general. This meeting was held October 8, 1991 in Cleveland, Ohio. The attendees are listed in Appendix I.

The initial intent of the meeting was to see if the group could develop a closed-loop planning framework for the process industry similar to that which has been developed and successfully used for the discrete manufacturing sector. While there was one such framework developed in 1979 and published in the booklet entitled "Manufacturing, Planning and Control in the Process Industries", authored by Taylor, Bolander, Seward, and Heard, the PI-SIG steering committee wanted to revisit this to determine if that framework were still viable.

The discussions of the group went very well. However, they uncovered so many business issues which currently face the process industry that they did not have time to revisit them to develop a closed-loop framework. It would seem from the topics which were discussed as issues that the framework became secondary since the issues focussed not only on the day-to-day planning and control of the manufacturing organization, but also focussed on personnel issues, as well as pressing external factors which direct, in part, the operation of the individual company. This article will cover the points of discussion from the meeting.

MEETING FORMAT:

The format of the meeting entailed the use of the Nominal Group Process. This technique is used to quickly develop concensus (on the priority of business issues, in this case) from a diverse group of participants. The meeting begins with a brainstorming session to list all of the possible issues which face the process industry today. The list which was developed was exhaustive and is replicated in Appendix II. Through the next part of the discussion, the group votes on which topics are of such importance that they should be retained on the list and further discussed during the balance of the meeting. This listing is shown in Appendix III.

The group then began to classify these issues into categories. The four categories selected were:

1. External Environment
2. System Issues
3. Process Issues
4. People Issues
5. Other

The group then voted on the most important issues within each category which need to be researched, documented and communicated to the executives and managers of the process industry segments. Each of these will be discussed briefly in the body of this article.

THE CATEGORIES:

1. External Environment

All topics in this category have to do with the influences on the business which are external to the business, its management team, its products and its processes. It is logical that the management team of the process manufacturer has little influence over such issues, but instead must anticipate them, plan to accommodate them, and finally react to such influences to maintain the viability of the company.

2. Process Issues

These issues are those centering around the strategies, methods, initiatives and directions of the individual company or the process industry in general. It is logical that the individual management team has direct influence, if not complete control, over such issues. The individual management team may change some of their strategies in response to or in anticipation of changes in the External Environment, or these strategies may be in response to the individual company's competition and position in the market.

3. System Issues

These issues have to do with the tools available to the management team of the process company. The tools may be the process technology itself, or they may be software and hardware used to plan, control and measure the various facets of the business.

4. People Issues

These issues may or may not be unique to the process industry itself, but they can be one of the critical factors in the success of the business. Training, empowerment, and incentives are some of the examples of the people issues which the management team must recognize, set strategies for, and put into place within their individual companies.

5. Other Issues

These issues defied classification by the group. However, the group felt that the issues were significant and needed to be stated clearly as requiring attention.

THE PROCESS INDUSTRY:

It should be noted that there are different factions within the process industry itself. There are batching operations and continuous operations, for example. These differences will dictate the priority of the Process Issues which an individual company will set. There is another way of viewing the differences within the process industry. This view has to do with the immediate customer for the product produced at a plant. If the customer is the consumer themselves, there are certainly different external pressures on the individual company, than if the customer is another manufacturer. Pricing, packaging, specification control are just three major areas of difference which are driven by the customer, rather than by the processing technique, ie., batch versus continuous flow.

In the discussion of the major issues within each category the reader should remember that the group represented the gambit in types of processing and types of customer. The reader, therefore, must take from this listing the issues which they believe are the most pressing for their individual company.

Note: The letter in front of each issue within the category corresponds to the letter given to the topic from the initial listing found in Appendix I. The sequence represents the particular priority within each section set by the group.

-----+
1. External Environment: |
-----+

- D. Customer Expectations are rising and changing
- CC. Hazardous Goods
 - Obsolescence
 - Government Regulations
 - International tariffs/protection
- F. Environmental Risk
 - Compliance
 - Public Relations
- J. Demographics
 - Slowing Birth Rate
 - Relative to Workforce
- X. Federal Trade Commission
 - co-operation versus competition
- AA. Is there a move in Process Industry for Industrial Organizations to provide to consumer markets
 - Divergence

Customer expectations is probably part of the driver for each company to be more productive in their own operations. They pass those requirements on to their suppliers. Of course, the consumer is always demanding more and better and different products and services. This clearly places pressure on specific types of companies. Those companies who deal with these customer (consumer) pressures try to look to their suppliers to provide more consistent products and services so that the consumer goods supplier can be productive.

In this section we see clearly the different focus of different segments of the Process Industry. The chemical, plastics, paper, metals, rubber type industries are focussing on Hazardous Regulatory Compliance. The food, consumer goods and pharmaceutical industries are focussing in on Quality Regulatory Compliance. Both have a pressing need to manage these external requirements efficiently.

This is the first place that the writer has seen the two points of view about demographics put together. Usually we hear about the changing demographics causing the shift in demands for products and services. But the changing demographics also changes the available workforce. Who will be available as production workers? What will their educational and technical skills backgrounds be? Will they match the demands of the new technological methods of production?

The role of government is typically explained in terms of the requirements placed upon the company for regulatory compliance. Here we see a more basic question: will the government be our enemy or our ally? This question is sometimes raised by corporations within the discrete manufacturing sector. Here, however, we have process manufacturing people asking the same question.

-----+
2. System: |
-----+

- Y. Lack of Confidence in Software Tools Because of Misuse
 - Scheduling Tools: are they appropriate for the PI?
- FF. Cost Accounting
 - Traditional versus User/Objective Oriented
- Q. Exploiting Global Manufacturing Capabilities
- BB. Outsourcing
 - Co-Packing
 - Tolls and Exchanges
- S. Is Automation an Answer for Process Industry?

The topics in this section cover a lot of territory. Global manufacturing is one of the tempting topics: tempting because the promise of returns is so great, but daunting as well because of the complexity of running a truly global operation. The management of a processing company locally can be complex enough as witnessed by the topic areas of co-packing and, the equivalent for chemical manufacturers, tolls and exchanges.

The applicability of software seemed to be an ongoing concern, whether from the proper use of specific functional software (scheduling packages) to the whole issue of automation in general, the use of systems loomed large as a topic area which needs research.

Cost Accounting was listed as a separate functional area which needed to be reviewed. It is interesting that the term Activity Based Costing was not used, but rather the phrase user/objective oriented costing.

-----+
3. Process: |
-----+

- K. Quality
 - How to Engineer in Quality
 - How to Integrate Total Quality Throughout the Total Organization
- U. Horizontal Integration of the Business
 - Cross-functional
 - Alignment of Purpose
 - Measurement
- G. Capacity Utilization
- I. How to Meet the Business Drivers
 - Inflexible Manufacturing Facilities
 - Managing the Public Relations
- H. How to Improve Rather than Replace Existing Resources
- W. Final Distribution
- O. Plant Location
 - Relocation and Expansion in light of Anticipated Growth and Demographics
- V. Containerization of Products

The integration of functional areas was considered a process problem by the group, rather than a sub-topic of the use of software and automation in facilitating integration. Performance measurement was also separated out from cost accounting in section two. Integration was seen from two sides: quality and cross-functional integration presumably with the 'alignment of purpose' meaning the setting up of the organization so that each functional area supports the overall strategy of the corporation.

The use, placement and refurbishment of the plant and facilities ranked high within the group. It is possible that topics G., I., H., W., and O. are really related, although that will be for further study to prove. The containerization of products may be a topic which is of prime importance because of the pressure on reducing distribution times to the customer.

-----+
4. People: |
-----+

- EE. People Directly Responsible for Producing the Product
 - Work Teams Responsible for a Batch
 - Empowerment
- B. Work Certification
 - Putting Knowledge Further down in the Organization
- GG. Process Structure Relative to Management/Decision Making
- HH. Developing Product Teams
 - Cross-functional groups set the Strategy and Manage the Product
- JJ. CEO Background
 - Finance versus Marketing versus Manufacturing

There are two themes here which seem distinctly separate -- although that generalization will be subject to debate! The first four topics talk about the education, training and organization of the individuals and work teams within the process company. There is possibly a reflection of the slimming of the workforce within the process industry, particularly chemical manufacturers, over the last decade. There may also be a reflection of the elimination of some layers of management which is generally true in American manufacturing in the late 80's. Clearly the focus group is implying that the organization and training of those workers left in the company has lagged and needs attention.

The question of the CEO background reminds us all that the personality and culture of a company is set by the person at the top. It is unclear whether the group feels that there has been a shift in the type of CEO's running process companies or that there needs to be a shift. This would make for an interesting study: is there a correlation between the perceived functional inclination of the company and the background of the CEO? has there been a shift in the CEO background within the process industry in general? within specific segments of the process industry, eg., food, chemical, consumer goods, etc.?

-----+
5. Others: |
-----+

- KK. Process Industry Standards and Directions
 - Vocabulary
 - Model/Framework
 - PI Representation at APICS
 - PI Self-Perception
 - "Hot" Issue
 - Lack of Leadership
- L. Integration of the Supply Chain
 - Singin' the Tune
- DD. Productivity Mix
 - Systems
 - Plant & Equipment
 - Methods
 - Training
 - Emphasis is More Even
- N. Customer Driven Research & Development
- P. Accelerating Rate of Change
 - Hard & Soft Technology
 - Cultural Changes such as Quality Empowerment
- II. Day-to-Day Decisions Based on Long-Term View
 - Forecasts have more Impact
- R. Shifting Total Business Strategies for Process Industries
 - "Memo Mentality"

Change and dealing with that change seemed to be the theme of the "Other" section. Shifts in the influence of the customer in research & development, in decision making with the eye to the long term rather than the short term, changing strategies, shifting emphasis to the supply chain and the total picture of productivity implies that the group felt that there were significant pressures which were causing such shifts -- as well as a change in the rate of change.

It is interesting that the group felt that a standard vocabulary was essential. One of the frustrations of the group in finding time to develop the planning framework which was the original goal of the meeting, was the time which was needed to establish a working vocabulary between all parties to ensure communications (and therefore allow the prioritization) of the ideas.

WHAT SHOULD THE PROCESS INDUSTRY-SIG DELIVER?

As the reader can see, there are far more issues than can be dealt with in a short period of time. There are also some issues which an organization such as APICS/PI-SIG is not qualified to deal with since the issues are either (1) solely up to the individual company to determine, or are (2) simply outside the expertise of APICS/PI-SIG.

An example of the first would be the issue of research and development (Other/N). Should the company provide customer driven research and development services, and if so, what form should this take: customers are surveyed through market research techniques to determine what products and services they need, or the company actually brings individual customers into the organization's R&D group to jointly develop products for a specific customer's specific end use.

An example of the second would be determining the best organizational chart relative to the management and decisions making of the organization (People/GG).

With this in mind the group was asked to determine what deliverables the PI-SIG within APICS should work on. The following is the list as developed by the group. There is no documented priority from the meeting. The PI-SIG Steering Committee will have to determine that priority.

1. Vocabulary -- Process Industry Specific
 - Update the Thesaurus
 - Promote the Thesaurus more widely
2. Model/Framework
 - Matrix of Four Industry Types
3. Process Industry Educational Materials for Schools
 - Bibliography
 - Content Direction
 - Simulations
4. Strategies to Target Specific CEO's
 - Marketing Plan
 - Goals
5. Operator Certification Resources
6. Benchmarking
 - Published
 - Distributed to CEO's
7. Materials Describing Tools
 - Case Studies Using Them

Appendix I: Participants in the Focus Study Meeting

Appendix II: List of All Topics Suggested for Discussion

Appendix III: Final List for Discussion

Appendix IV: List of Topics By Group (with weighting)

Appendix V: Suggested Deliverables from the Process
Industry-Specific Industry Group

APPENDIX I

APICS Process Industry Focus Group Meeting
October 8, 1991
Participants List

Bob Ernst
Manager, Production Planning and Optimization
Occidental Chemical
P. O. Box 27702
Houston, TX 77227-7702
713-623-7781
Industry Description: Petrochemical

Joe Faccenda
Manager, Production Planning
DuPont Engineering
P. O. Box 6090 - Lourviers Building
Newark, DE 19714
302-366-4900
Industry Description: Specialty Chemicals

Bruce Gordon
Director, Computer Integrated Enterprise
BF Goodrich Geon Vinyl Division
6100 Oak Tree Boulevard
Independence, OH 44131
216-447-6598
Industry Description: Batch Chemical/Plastics

Scott Miller
V. P. Manufacturing
Matrix Essentials
30601 Carter Street
Solon, OH 44139
216-248-3700
Industry Description: Hair Care Products

Ed Schuster
Supervisor Production and Inventory Analysis
Welch's
2 South Portage Street
Westfield, NY 14787
716-326-5188
Industry Description: Food

APPENDIX I - Con't

Facilitator:

Matt Vosmik
Arthur Anderson Center for Professional Education
1405 North Fifth Avenue
St. Charles, IL 60174

Other Attendees:

John Hanger, CPIM
APICS Process Industry SIG Chairman
Anderson Consulting
1717 East Ninth Street
Cleveland, OH 44114
216-781-2140

Scott Saunders, CPIM
Former PI SIG Chairman
Director, Transportation and Distribution Services
Sherwin-Williams Company
101 Prospect Avenue
Cleveland, OH 44115
216-566-1864

Olin Thompson
(Proxy for Susan Connor, PI-SIG Steering Committee
Member)
Senior Vice President
Marcam Corporation
95 Wells Avenue
Newton, MA 02159
617-965-0220

APPENDIX II

INITIAL LIST OF ISSUES FACING PROCESS INDUSTRY

- A. Lack of Leadership
- B. Work Certification - Knowledge further down org.
- C. What's the next tool/model for process industry for PI to focus on?
- D. Customer expectations are rising and changing
- E. Lack of a standardized vocabulary and model for PI
- F. Environmental Risk - compliance, PR
- G. Capacity utilization
- H. How to improve rather than replace existing resources
- I. How to meet the business drivers
 - Inflexible manufacturing facilities
 - Managing PR
- J. Demographics
 - Slowing birth rate
 - Relative to workforce
- K. Quality
 - How to engineer quality in PI
 - How to integrate total quality throughout org.
- L. Integration of the supply chain
 - Singin' the tune
- M. Process Industry vs. APICS
 - PI isn't well represented
 - Self-perception of uniqueness
- N. Customer driven research and development
- O. Plant location
 - Relocation & expansion considering anticipated growth and demographics
- P. Accelerated rate of change
 - Hard & Soft technology
 - Culture-quality empowerment
- Q. Exploiting Global Manufacturing Capabilities
- R. Shifting total business strategies for PI
 - "Memo mentality"
- S. Is automation an answer for Process I
- T. Scheduling tools appropriate for PI
- U. Horizontal integration of the business
 - Cross functional
 - Alignment of purpose
 - Measurement
- V. Consideration of products
- W. Final distribution
- X. FTC., Cooperation vs. competition

APPENDIX II - Con't

- Y. Lack of confidence in software tools because of misuse
 - Schedule tools -- appropriate for PI?
- AA. Is there a move in PI for industrial organizations to provide to consumer markets -- Divergence
- BB. Outsourcing/Co.
 - Packing/tools & exchanges
- CC. Hazardous Goods
 - Obsolescence
 - Gov't Regs.
 - Int'l tariffs/protection
- DD. Productivity Mix
 - Systems
 - Plant & Equipment
 - Methods
 - Training
 - Emphasis is more even
- EE. People being directly responsible for producing the product - Work teams responsible for a batch
 - Empowerment
- FF. Cost Accounting
 - Traditional vs. user/objective oriented
- GG. Process structure relative to management/decision making
- HH. Developing product teams.
 - Cross functional groups set the strategy & manage the product.
 - Day to Day decisions are based on a long term view
 - Forecasts have more impact
- JJ. CEO background
 - Finance/Marketing vs. Manufacturing, etc.

APPENDIX III

FINAL LIST OF ISSUES FACING PROCESS INDUSTRY

- B. Worker Certification - Knowledge further down org.
- C. Customer expectations are rising and changing
- F. Environmental risk - compliance, PR
- G. Capacity utilization
- H. How to improve rather than replace existing resources
- I. How to meet the business drivers
 - Inflexible manufacturing facilities
 - Managing PR
- J. Demographics
 - Slowing birth rate
 - Relative to workforce
- K. 1. Quality
 - How to engineer in quality in PI2. How to integrate total quality throughout org.
- L. Integration of the supply chain
- N. Customer Driven research and development
- O. Plant location
 - Relocation & expansion considering anticipated growth and demographics
- P. Accelerating rate of change
 - Hard & soft technology
 - Culture -- Quality empowerment
- Q. Exploiting Global Manufacturing Capabilities
- R. Shifting total business strategies for IP
 - "Memo Mentality"
- S. Is automation an answer for Process I.
- U. Horizontal integration of the business
 - cross functional
 - alignment of purpose
 - measurement
- V. Containerization of Products
- W. Final Distribution
- X. FTC., cooperation vs. competition
- Y. Lack of confidence in software tools because of misuse
 - Scheduling tools -- appropriate for PI?
- AA. Is there a move in PI for industrial organizations to provide to consumer markets -- Divergence
- BB. Outsourcing/Co. Packing tools & exchanges
- CC. Hazardous Goods
 - Obsolescence
 - Gov't Regs
 - Int'l tariffs/protection

APPENDIX III - CON'T

- DD. Productivity Mix
 - Systems
 - Plant & Equipment
 - Methods
 - Training
 - Emphasis is more even

- EE. People being directly responsible for producing the product
 - Work teams responsible for a batch
 - Empowerment
- FF. Cost Accounting
 - Traditional vs. user/objective oriented
- GG. Process structure relative to management/decision making
- HH. Developing Product Teams
 - Cross function groups set the strategy & manage the product.
- II. Day to day decisions are based on a long term view
 - Forecasts have more impact
- JJ. CEO Background
 - Finance/marketing vs. manufacturing, etc.
- KK. PI standards & directions
 - Vocabulary
 - Model/framework
 - PI representation in APICS
 - PI self-perception
 - "Hot" issue
 - Lack of leadership

PRIORITIZED ISSUES BY CATEGORY

Points Item text

External Environment

- 38 D. Customer expectations are rising and changing
- 38 CC. Hazardous Goods
 - Obsolescence
 - Gov't Regs
 - Int'l tariffs/protection
- 36 F. Environmental Risk - compliance, PR
- 22 J. Demographics
 - Slowing birth rate
 - Relative to workforce
- 18 X. FTC. Cooperation vs. competition
- 12 AA. Is there a move in PI for industrial organizations to provide to consumer markets-- Divergence

System

- 28 Y. Lack of confidence in software tools because of misuse
 - Scheduling tools--appropriate for PI?
- 26 FF. Cost Accounting
 - Traditional vs. user/objective oriented
- 24 Q. Exploiting global manufacturing capabilities
- 20 BB. Outsourcing/Co. Packing/tools & exchanges
- 16 S. Is automation an answer for Process I

Process

- 38 K. Quality
 - How to engineer in quality in PI
 - How to integrate total quality throughout org.
- 36 U. Horizontal integration of the business
 - cross functional
 - alignment of purpose
 - measurement
- 32 G. Capacity utilization
- 28 I. How to meet the business drivers
 - Inflexible manufacturing facilities
 - Managing PR
- 24 H. How to improve rather than replace existing resources
- 22 W. Final distribution
- 16 O. Plant location
 - Relocation & expansion considering anticipated growth and demographics
- 18 V. Containerization of products

People

- 34 EE. People being directly responsible for producing the product
 - Work teams responsible for a batch
 - Empowerment
- 26 B. Worker certification - knowledge further down org.
- 20 GG. Process structure relative to management/decision making
- 18 HH. Developing Product teams
 - Cross functional groups set the strategy & manage the product.
- 10 JJ. CEO Background
 - Finance/marketing vs. Manufacturing, etc.

Others

- 39 KK. PI Standards & Directions
 - Vocabulary
 - Model/framework
 - PI representation in APICS
 - PI self-perception
 - "Hot" issue
 - Lack of leadership
- 32 L. Integration of the Supply Chain
 - Singin' the tune
- 30 DD. Productivity Mix
 - Systems
 - Plant & equipment
 - Methods
 - Training
 - Emphasis is more even
- 27 N. Customer driven research and development
- 26 P. Accelerating rate of change
 - Hard & soft technology
 - Culture -- Quality empowerment
- 21 II. Day to day decisions are based on long term view
 - Forecasts have more impact
- 16 R. Shifting total business strategies for PI
 - "Memo mentality"