



Literary Accuracy of Isaiah: Examining the Dead Sea Scrolls from an Industrial Engineering Prospective

Richard Wyatt Ph.D, PE, CPE, CQE

Huntsville, Alabama USA

256.851.0811



Why do this?

“To give glory to the Almighty God”

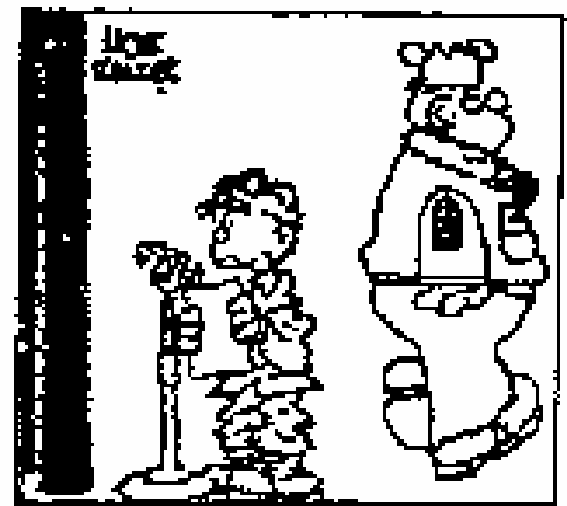
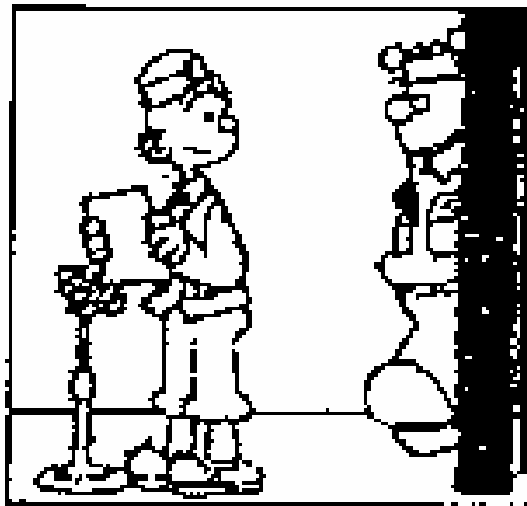
Jesus said “Because you have seen me you have believed; blessed are those who have not seen yet have believed” (John 20:29, NIV)

Human Engineering = Ergonomics

Ergonomics has come a long way!

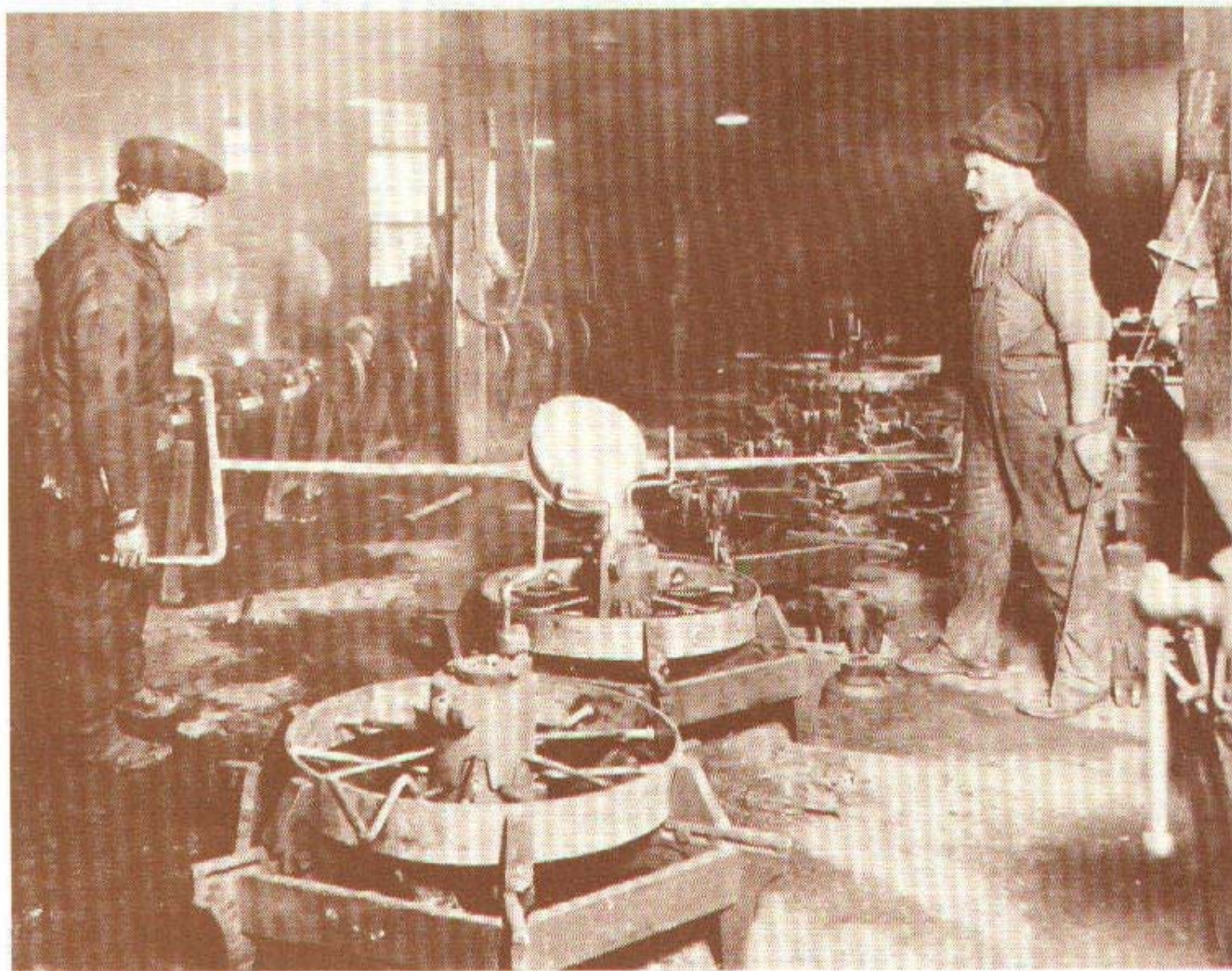


Fitting the Task Correctly?





Canning meat, 1917 (Chicago Historical Society)



*Casting wagon wheel hubs, West Pullman Works, circa 1912
(International Harvester Co.)*

How did Industrial Engineering Start?

- ✖ Frederick Taylor (1878)
- ✖ Frank Gilbreath (1885)
- ✖ Da Vinci (born 1452) allegedly wrote on shoveling dirt (Productivity)
- ✖ Bernardino Ramazini (18th century) – “certain violent and irregular motion and unnatural postures of the body...that serious diseases gradually develop there from” (Ergonomics)



We've moved from manual work to computer work



Scribes are also younger

What Happened in 1947?

- ✦ Dead Sea Scrolls were discovered on the West Bank of the Dead Sea in Palestine, now Israel

- ✦ Web Info.

<http://home.flash.net/~hoselton/deadsea/deadsea.htm#index>



What are the Dead Sea Scrolls?

- ✦ A collection of ancient writings, containing all books of the Old Testament, except Esther.
- ✦ All copies are fragmented, except Isaiah; the "Great Isaiah Scroll is in The Shrine of the Book (Rockefeller Museum) in Jerusalem
- ✦ Other commentary texts were also included that are related, but not included in the canon of the OT.

DSS- How Many Copies of the OT were Found?

Genesis 18 + 3?	Exodus 18	Leviticus 17	Numbers 12	Deuteronomy 31+3?	Joshua 2
Judges 3	Ruth 4	Samuel 4	Kings 3	Chronicles 1	Ezra 1
Nehemiah 1	Esther 0	Job 4	Psalms 39+2?	Proverbs 2	Ecclesiastes 3
Song of Songs 4	Isaiah 22	Jeremiah 6	Lamentations 4	Ezekiel 7	Daniel 9

Twelve Minor Prophets 12+1?

What three OT books were most prevalent at Qunrum?

- ✖ Isaiah (22)
- ✖ Psalms (39)
- ✖ Deuteronomy (31)

What three books are quoted most often in the NT?

What three OT books are quoted most often in the NT?

✦ Isaiah

✦ Psalms

✦ Deuteronomy

Ref: Randall Price *Secrets of the Dead Sea*

Scrolls page 88

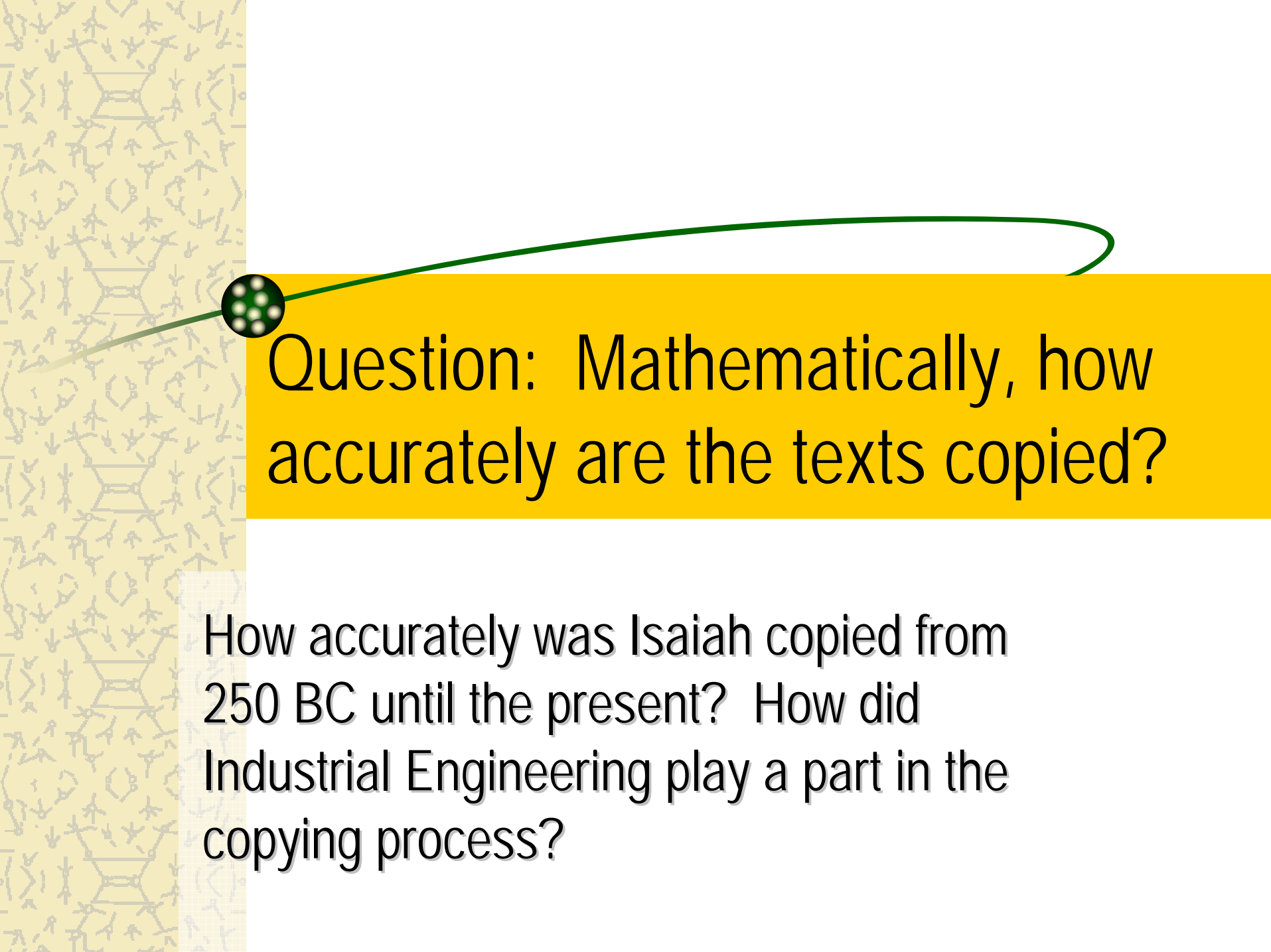


Workstations, Working Conditions

- ✖ No Electric Lights
- ✖ No Eyeglasses
- ✖ No Printing Press
- ✖ No good writing utensils
- ✖ No good workstations
- ✖ No computers with spell checkers
- ✖ No air conditioning & it was (is) very hot there!

What types of quality control were in place in the 1st-4th centuries?

- ✦ Talmud (a collection of ancient Jewish writings outside of Scripture that give details for worship)
- ✦ What was controlled: Dress, ink, writing utensils, work methods, nothing written from memory, many more!
- ✦ Example: If the king walks by and the scribe is copying the Torah, the scribe will not lift his eyes to acknowledge the presence of the king



Question: Mathematically, how accurately are the texts copied?

How accurately was Isaiah copied from 250 BC until the present? How did Industrial Engineering play a part in the copying process?

Why Does Anyone Do Six Sigma?

Six Sigma is a structured, disciplined,
data-driven process for improving
business performance

Six Sigma is all about **improving the bottom line**

Simply, it gets better results than any earlier approach



Six Sigma is...

- ✦ Management Philosophy:

“People Power Using Process Power”

- ✦ Statistical Measure:

Focus on avoiding defects and variation

- Sports teams that eliminate errors and are consistent are better than those that rely on spectacular plays

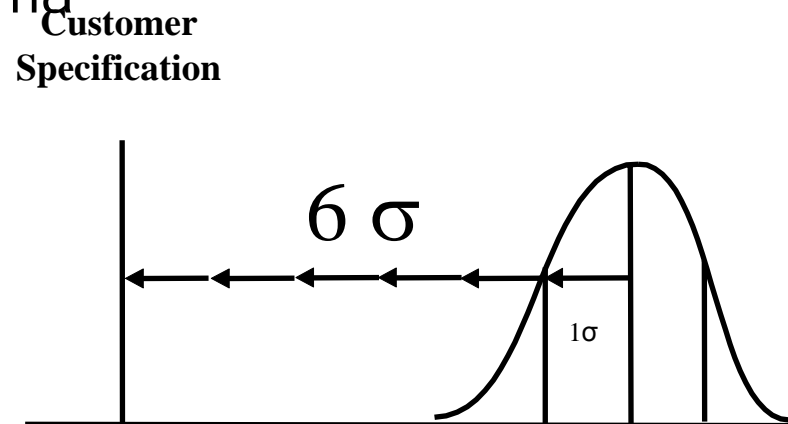
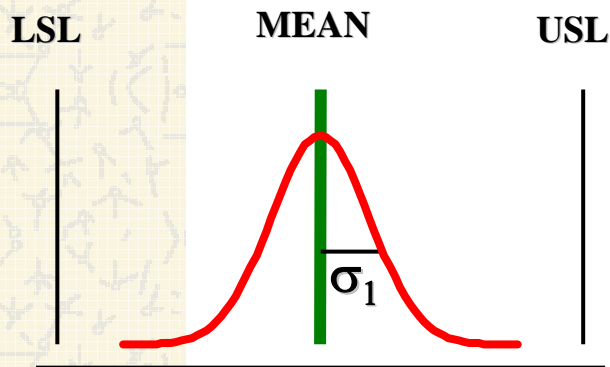
Is Statistical Analysis Used in the Bible?

✡ Acts 1:24-26 Then they (*the 11*) prayed "Lord you know everyone's heart. Show us which of these two you have chosen to take over this apostolic ministry, which Judas left to go where he belongs." *Then they cast lots*, and the lot fell to Matthias; so he was added to the eleven disciples. (NIV) (emphasis mine)

What is Six Sigma as a statistical measure?

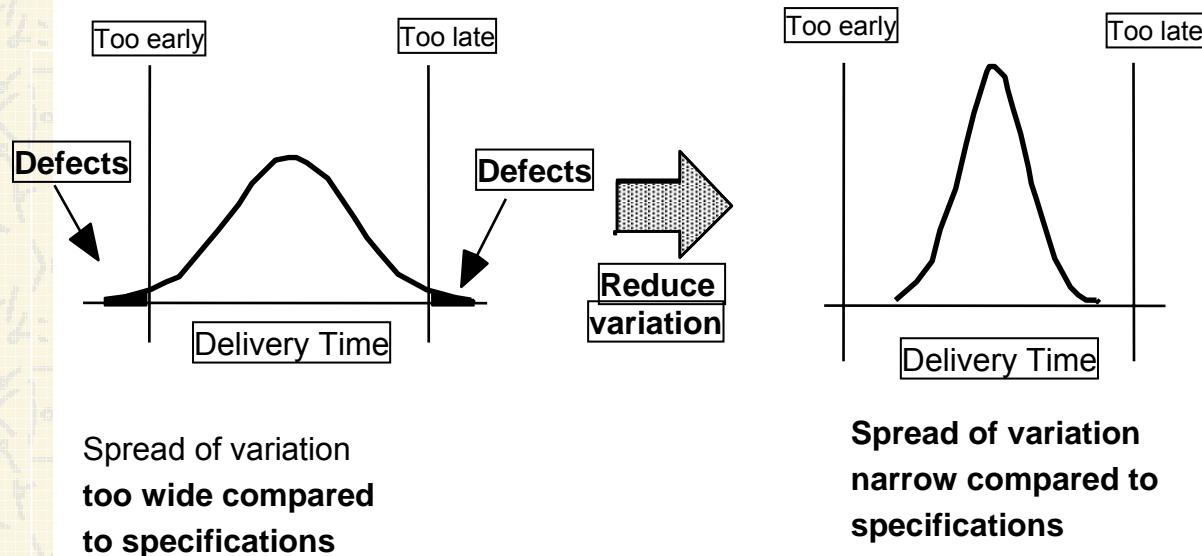
- ✖ Every process/procedure has an expected outcome/measurement called a "mean"
- ✖ Every outcome/measurement has some variability
- ✖ The measure of that variability is called " σ "
- ✖ Reducing variability and defects is good ...

... and is the essence of Six Sigma



Importance of Reducing Variation

To increase a process performance, you have to decrease variation.

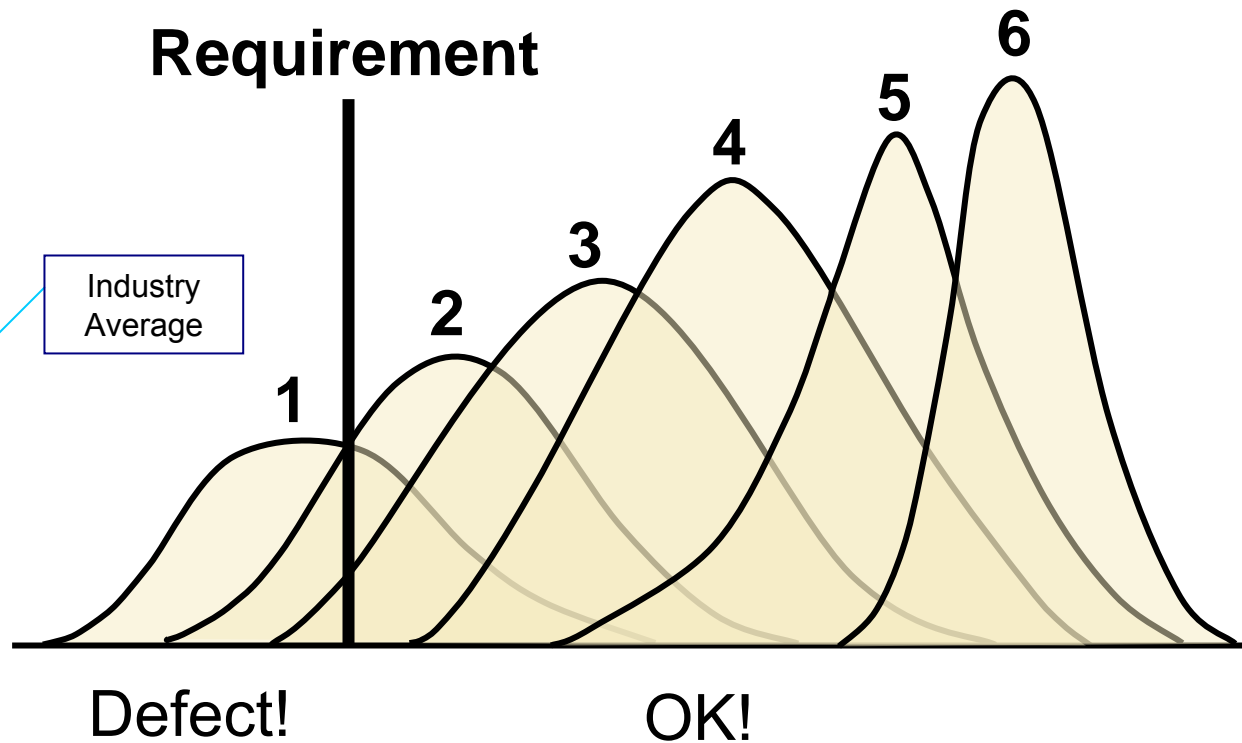


“Customers don’t experience averages... they experience the variation”

How Good is Six Sigma Performance?

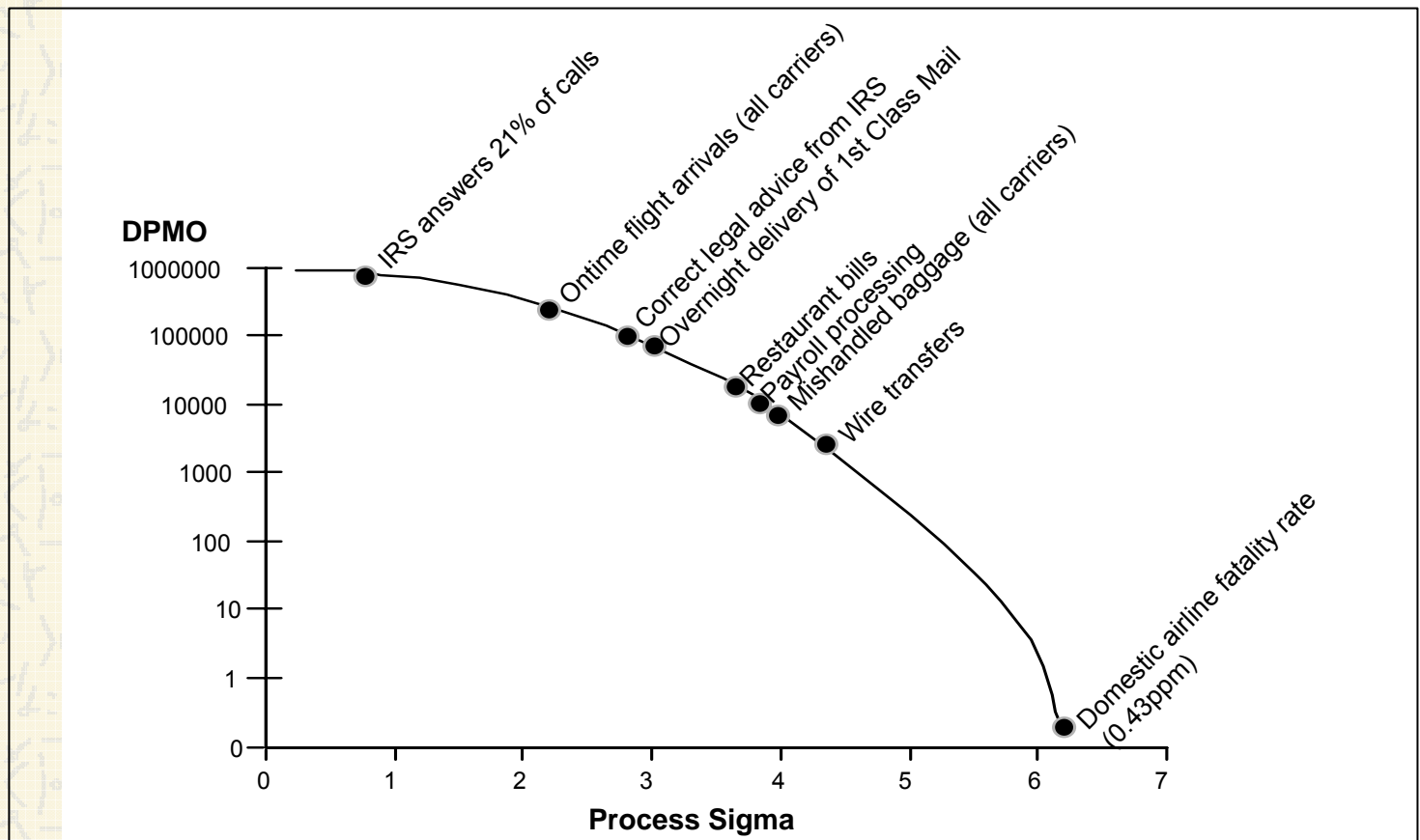
Measures how good or bad a process is doing

Sigma	DPMO
1	680,000
2	298,000
3	67,000
4	6,000
5	400
6	3.4



How Good Are Processes Today?

Experts think most businesses would fall within the 3 to 4 Sigma range today



Why do I need six of them?

# of Steps	Yield/Step	Rolled Throughput Yield
10	99% (4σ)	90.4%
10	99.9997% (6σ)	99.997%
100	99% (4σ)	36.4%
100	99.9997% (6σ)	99.97%

6 σ is a practical standard for most business processes...

● What do we need to know to calculate the quality level?

- ✂ Number of letters 72,755 ref:email E. Ulrich
- ✂ Number of words 16,686
- ✂ Both copies in same language (Hebrew)
- ✂ How often are the manuscripts copied? 25-50 years/copy ref: Hess, Ulrich
- ✂ How many differences 1450 ref: Abegg, et.al

● What's the quality level of the copying process?

- ✂ Determine the defects per million opportunities (DPMO) for manually copying the manuscript over a 1250 year period.
- ✂ This is done by calculating the rolled throughput yield over the 1250 year period and working backwards to fill in the gaps
- ✂ Once the yield/copy is calculated, a DPMO and Sigma level can be found.

Rolled Throughput Yield

$$\frac{\text{Number of differences} \times 1,000,000 \text{ opportunities}}{\text{Number of Words} \times \text{number of copies}} = \text{DPMO}$$

DPMO can then be converted to a yield

$$(1450 \times 1,000,000) / (16,686 \times 50) = 1773.98 \text{ DPMO}$$

$$1773.94 = .998 \text{ yield over 1250 years}$$

Yield per Copy

$$C^{50} = .998$$

Reference: Pande,
Neuman, et.al., *The
Six Sigma Way*

$$50 \times \ln C = \ln .998$$

$$C = .99996 \text{ (the yield per copy)}$$

Converting to DPMO = **30**

Sigma Level = 5.5

What does this mean?

- ✖ If variation is reduced from a process, improvement will follow. God is holy and he has no variation
- ✖ This process had potential for much variation.
- ✖ Obviously the Hebrews carefully copied the ancient manuscripts, thus preserving the reliability of the texts.
- ✖ Extremely high levels of quality control were available centuries ago.

We Serve an Awesome God!

- ✦ Acts 8:26-35 Phillip is talking with the Ethiopian, It's a clear understanding of the meaning of Isaiah 53.
- ✦ Acts 13:47-48 "I have made you a light for Gentiles, that you may bring Salvation to the ends of the earth" (NIV) ref: Isaiah 49:6
- ✦ Jesus said: "Blessed are those who have not seen but believes" John 20:29 (NIV)