

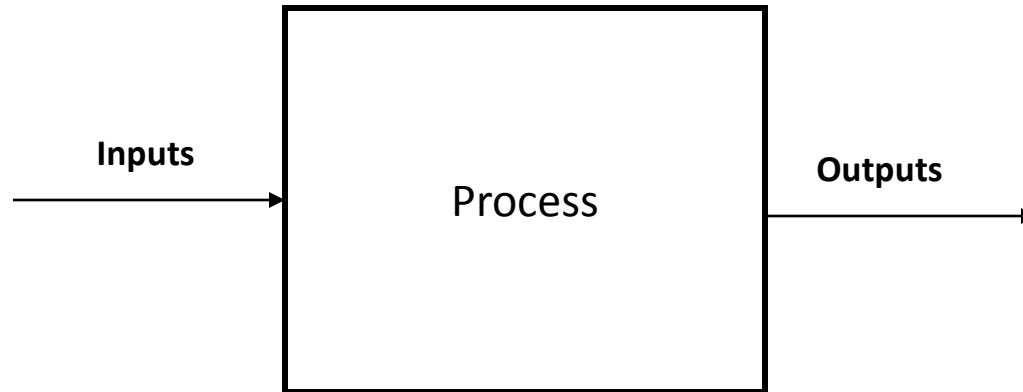
ASQ North Jersey Section 304
Education Committee
Quality Management Systems (QMS)
NJIT

ASQ Agenda

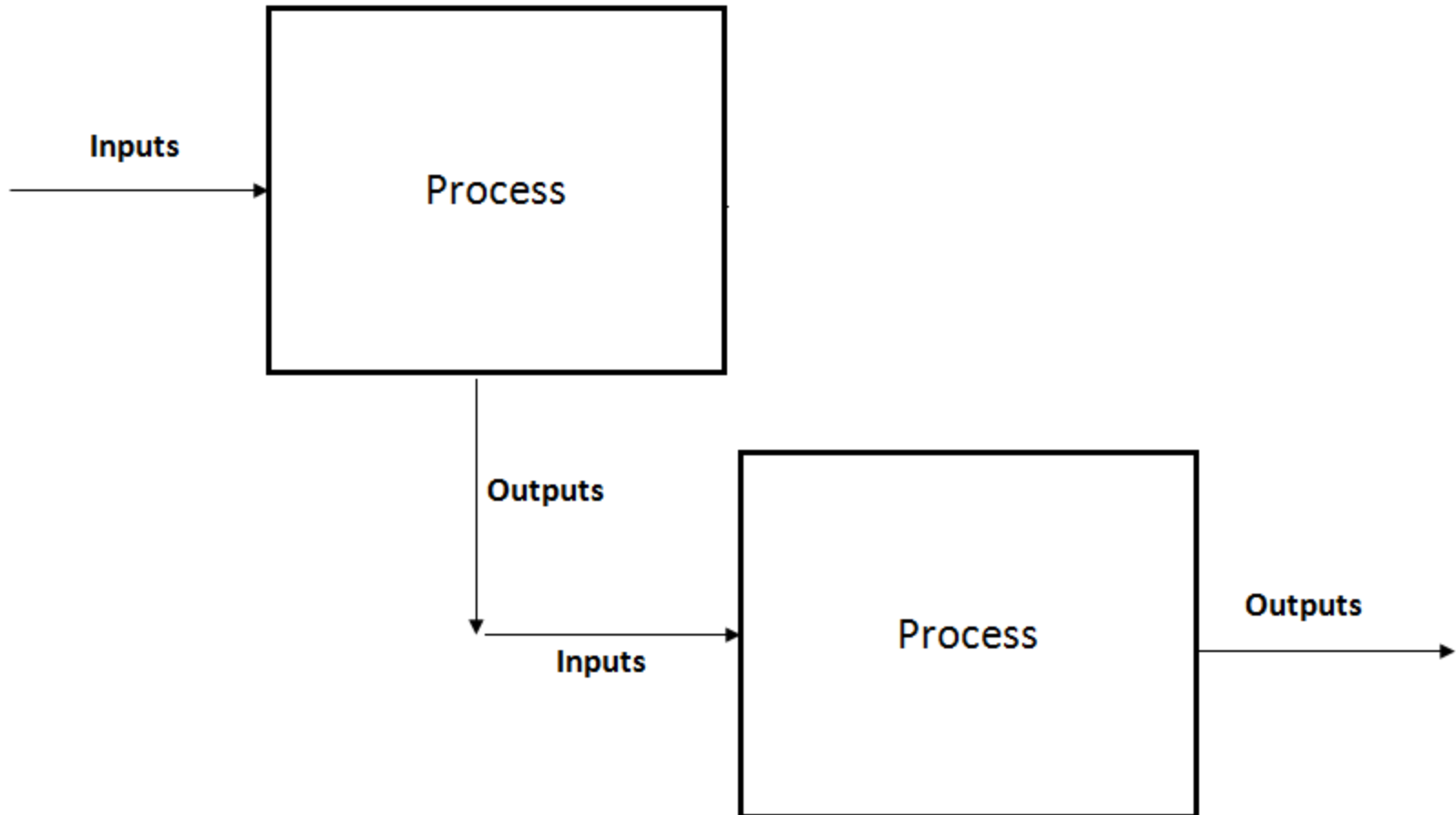
- Process defined & example
- Distributions
- Quality, Management, & Systems defined
- QMS – elements
- ISO 9001
- ASQ - Certifications & SQC

Process defined ?

Process defined



Process defined



Interaction: the outputs from one process become the inputs to the next process.

Process example

- Pea plant: *Pisum sativum*
- inputs: seed / water / sunlight / soil
- outputs: stem / root / leaf / flower / pod / pea

Process example



Pea plant

Process example



Pea plant

Process information

- routine processes over time produces a huge number of individual outputs



Process information

- large number of individual peas

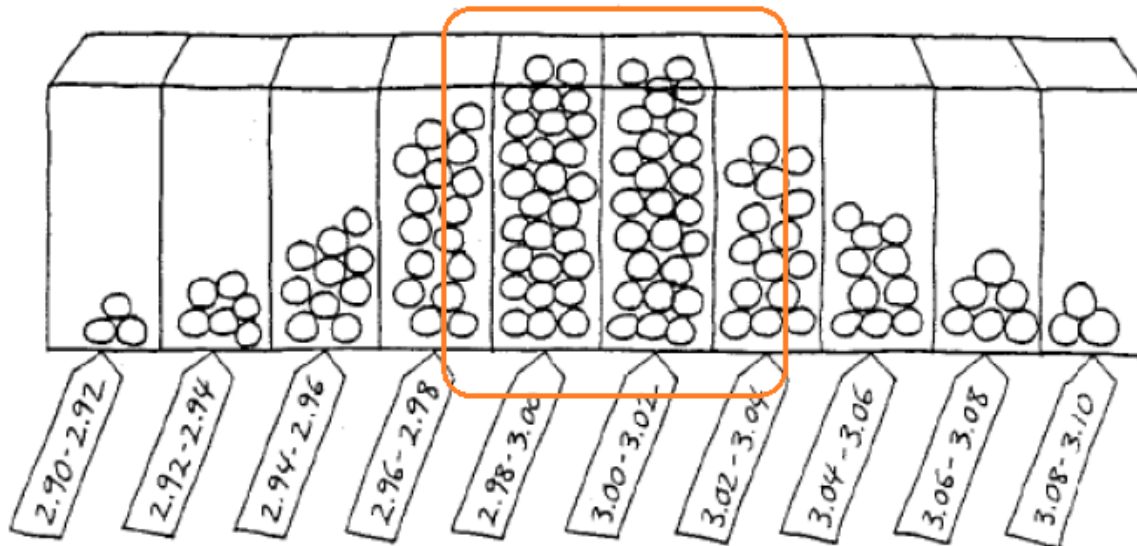


Process Output

- DISTRIBUTIONS

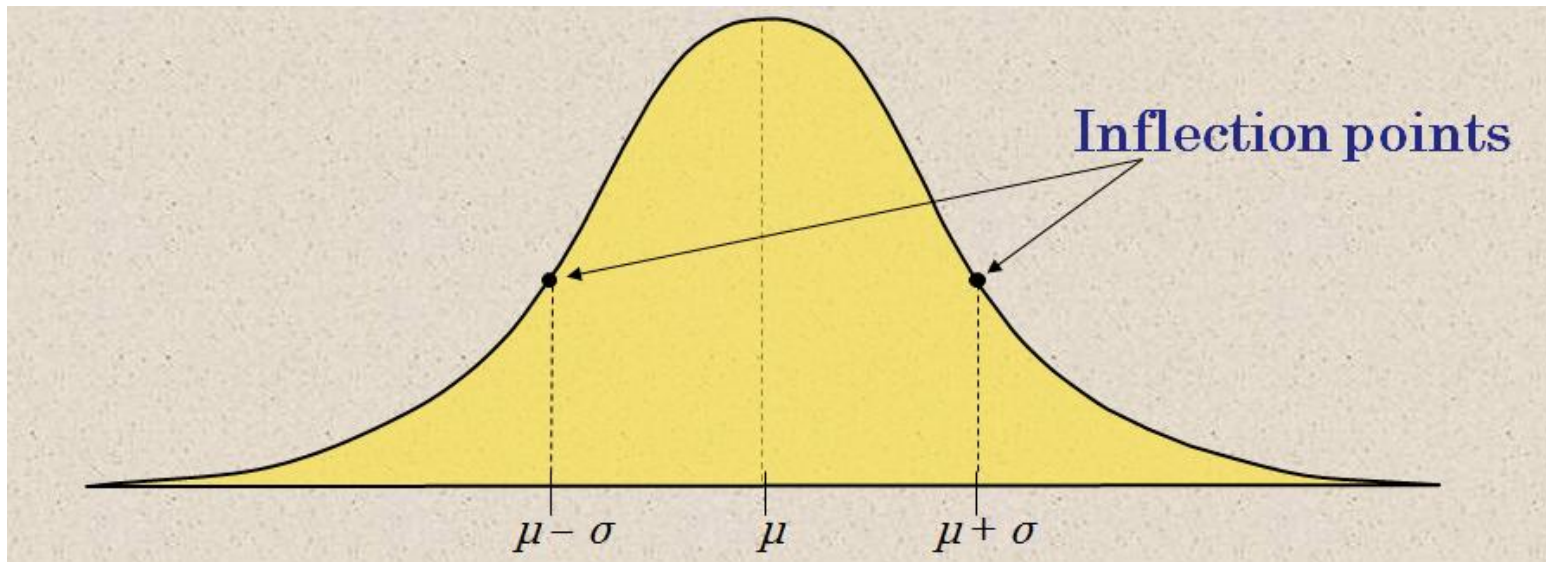
Distributions

- **Central tendency**
 - mean (average) - μ
 - median (middle)
 - mode (most frequent)



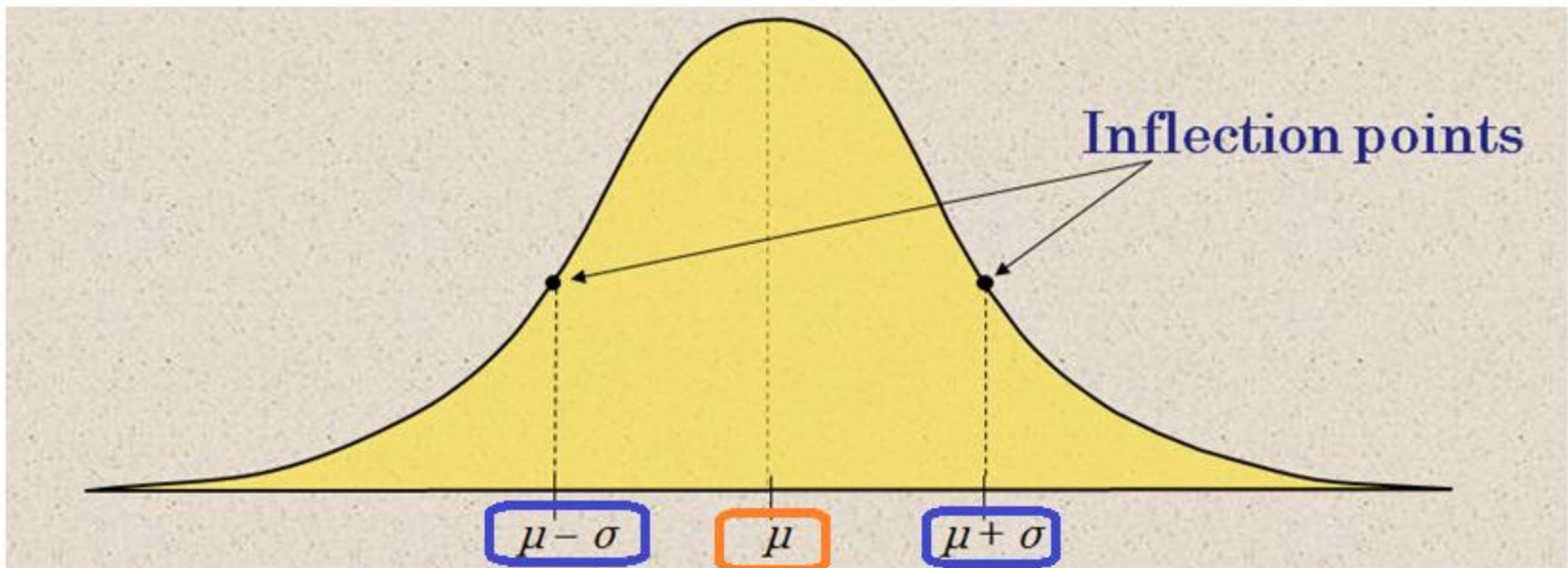
Distributions

- **Dispersion** (variation)
 - range (maximum minus minimum)
 - standard deviation – σ
 - variance – σ^2



Distributions

- Central tendency – accuracy
- Dispersion - precision



Distributions

- Dispersion – precision
- Central tendency – accuracy



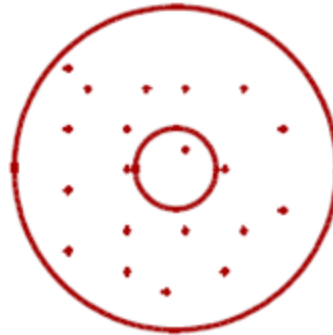
**Precise, but
not accurate**

Distributions

- Dispersion – precision
- Central tendency – accuracy



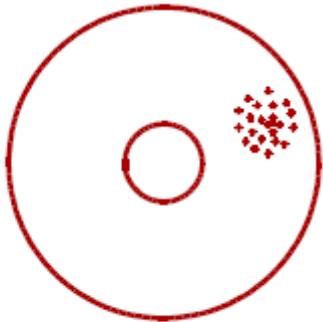
**Precise, but
not accurate**



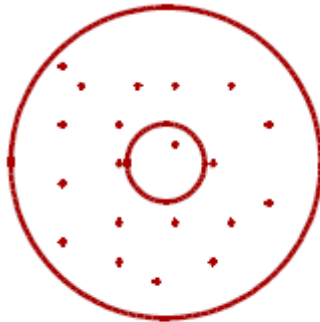
**Accurate, but
not precise**

Distributions

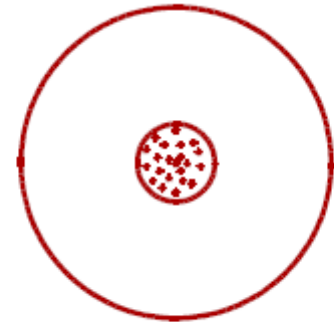
- Dispersion – precision
- Central tendency – accuracy



**Precise, but
not accurate**



**Accurate, but
not precise**



**Accurate and
precise**

QMS

- **Quality Management Systems**

QMS

- **Quality Management Systems**
 - **Quality**
 - **Management**
 - **Systems**

Definition

- ***Quality: ?***

Definition

- ***Quality*: On-target with minimum variation**



**Accurate and
precise**

Definition

- ***Common alternative:***

‘Conformance to requirements’





Quality defined

A

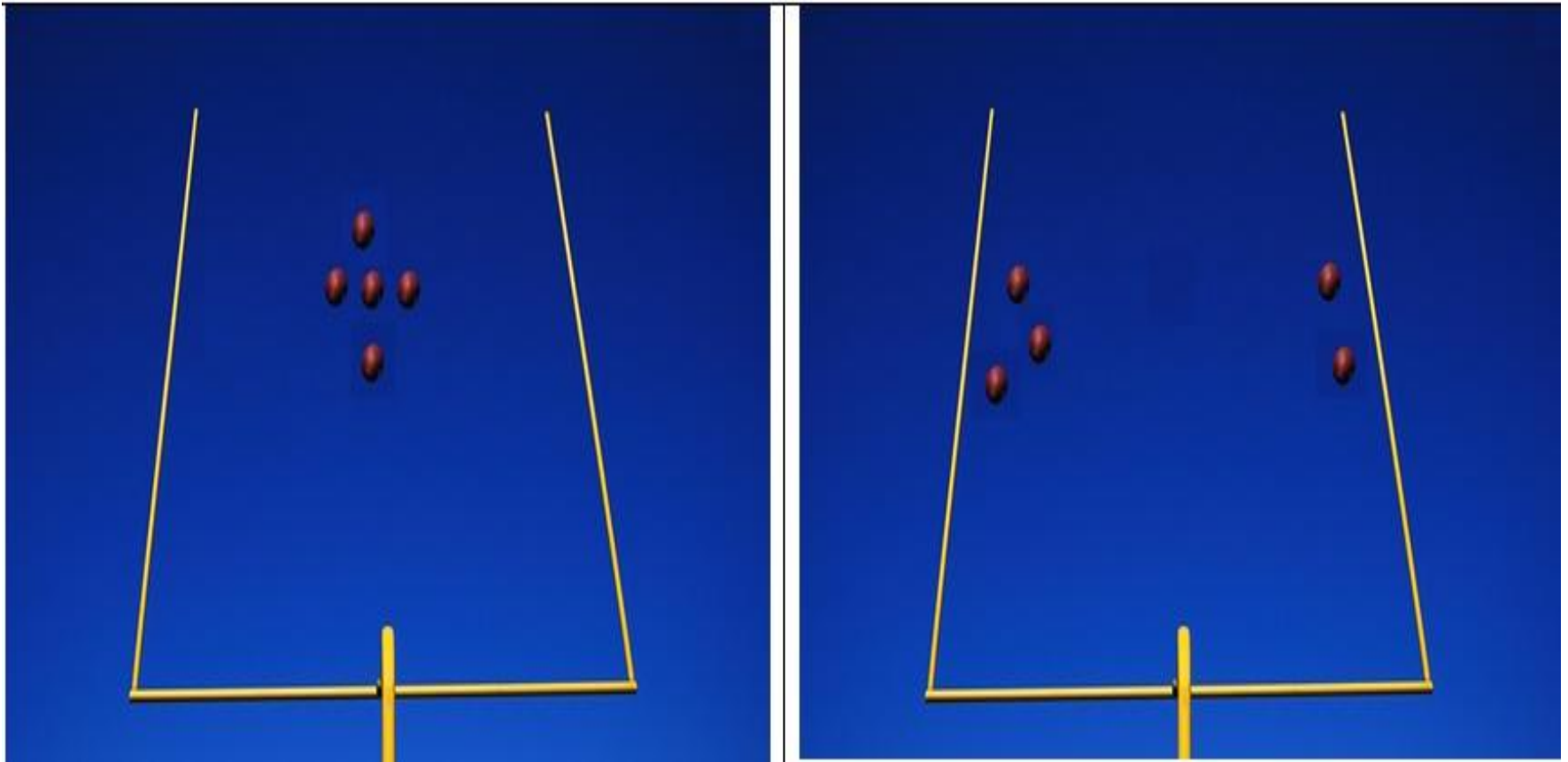


B



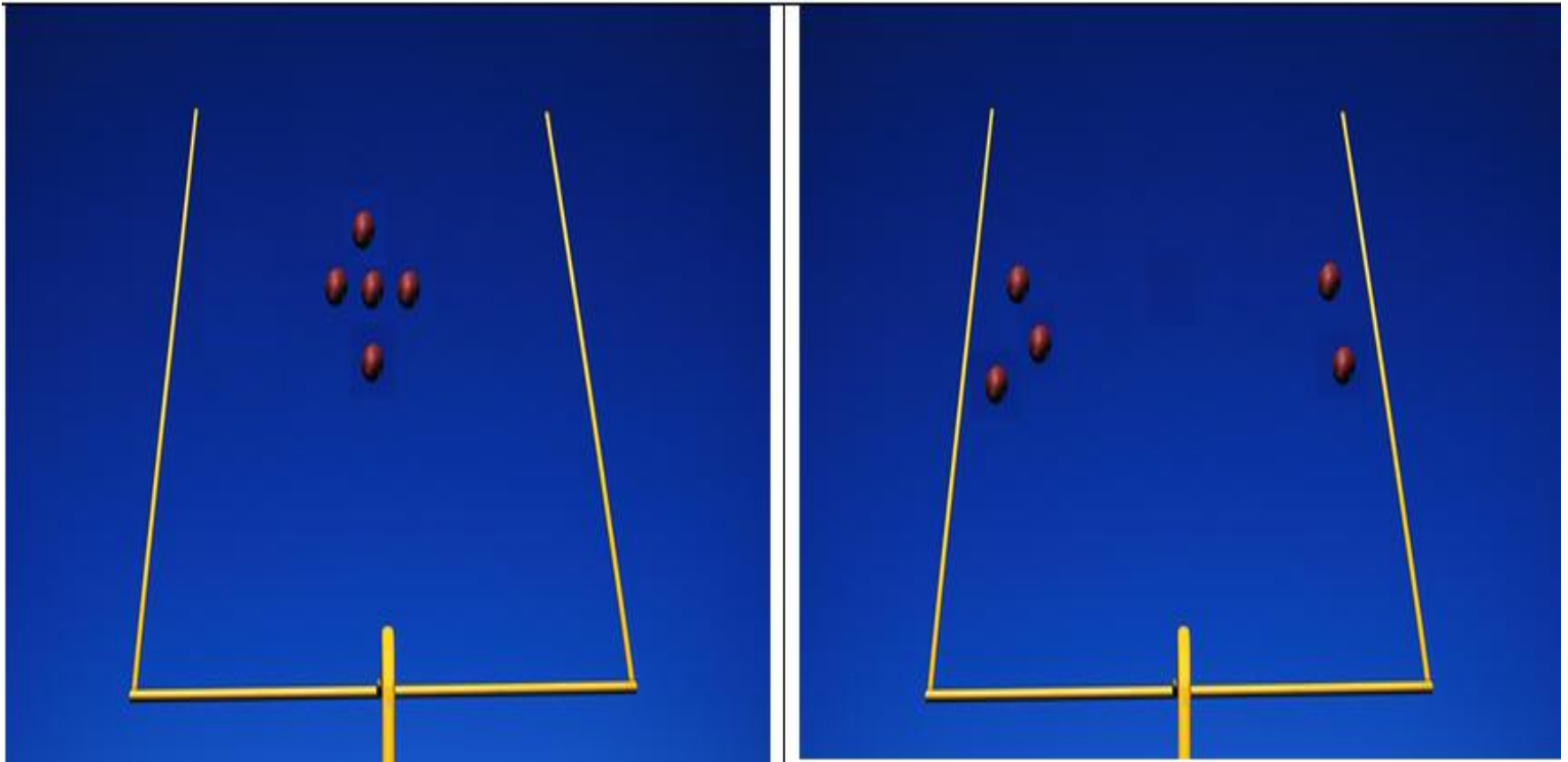
Quality defined:

On-target with minimum variation - best
vs. conformance to requirements - weak



Quality:

On-target with minimum variation



QMS

- **Quality Management Systems**
 - Quality
 - **Management**
 - Systems

Management

- Organizational legacy
- Throughout organization
- Clear communication
- Available resources & information
- Intelligent, efficient, adaptable
- Discipline & desire to challenge status-quo
- Constancy of purpose
- Accomplishment enjoyment

Management

- Organizational legacy
- Throughout organization
- Clear communication
- Available resources & information
- Intelligent, efficient, adaptable
- **Discipline & desire to challenge status-quo**
- Constancy of purpose
- Accomplishment enjoyment

Management

- Conventional wisdom:
“There’s no reason for individuals to have a computer in their home.”
- *Kenneth Olsen, president & founder of Digital Equipment Corp. 1977*

QMS

- **Quality Management Systems**
 - Quality
 - Management
 - **Systems**

System

- A set of processes all working together to achieve a common objective.

System

- What is the opposite of a system?

System

- What is the opposite of a system?
 - Chaos?
 - Anarchy?

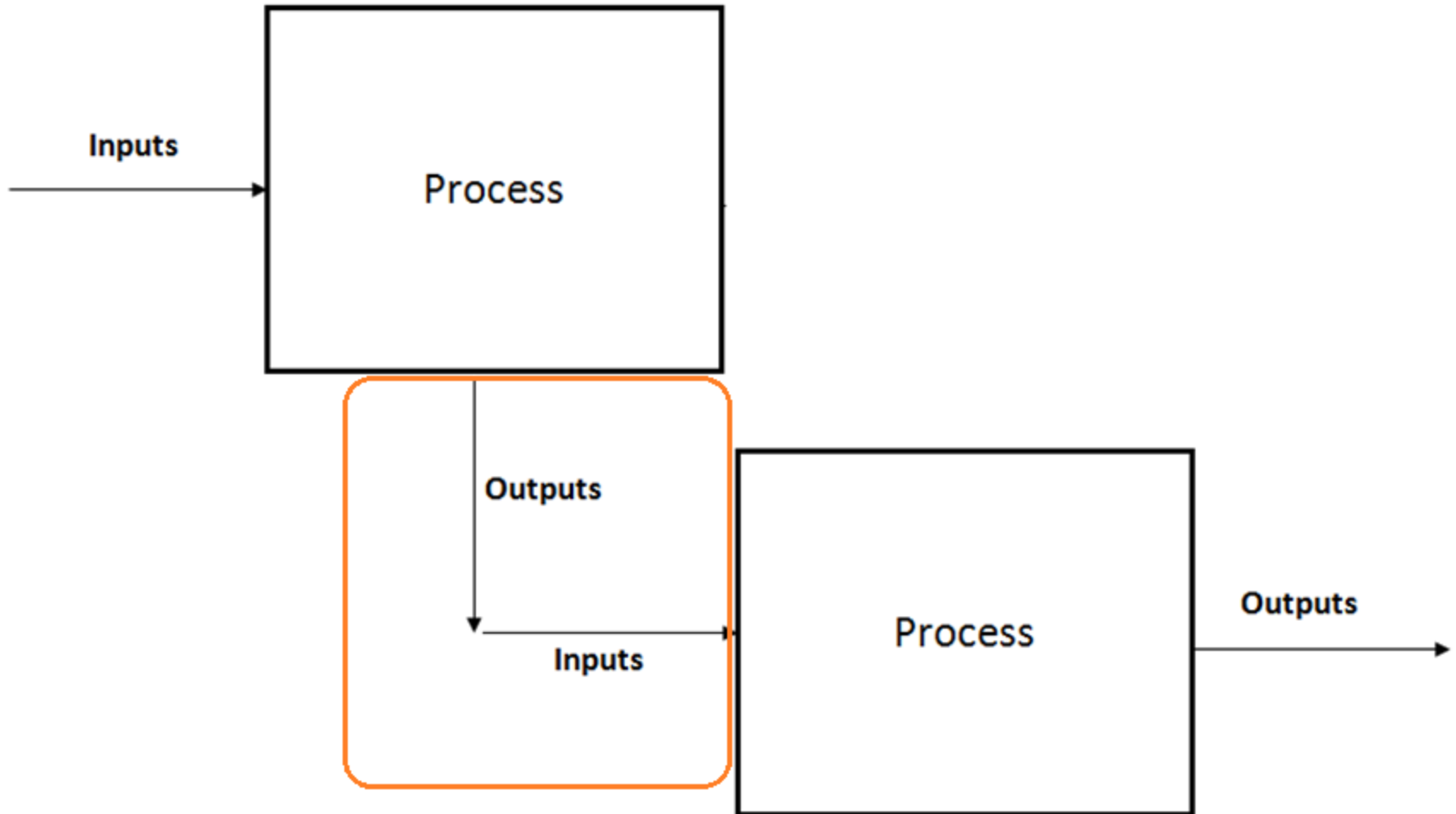
System

- What is the opposite of a system?

-An individual

no interactions & no legacy

Processes in a System



Interaction: the outputs from one process become the inputs to the next process.

Systems

- vegetable farm
 - processes – ex. pea plant
 - human resource – laborer/driver/clerical
 - equipment – irrigation/harvest/transportation
 - materials – fertilizer/lime/mulch/wood/brick
 - documentation – instruction/invoice/receipt

Common QMS Elements

- Leadership
- Customer Focus
- Quality Objectives and Planning to Achieve Them
- Operational Planning and Control
- Control of Documented Information
- Support: People & Competence Awareness
- Internal Audits
- Corrective Action & Actions to Address Risk
- Performance Evaluation
- Improvement

Common QMS Elements

Football metaphor –

- Competent people – camp, preseason, weekly
- Documentation – the playbook
- Planning– scouting, film, new plays
- Operational planning – draft, trades, free agency
- Quality objective – winning team

QMS Excellence



**INTERNATIONAL
STANDARD**

**ISO
9001**

Fourth edition
2008-11-15

**Quality management systems —
Requirements**

Systèmes de management de la qualité — Exigences

OCTOBER 2015

AMERICAN NATIONAL STANDARD

ASQ/ANSI/ISO 9001:2015

Quality management systems – Requirements

This standard is an identical adoption of ISO 9001:2015



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CERTIFICATE SCHEDULE

**Ashland Specialty Ingredients
North America & Europe**

Locations:

Aqualon Company
500 Hercules Road
Wilmington, Delaware 19808, USA

Aqualon Company
500 Hercules Road, Building 8159
Wilmington, Delaware 19808, USA

Aqualon Company
50 South Minnisink Avenue
Parlin, New Jersey 08859, USA

Aqualon Company
1111 Hercules Road
Hopewell, Virginia 23860, USA

Activities:

Management of Ashland Specialty
Ingredients Division North American and
European Quality Management System
Operations and Processes Including
Logistics/Supply Chain, Procurement,
Sales/Marketing and Design and
Development.

Manufacture of Excipients for Tablet
Coating used in Pharmaceutical and
Neutraceutical Industries.

Manufacture of Hydroxyethyl Cellulose.

Manufacture of Sodium Carboxymethyl
Cellulose, Hydroxyethyl Cellulose,
Hydroxypropyl Cellulose, Ethyl Cellulose,
and Various Fluidized Polymer Systems.

Page 1 of 4



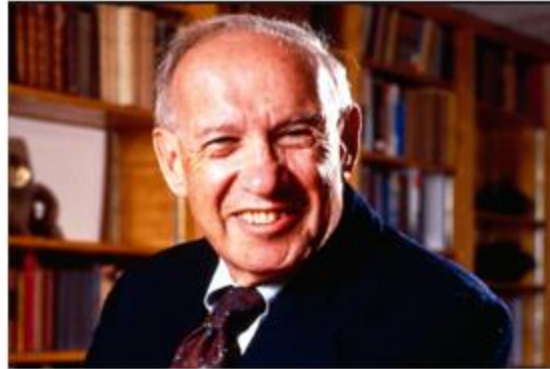
Approval Certificate No: UQA 0111605

This document is subject to the provision on the reverse
1330 Enclave Parkway, Suite 200, Houston, Texas 77077, USA

This approval is carried out in accordance with the LRQA assessment and certification procedures and monitored by LRQA.
May 2016 12

QMS Essential

- *Peter F. Drucker*



Peter Drucker

19-Nov-1909 to 11-Nov-2005

“The only things that evolve by themselves in an organization are:

disorder, friction, & malperformance!”

Entropy alone at work!



Case Study – ASI Plant



The image features a map of Alabama with several callout boxes. In the top left, a callout box contains the NASA logo, an aerial photograph of a test area, and an agency overview table. In the top right, a callout box provides the address and contact information for Redstone Arsenal. In the center, a callout box shows a photograph of two men in suits walking on an airfield, with a caption identifying them as Von Braun and President Kennedy in 1963. The map background shows major cities like Birmingham, Montgomery, and Huntsville, along with interstate highways.

NASA

Aerial view of the test area at MSFC

Agency overview	
Formed	July 1, 1960
Jurisdiction	U.S. federal government
Headquarters	Redstone Arsenal, Alabama 34°39'3"N 86°40'22"W
Agency executive	Patrick Scheuermann, Center Director
Parent agency	NASA
Website	Marshall Space Flight Center

Redstone Arsenal
5298 Redstone Arsenal
Huntsville, Alabama 35808
(256) 876-2151
army.mil

Von Braun with President Kennedy at Redstone Arsenal in 1963

Huntsville, Alabama



Size: 10 acres

Employees: 25

Operating since: 1949

Key capabilities:

- Complex iron processing
- Powder formulation and blending

Primary products:

- Nutritional iron supplements
- Ferronyl™ iron supplement
- Micropowder™ iron supplement
- Iron pentacarbonyl

Case Study – ASI product

ASHLAND.

Ashland Specialty Ingredients

www.asi

8145 Blazer Drive, Wilmington, DE 19808
Tel: (302) 594-5000

Sales Specifications

Report Id : WH0294

Ferronyl Iron

Chemical Description:

Iron Powder

Specifications:

Appearance @ 25 deg. C (Test 01) - Uniform Powder	Pass
Color (Test 01) - Grey	Pass
Identification Test (FTA0003)	Pass
Apparent Density (g/cm ³ , FTW1092)	$\geq 1.5 - \leq 2.5$
% On 200 Mesh (FTW1080)	≤ 0.0
% On 325Mesh (FTW1080)	≤ 5.0
Median Particle Diameter (microns) (FTW448)	≤ 8.5
%Iron (mass balance, Test 10)	≥ 98.0
% Iron Assay (FTW1095)	≥ 98.0
% Acid Insoluble (FTW1087)	≤ 0.2
ppm Lead (GLI ME-30) PASS equals ≤ 4	Pass
ppm Arsenic (GLI ME-30) PASS equals ≤ 3.0	Pass
ppm Mercury (GLI E80-3) PASS equals ≤ 2	Pass
ppm Ammonia (GLI E7-7)	≤ 120

827825

7/31/2014

Case Study – ASI Tolling process



Freetown, Massachusetts



Size: 70 acres

Employees: 65

Operating since: 1964

Key capabilities:

- Polymerization
- Esterification
- Fine chemicals
- Controlled substances
- Pilot plant

Primary products:

- Aquastyle™ polymers
- Aquaflex™ copolymers
- Styleze™ polymers
- Cerasynt™ emulsifiers
- Ceraphyl™ emollients
- Peroxydone™ polymer complex
- Ganex™ copolymers

ASQ

- HQ Milwaukee WI
- Founded 1946
- The Global Voice of Quality
- Geographic Regions & Sections
- Region 3 CT / NY / NJ
- Section 304 – North Jersey
- Division – discipline focused ~ 22 - ex. FD&C

ASQ Certifications

- ca 1965 -> Certified Quality Engineer
- Based on ASQ BOK – Body-of-Knowledge
- ASQ exam: 100 – 150 questions / open book
- 17 different certifications
- Popular: CQA / CQE / CSSGB / CPGP
- Available: CSS BB & YB / CQI / CQT / CMQ-OE
- Local exam prep available

ASQ Training

- Process Behavior Analysis
- Taguchi Design of Experiments
- New!
Business Process Management Introduction:
An aid to understanding the Process Approach
Requirements in ISO 9001:2015

SAVE THE DATE

39th Spring Quality Conference

Thursday 13-April-2017

Hanover Marriott, Whippany NJ

ASQ North Jersey

- Education Committee

***Our Mission is to help Knowledge Workers
increase their Productivity!***