

Panel 5

Genetics In Court

May 26, 2021 (Virtual)

Presenter



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Partner

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Importance of Genetic Predisposition in Court

- Restatement (Second) of Torts, Section 432(2) (1965); Restatement (Third) of Torts, Section 26 (2014):
- Causation is not proven and in fact rebutted “if the harm would have been sustained even if the actor had not been negligent.”



Various Genetic Predispositions



- Understanding that predisposition for mesothelioma is not limited to BAP-1
 - TP-53 (Li-Fraumeni)
 - NF-2 (Neurofibromatous type 2)
 - MMSI-H/MMR-D (Lynch Syndrome)
 - BLM (Bloom Syndrome)
 - Other

Low Doses Are Not Proven Causative

- Epidemiological studies for doses even below 1 f/cc-yrs: biased, inconsistent, and unreliable
- Linear No Threshold Model of Carcinogenesis: “multiple flaws” and “lack of scientific validity” (Calabrese, 2019)
- Animal studies: nothing learned about causative dose in humans

Bruce Ames

- "Cancer estimates . . . are worst-case. Hypothetical estimates, and the true risks at low doses are often likely to be zero."
- Ames, B. et al. "Environmental Pollution, Pesticides, and the Prevention of Cancer: Misconceptions." FASEB Journal, Vol 11 (November 1997) at 1042, 1050.



Plant Genetics (*Cowger* Case in Cook County)



Gregor Mendel

Lewis Stadler



Any Questions?



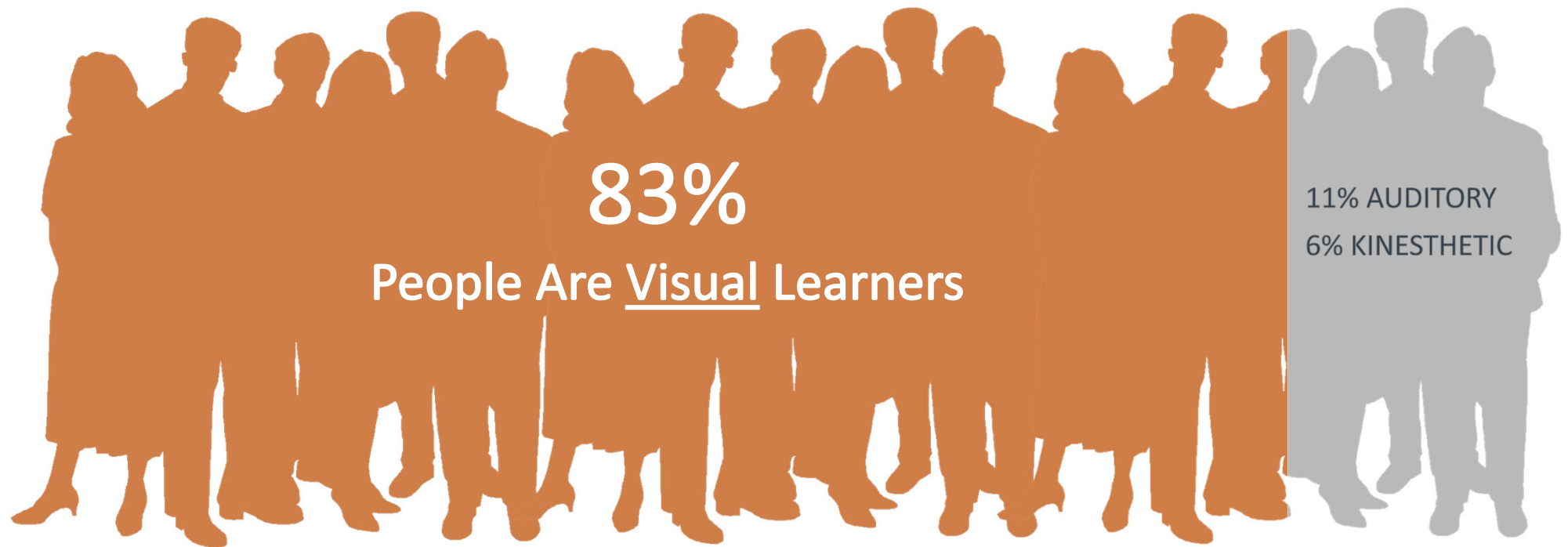
Thank you

Communicating Genomic Factors to Juries and Judges

May 26, 2021

Information Retention

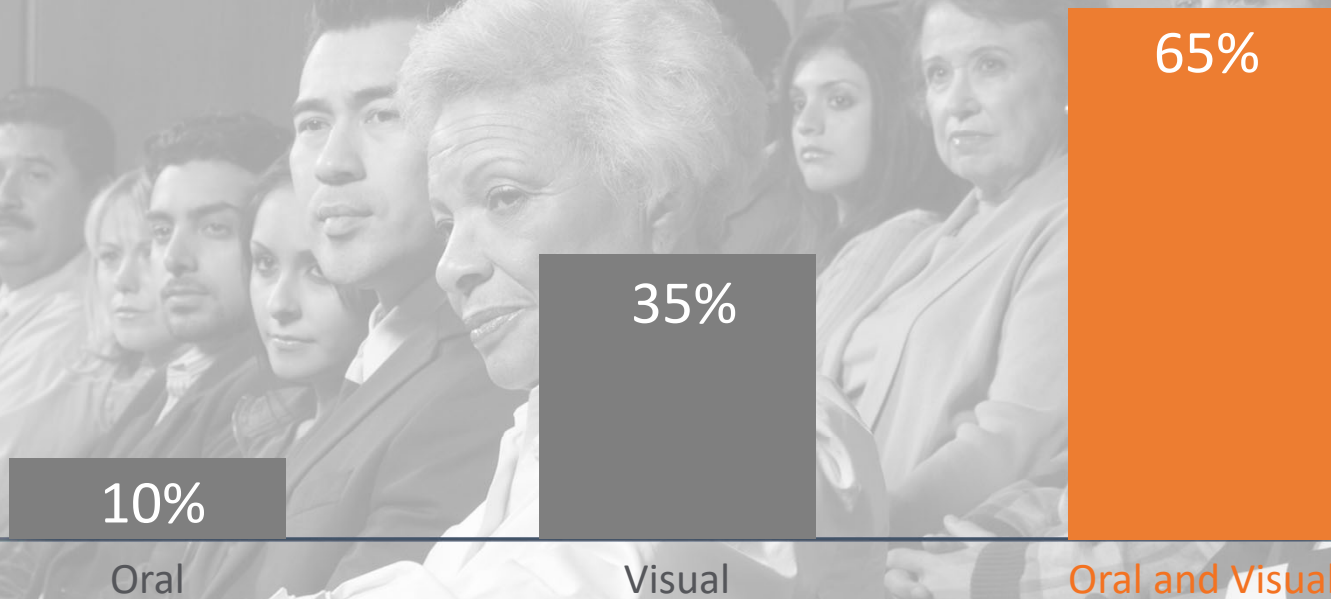
What Education Research Studies Show



Information Retention

What Education Research Studies Show

Information retention three days after an event

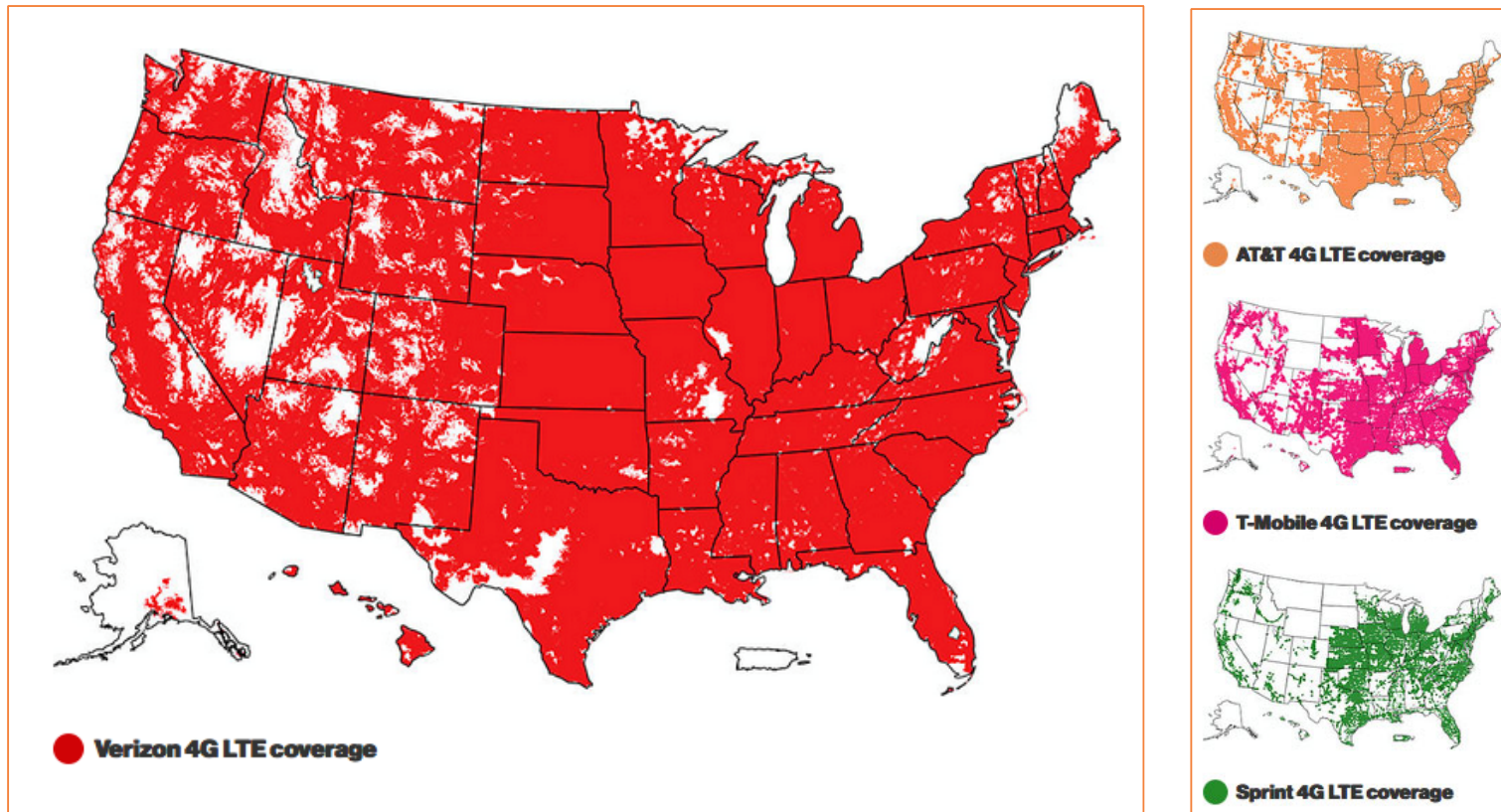




Jurors Responding to “Facts” and “Data”

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Picture Superiority Effect in Action



A Little Bit of Science

Picture Superiority Effect

Words are abstract and difficult for the brain to retain
Visuals are concrete and more easily remembered

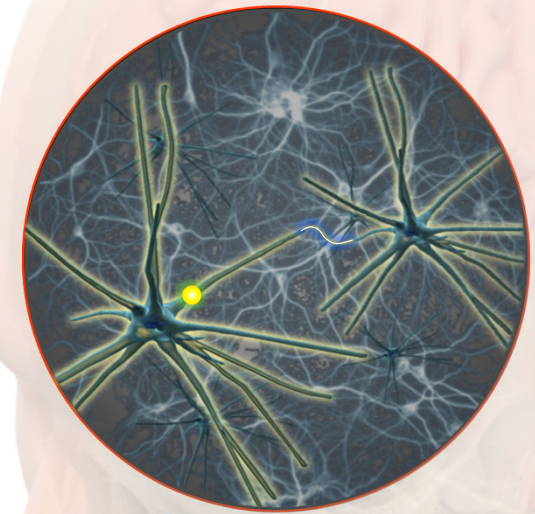
- Our eyes are constantly looking for concepts to latch onto
- The brain processes visuals 60,000 faster than text
- Visual notes = most people will be able to understand what's being said more quickly



Encoding Stage

Information must be imaginable

- When oral testimony is in complex or abstract terms, jurors may be unable to create a mental image of what is being described
- Visual aids solves this dilemma by supplying the jury with an image of the message being conveyed
- By supplying the image for the jury, *the attorney has control over the image perceived* rather than leaving each juror to create their own individualized mental image.



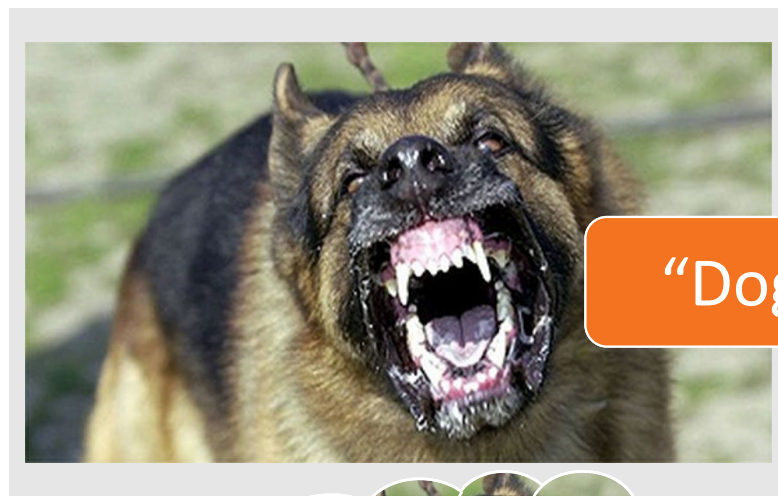
Fred Galves, Where the Not So Wild Things Are: Computers in the Courtroom, the Federal Rules of Evidence, and the Need for Institutional Reform and More Judicial Acceptance, 13 HARV. J.L. & TECH. 161, supra note 21, at 186-188 (2000)

Interpretation & Deception

Control the Story



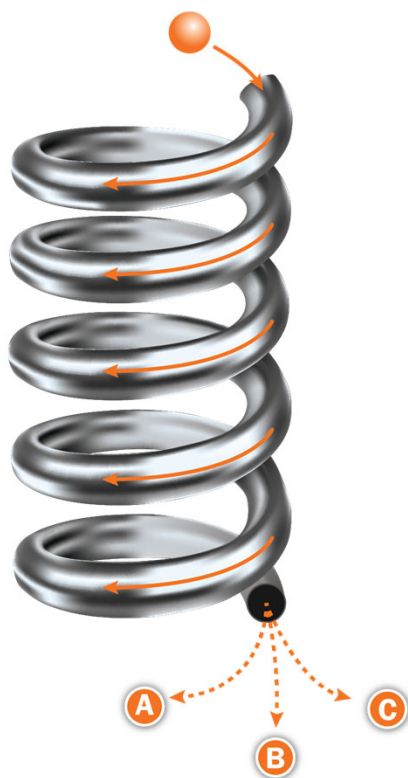
Control the Story



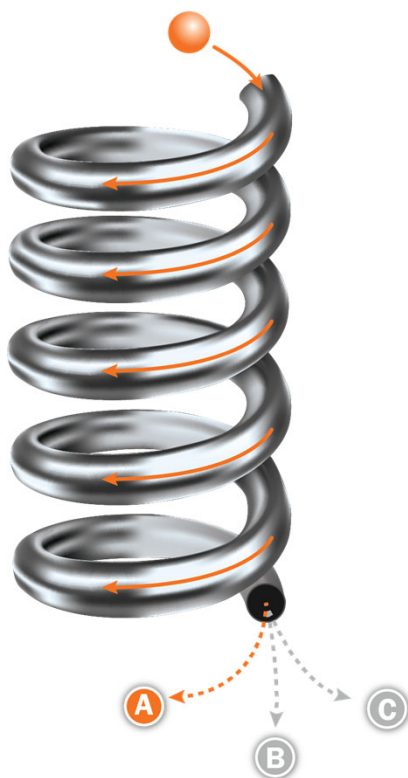
“Dog”



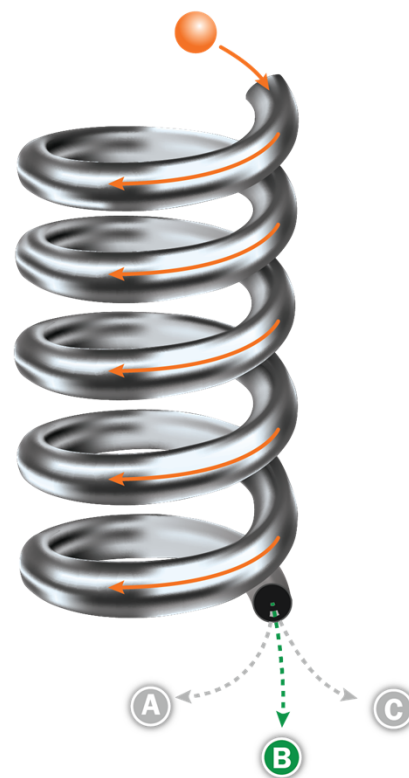
Scenario



Most Choose A



Actual Answer

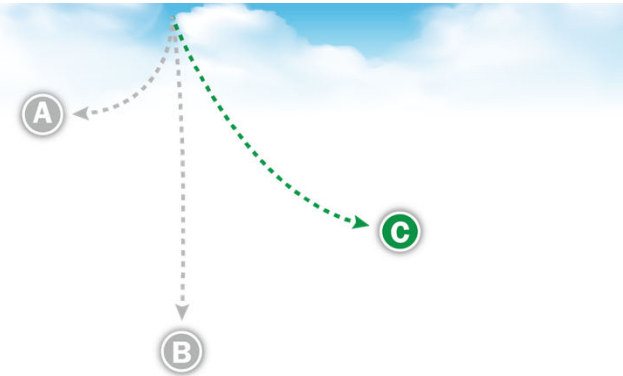
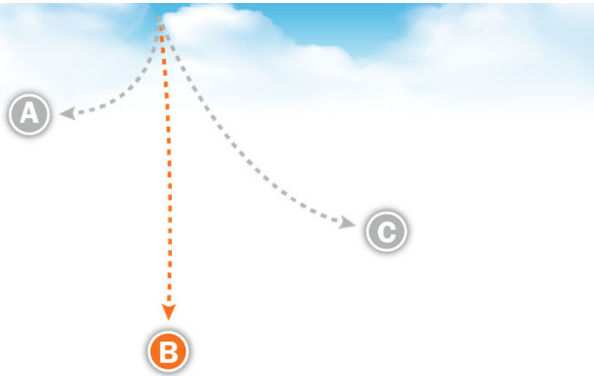
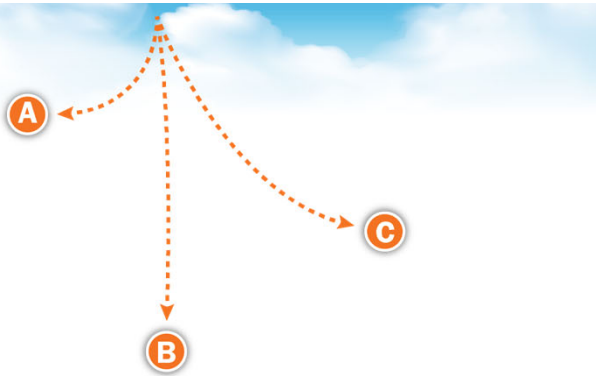


Saul M. Kassin & Meghan A. Dunn, Computer-Animated Displays and the Jury: Facilitative and Prejudicial Effects, 21 LAW & HUMAN BEHAVIOR 269, 270 (1997).
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Scenario

**Most
Choose B**

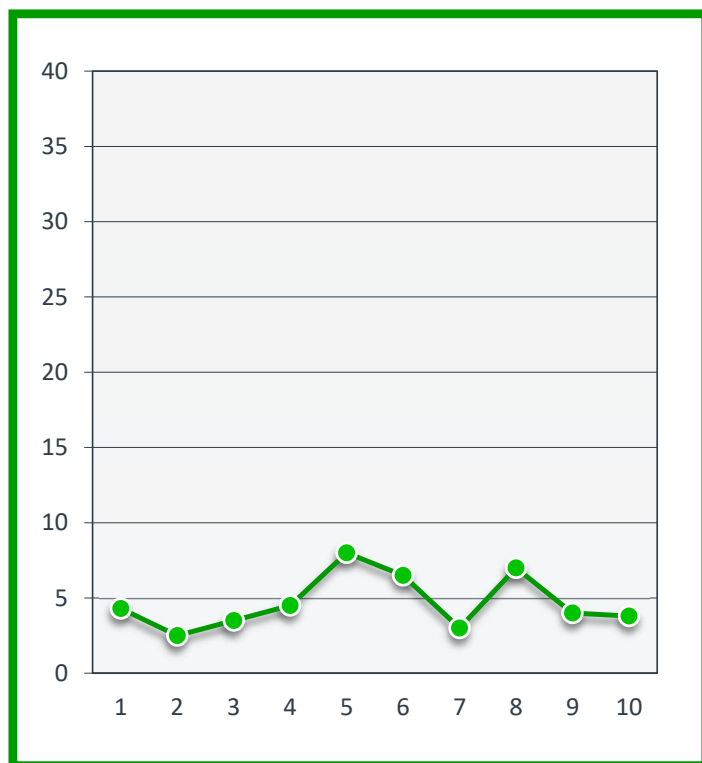
**Actual
Answer is C**



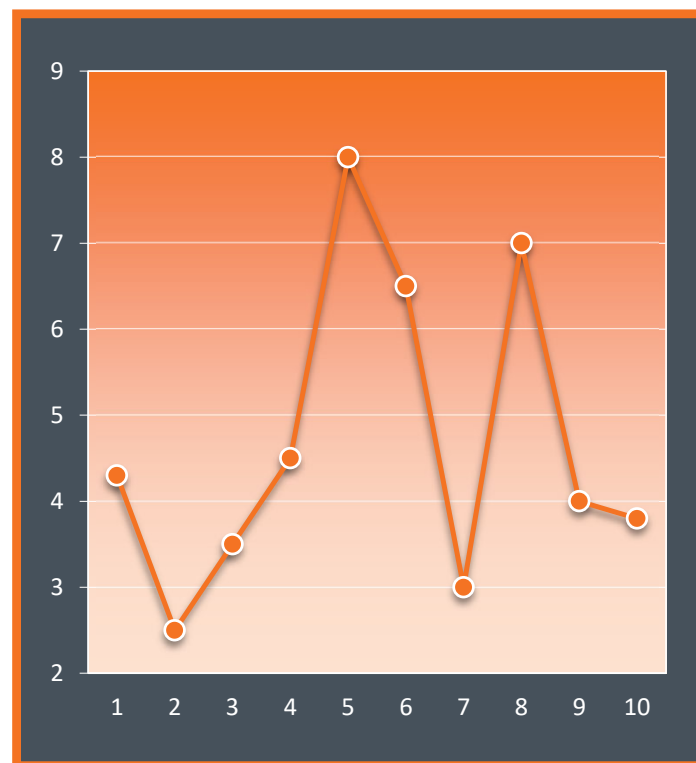
Saul M. Kassin & Meghan A. Dunn, Computer-Animated Displays and the Jury: Facilitative and Prejudicial Effects, 21 LAW & HUMAN BEHAVIOR 269, 270 (1997).
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Audience Interpretation

Stable



Volatile





President Barack Obama

- *Born August 4, 1961 in Honolulu, Hawaii*
- *44th and current President of the United States*
- *First African American to hold the office*



PRESIDENT BARACK OBAMA

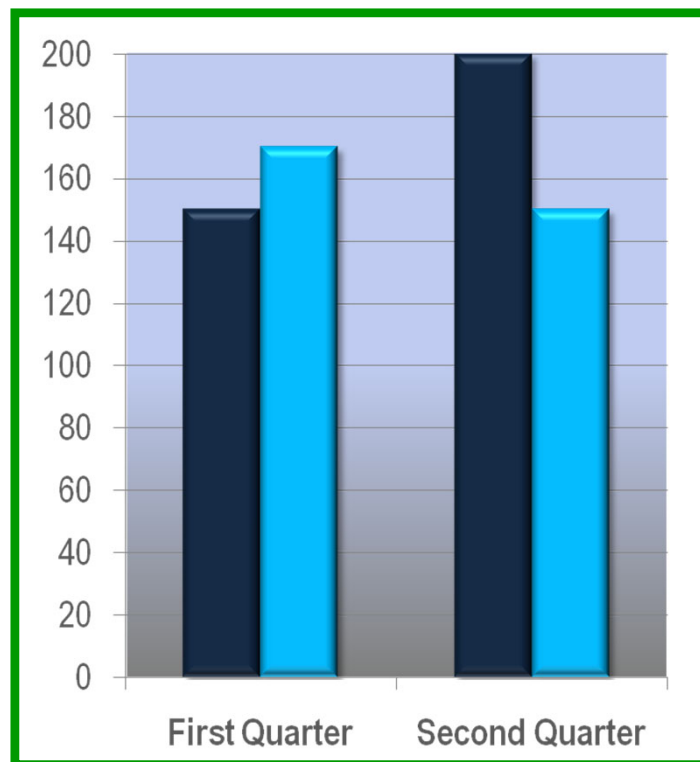
Born August 4, 1961 in Honolulu, Hawaii

44th and current President of the United States

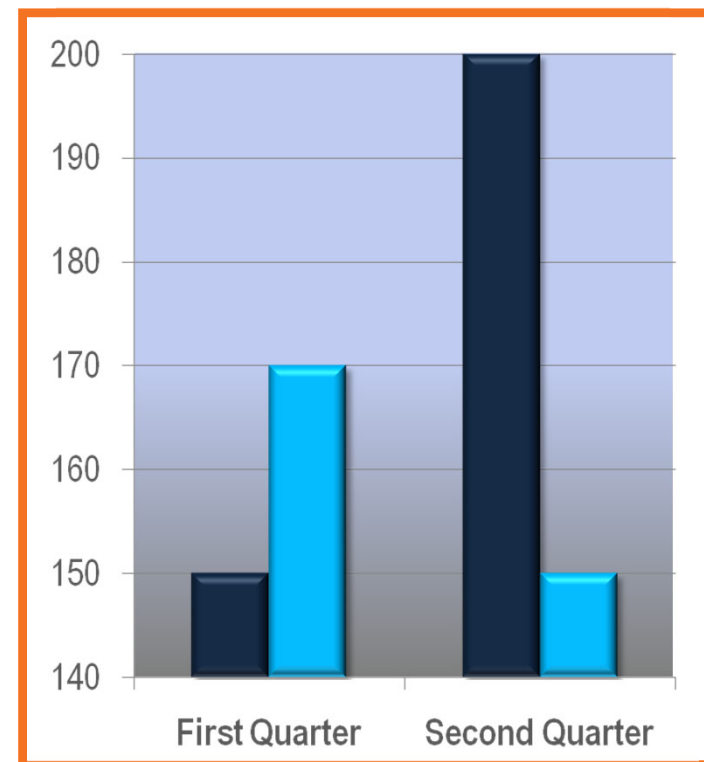
First African American to hold the office

Inconsistent Scales

ADMISSIBLE

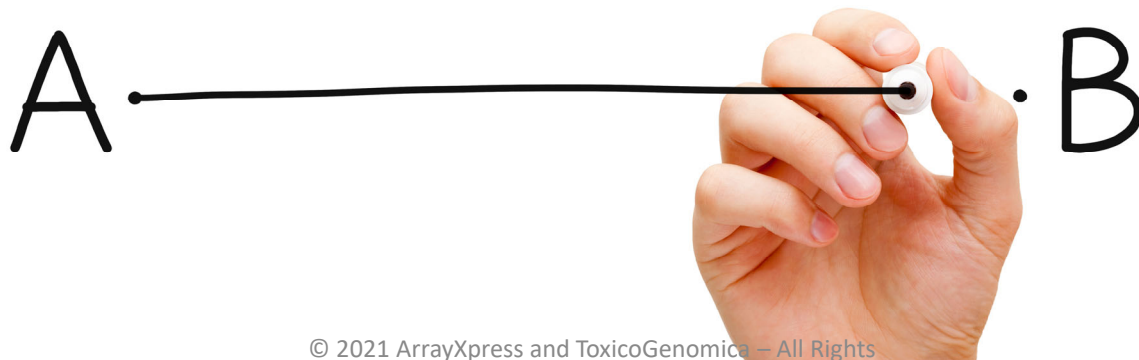
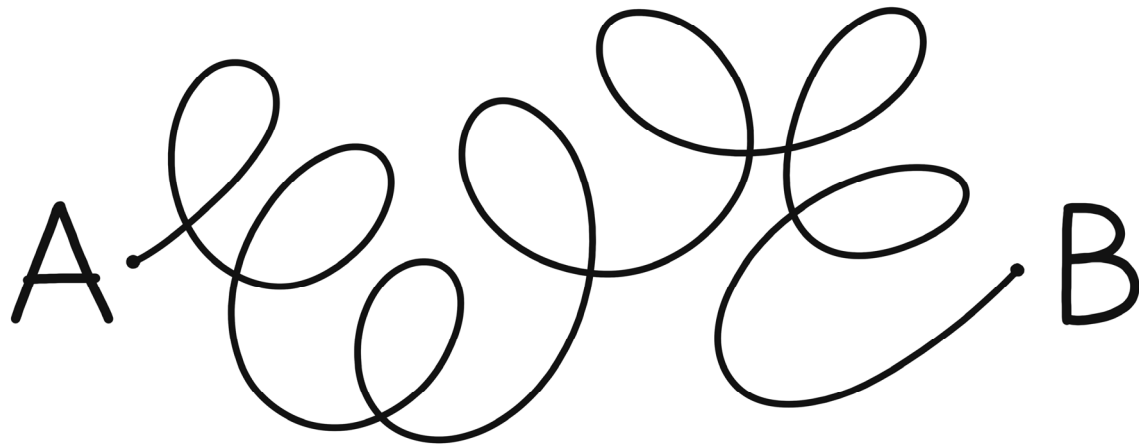


INADMISSIBLE?



Visual Communications & Story Development

Connect the Dots



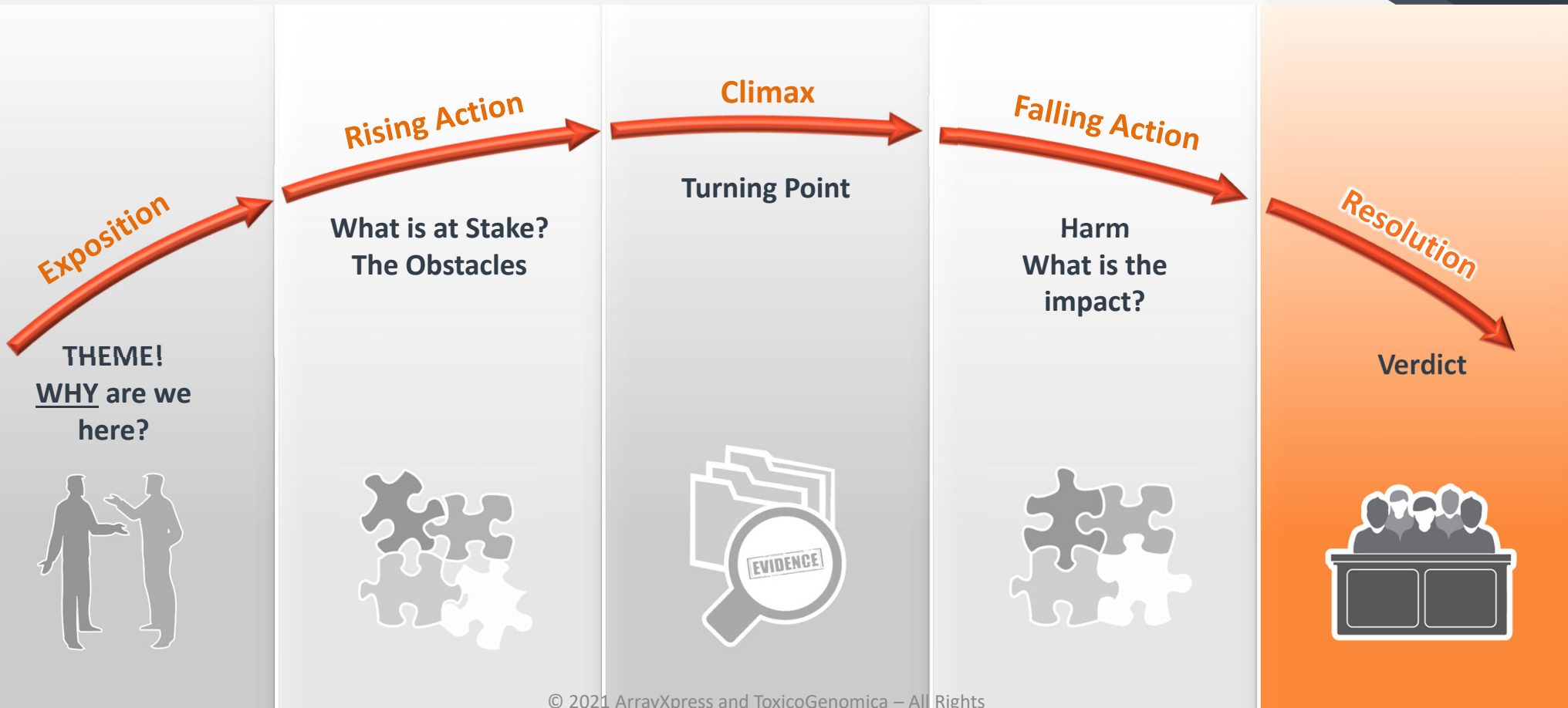
Jurors Construct “Stories”

Stories:

- Are based on jurors’ predispositions and perception of the evidence
- Help jurors manage complexity
- Serve as powerful filters for deciding what to keep and what to discard
- Are familiar and meaningful
- Influence jurors’ decisions



What's in a Narrative?



Visual Communications & Story Development



Visual Communications & Story Development



MOISTURIZING FORMULA WAS READY FOR PATENTING BEFORE JUNE 13, 1994

CONCEPTION

Between the end of 1992 and beginning of 1993, Ms. Mansouri conceived of what she believes to be a novel antibacterial moisturizing lotion

12/16/1993 – Certificates of Analysis from Francosmetics to LSC states:

- LSC's antimicrobial moisturizing lotion **passed the antimicrobial test.**
- The lotion contains **0.326% triclosan.**

6/13/1995 – The application leading to U.S. Patent No. 6,096,324 was filed by LSC.

READY FOR PATENTING!

SALES OF INVENTION!

June 13, 1994

June 13, 1995

The '516 patent claims priority to the '324 patent.

10/8/1993 – LSC's formula sheet was submitted to Francosmetics to manufacture antimicrobial moisturizing lotion.

The formula sheet contained:

- **0.30% Triclosan**
- **2.00% glycerin** (emollient)
- **79.44% water**

Between the end of 1991 and 1992, Ms. Mansouri formed her company, Laboratory Skin Care, Inc. ("LSC").

1/10/1994 – Distribution Agreement between LSC and Baxter Healthcare Corp. was made.

- The term of the Agreement was set for 1 year, **beginning 11/1/1993 and ending 11/1/1994.**

12/21/1993 – Earliest available sales invoice of LSC's antimicrobial moisturizing lotion.

- 8 oz. and 12 oz Moisturizers were sold and shipped to Baxter Scientific Products.

Patent No. 6,579,516
Filed 11/28/2000
Issued 6/17/2003

LSC Offered for Sale and Sold A Product More Than One Year Before Filing

Dec. 21, 1993

SALE OF INVENTION

Earliest available
sales invoice of
CSP's antimicrobial
moisturizing lotion.

Jun. 13, 1994

Jun. 13, 1995

Priority Date

ONE YEAR FILING WINDOW

1993

1994

1995

Timeline of Events

Oct 1, 2016 

Applies for permit

JUN '13

JUL '13

AUG '13

SEP '13

OCT '13

Jun 28, 2016 

Company A provides
Performance Guarantees

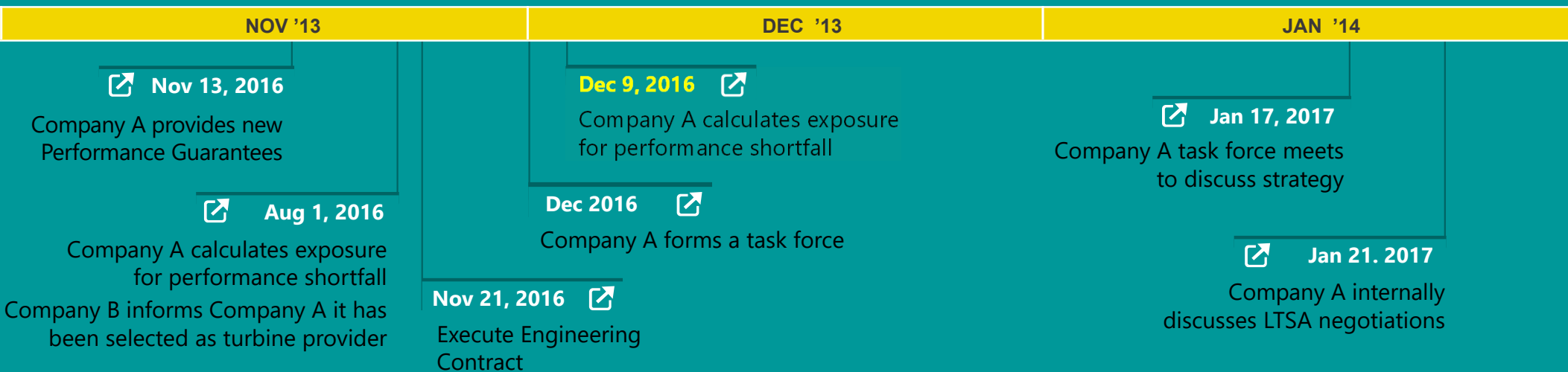
Aug 1, 2016 

Company A provides updated
pricing proposal to Company B

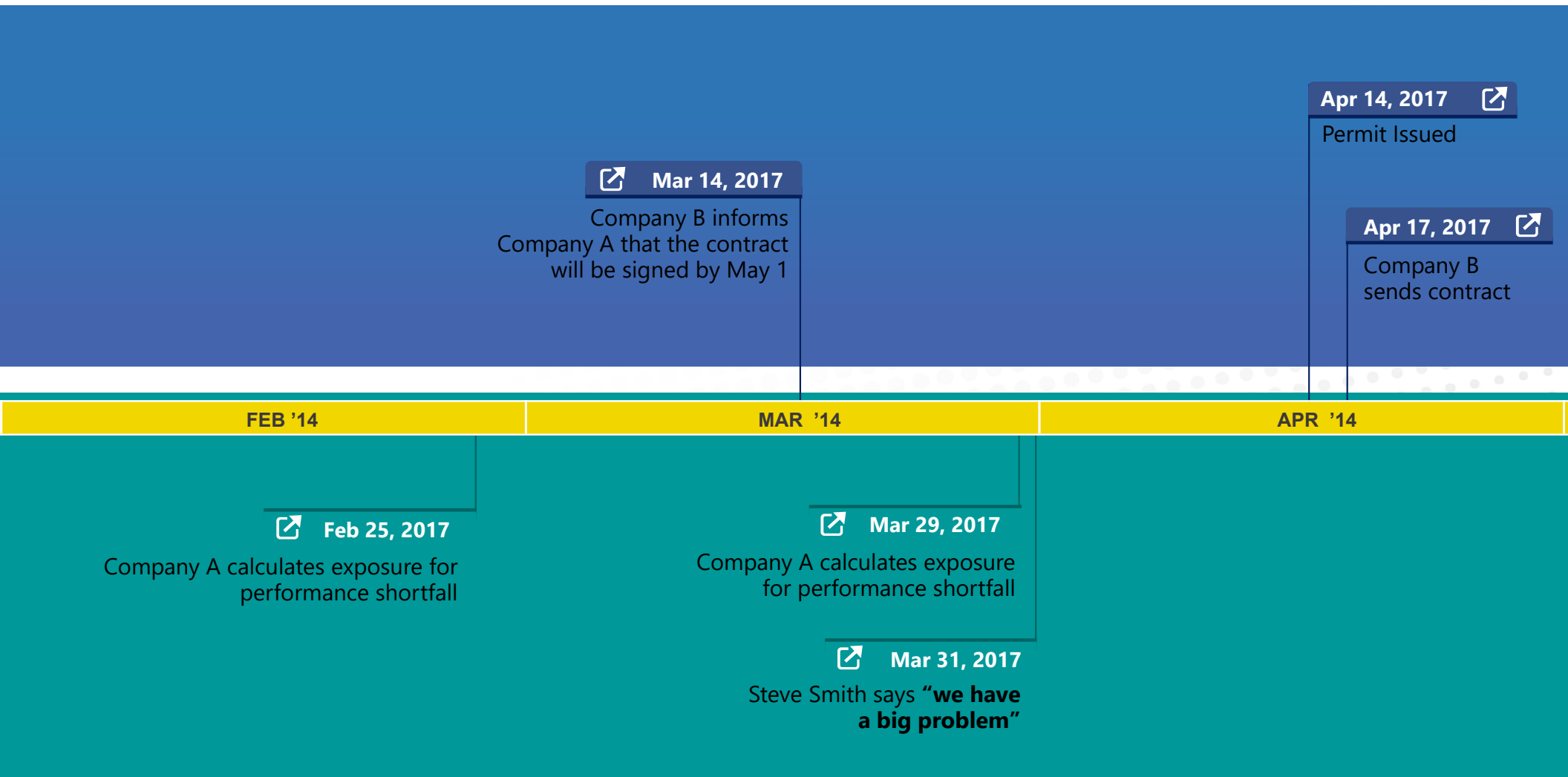
 **Oct 31, 2016**

Company A learns of
performance shortfalls

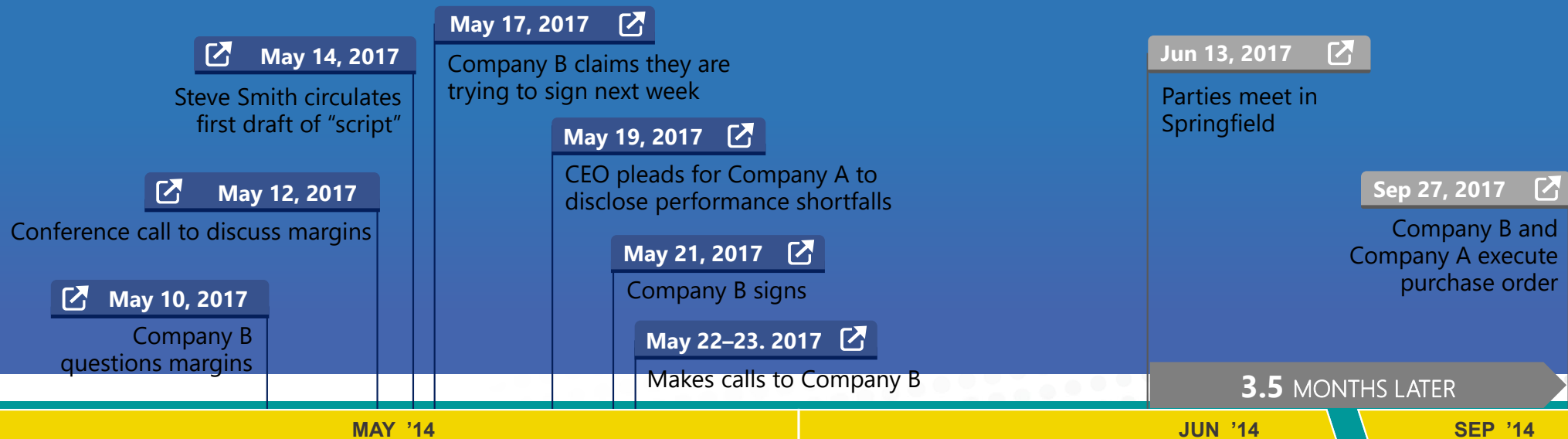
Timeline of Events



Timeline of Events



Timeline of Events





- Company B applies for permit



Oct 1, 2016

Company B applies for permit

JUN '13

JUL '13

AUG '13

SEP '13

OCT '13

Jun 28, 2016

Company A provides
performance guarantees

Aug 1, 2016

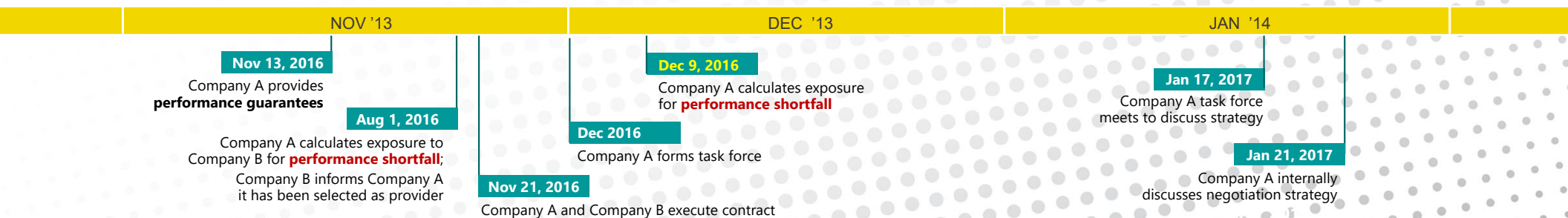
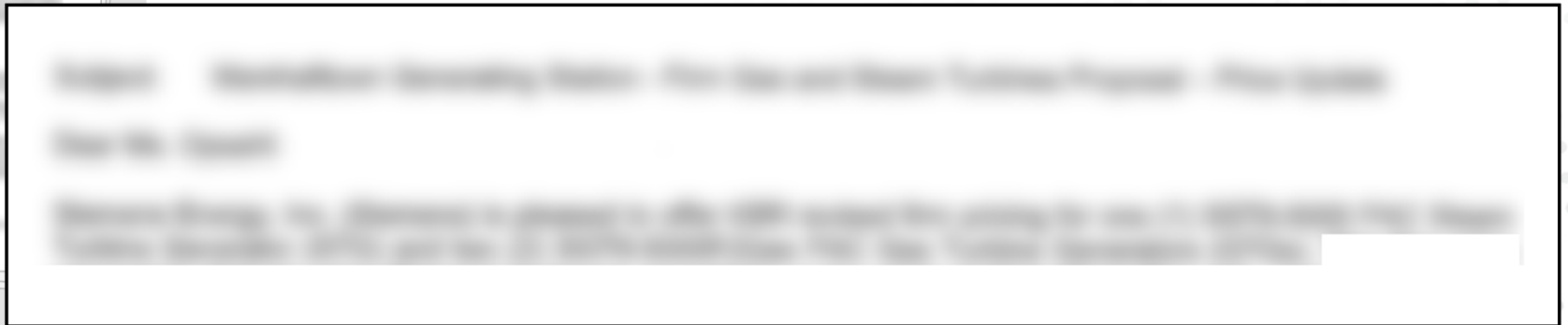
Company A provides updated
pricing proposal to Company B

Oct. 31, 2016

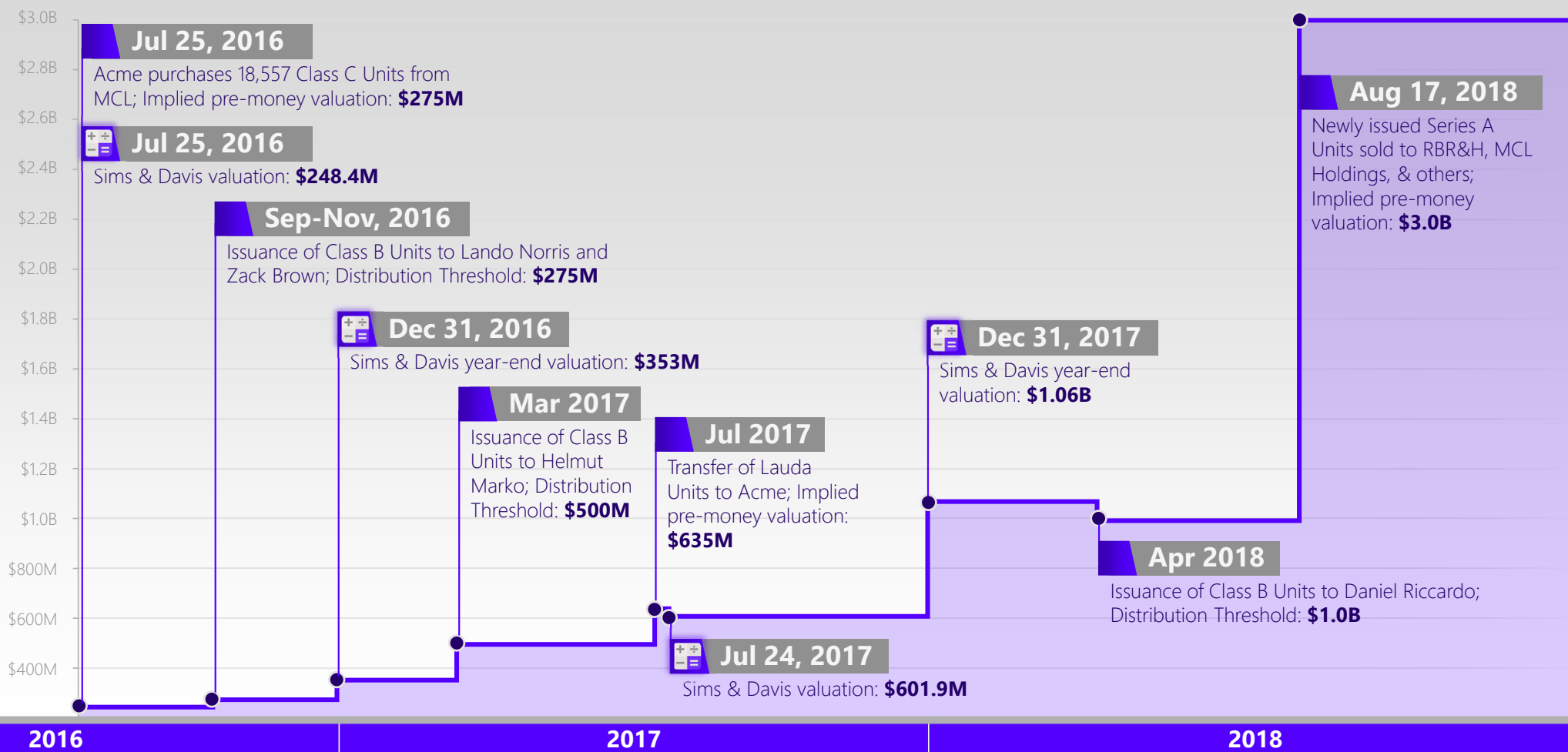
Company A learns of
performance shortfalls



- Company A calculates exposure for **performance shortfall**



Valuations and Transactions



July 3, 2019: Day of Accident

5:58 AM

John enters factory gate

88



6:00 AM

7:00 AM

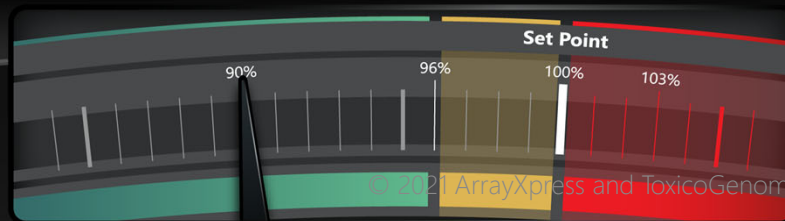
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11:00 AM

12:00 PM



05
HOURS

28
MINUTES

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July 3, 2019: Day of Accident

5:58 AM

John enters factory gate

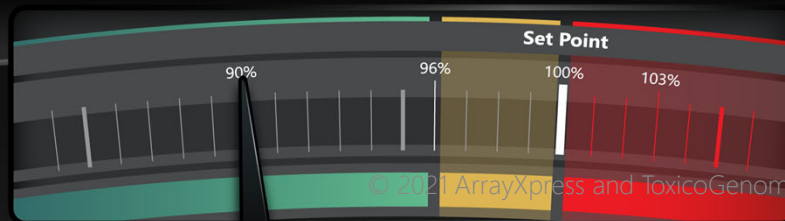
6:01 AM

Fred enters factory gate



6:00 AM 7:00 AM 8:00 AM 9:00 AM 10:00 AM 11:00 AM

12:00 PM



05
HOURS

25
MINUTES

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July 3, 2019: Day of Accident

5:58 AM

John enters factory gate

6:01 AM

Fred enters factory gate

6:35 AM

Suzie enters factory gate

88

6:00 AM

7:00 AM

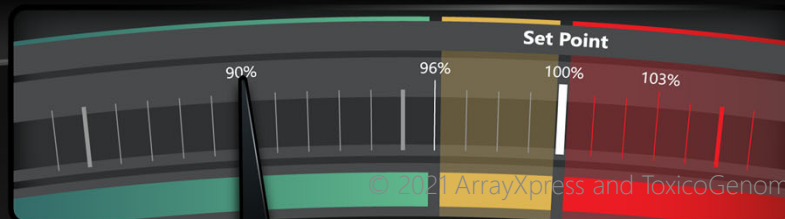
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04
HOURS

51
MINUTES

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July 3, 2019: Day of Accident

5:58 AM

John enters factory gate

6:01 AM

Fred enters factory gate

6:35 AM

Suzie enters factory gate

6:42 AM

Richard enters factory gate

88

6:00 AM

7:00 AM

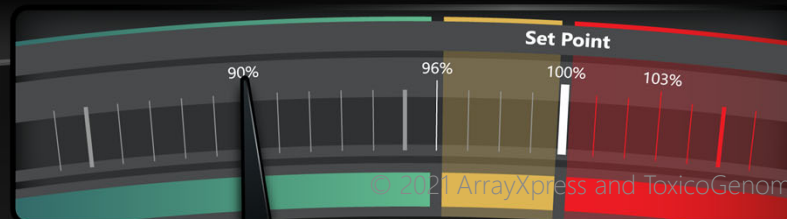
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04
HOURS

44
MINUTES

July 3, 2019: Day of Accident

5:58 AM

John enters factory gate

6:01 AM

Fred enters factory gate

6:35 AM

Suzie enters factory gate

6:42 AM

Richard enters factory gate

6:49 AM

Roger enters factory gate

88

6:00 AM

7:00 AM

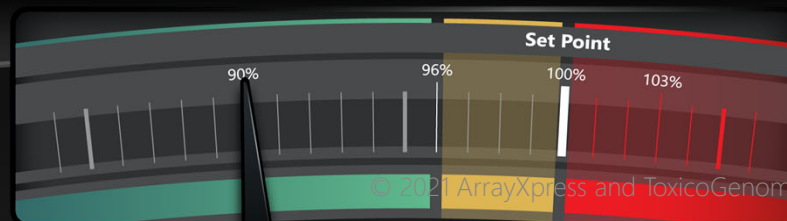
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04
HOURS

37
MINUTES

July 3, 2019: Day of Accident

5:58 AM

John enters factory gate

6:01 AM

Fred enters factory gate

6:35 AM

Suzie enters factory gate

6:42 AM

Richard enters factory gate

6:49 AM

Roger enters factory gate

11:04 AM

William enters factory gate

88

6:00 AM

7:00 AM

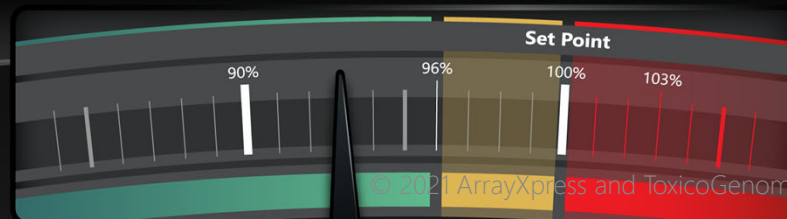
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12:00 PM



22
MINUTES

36
SECONDS

July 3, 2019: Day of Accident

5:58 AM

John enters factory gate

6:01 AM

Fred enters factory gate

6:35 AM

Suzie enters factory gate

6:42 AM

Richard enters factory gate

6:49 AM

Roger enters factory gate

11:15 AM

William notices steam
jetting out of roof

11:04 AM

William enters factory gate



6:00 AM

7:00 AM

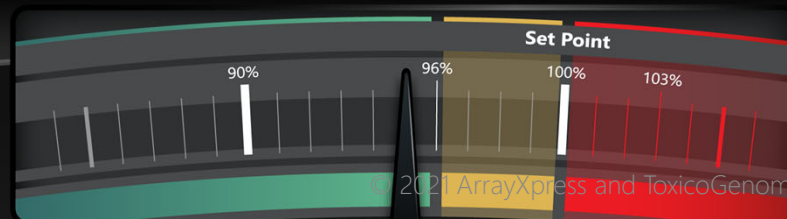
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12:00 PM



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11
MINUTES

36
SECONDS

July 3, 2019: Day of Accident

5:58 AM

John enters factory gate

6:01 AM

Fred enters factory gate

6:35 AM

Suzie enters factory gate

6:42 AM

Richard enters factory gate

6:49 AM

Roger enters factory gate

11:04 AM

William enters factory gate

11:15 AM

William notices steam
jetting out of roof

11:20 AM

William calls Fred to send
him up to investigate

88

6:00 AM

7:00 AM

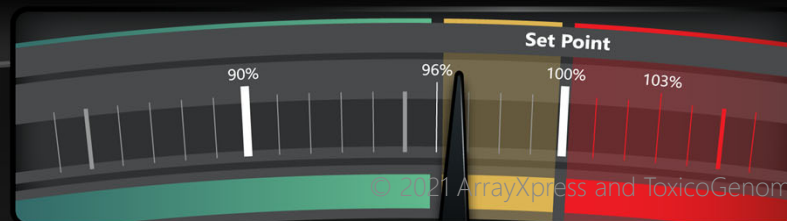
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06
MINUTES

36
SECONDS

July 3, 2019: Day of Accident

5:58 AM

John enters factory gate

6:01 AM

Fred enters factory gate

6:35 AM

Suzie enters factory gate

6:42 AM

Richard enters factory gate

6:49 AM

Roger enters factory gate

11:24:30 AM

William leaves gate for lunch

11:20 AM

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11:15 AM

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11:04 AM

William enters factory gate

88

6:00 AM

7:00 AM

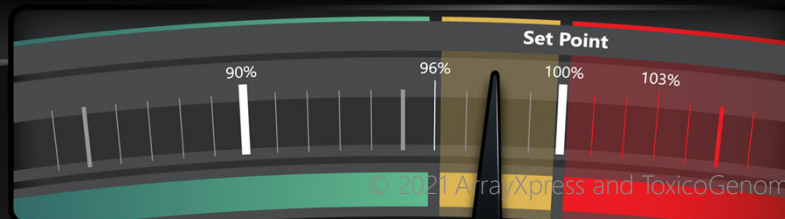
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12:00 PM



02
MINUTES

06
SECONDS

July 3, 2019: Day of Accident

5:58 AM

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6:01 AM

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6:35 AM

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6:42 AM

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6:49 AM

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11:04 AM

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11:20 AM

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William leaves gate for lunch

11:25:13 AM

John and Fred pass through control
room on their way to elevator

88

6:00 AM

7:00 AM

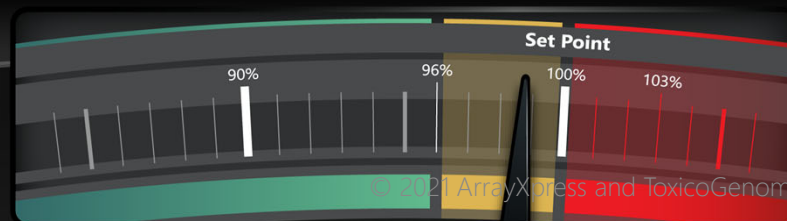
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12:00 PM



01
MINUTES

23
SECONDS

July 3, 2019: Day of Accident

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6:01 AM

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6:35 AM

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6:42 AM

Richard enters factory gate

6:49 AM

Roger enters factory gate

11:04 AM

William enters factory gate

11:15 AM

William notices steam
jetting out of roof

11:20 AM

William calls Fred to send
him up to investigate

11:24:30 AM

William leaves gate for lunch

11:25:13 AM

John and Fred pass through control
room on their way to elevator

11:25:48 AM

John and Fred enter
elevator and begin
ascent to upper deck

88

6:00 AM

7:00 AM

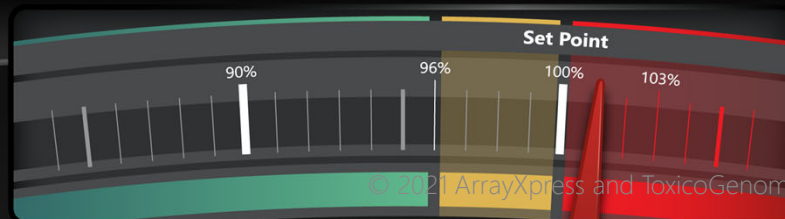
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MINUTES

45
SECONDS

July 3, 2019: Day of Accident

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6:01 AM

Fred enters factory gate

6:35 AM

Suzie enters factory gate

6:42 AM

Richard enters factory gate

6:49 AM

Roger enters factory gate

11:04 AM

William enters factory gate

11:25:48 AM

John and Fred enter elevator and begin ascent to upper deck

11:25:13 AM

John and Fred pass through control room on their way to elevator

11:24:30 AM

William leaves gate for lunch

11:20 AM

William calls Fred to send him up to investigate

11:15 AM

William notices steam jetting out of roof

6:00 AM

7:00 AM

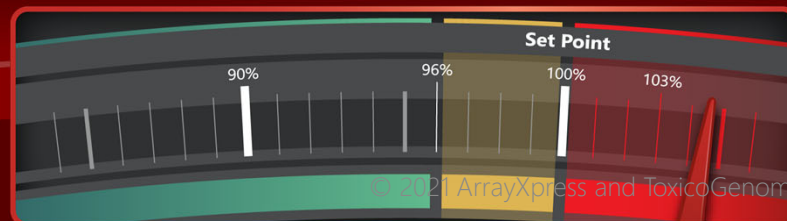
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MINUTES

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SECONDS

July 3, 2019: Day of Accident

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John and Fred enter elevator and begin ascent to upper deck

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John and Fred pass through control room on their way to elevator

11:24:30 AM

William leaves gate for lunch

11:20 AM

William calls Fred to send him up to investigate

11:15 AM

William notices steam jetting out of roof

11:04 AM

William enters factory gate

11:26:36 AM

Elevator doors open on top floor upper deck; **John and Fred engulfed in steam**

2 minutes and 42 seconds, John and Fred ascend flights of stairs racing for their lives

11:29:18 AM

Fred and John walk past the control room

11:29:27 AM

Fred and John pound on the control room door

11:29:45 AM

Fred and John finally enter the control room and shut it down

11:34 AM

Shut down process initiated

6:00 AM

7:00 AM

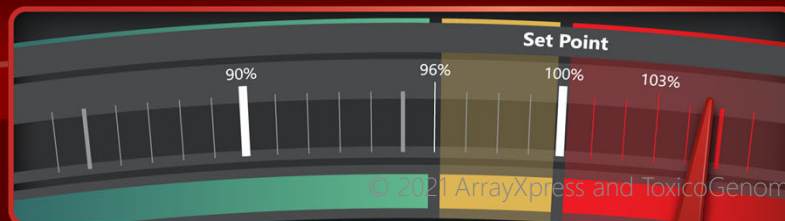
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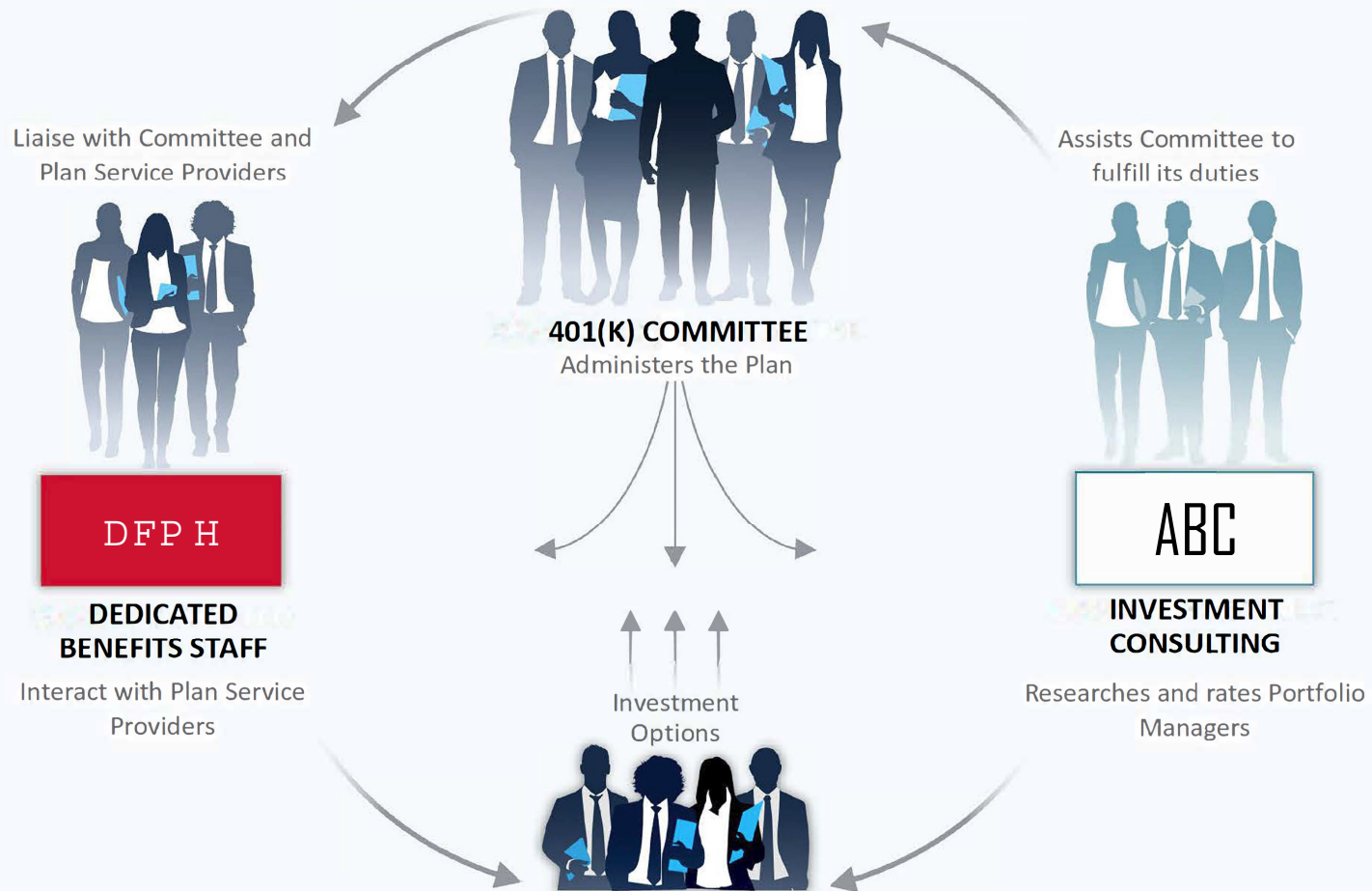
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MINUTES

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SECONDS

Visual Communications & Story Development



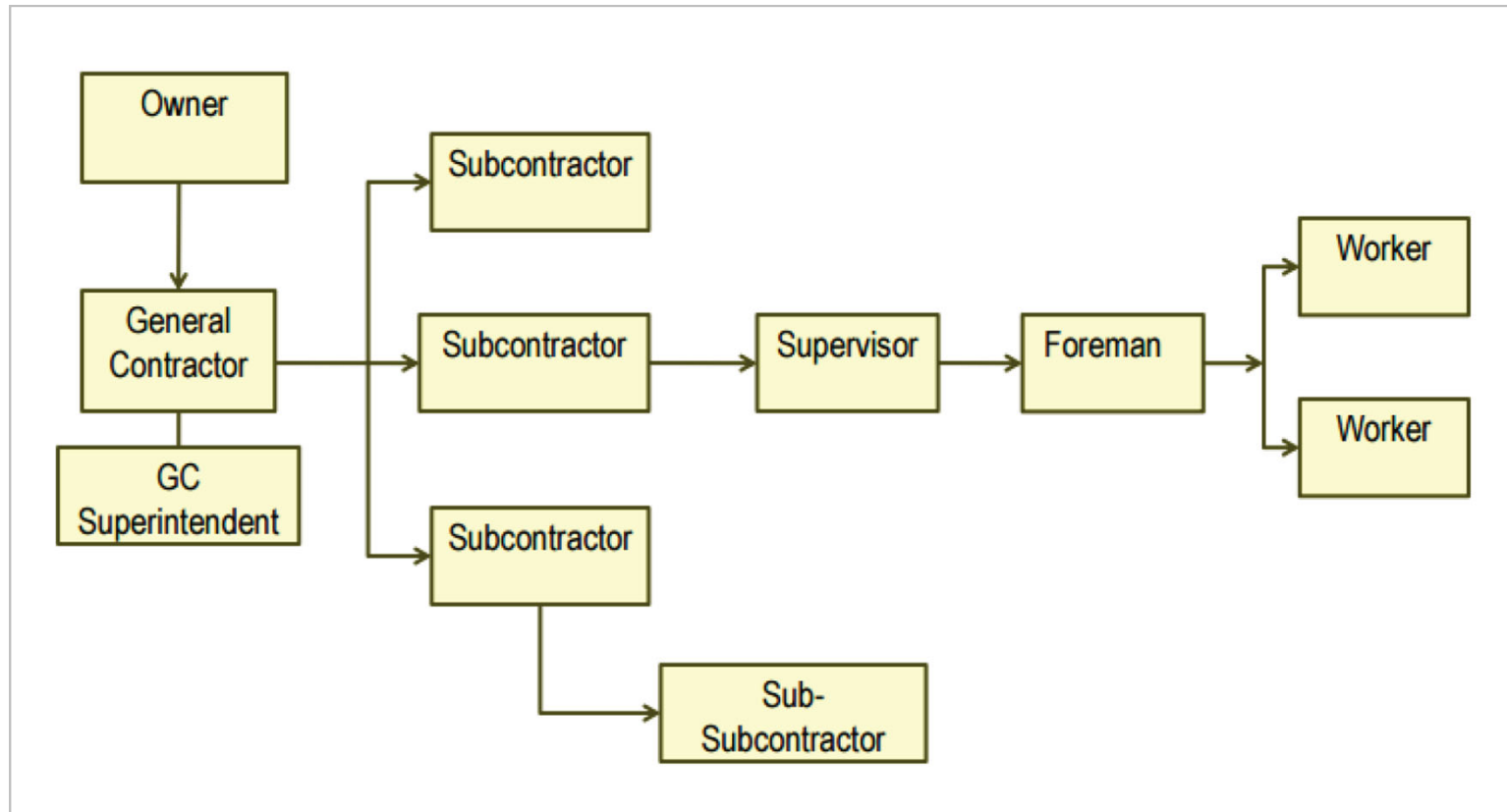
The Fiduciary Process



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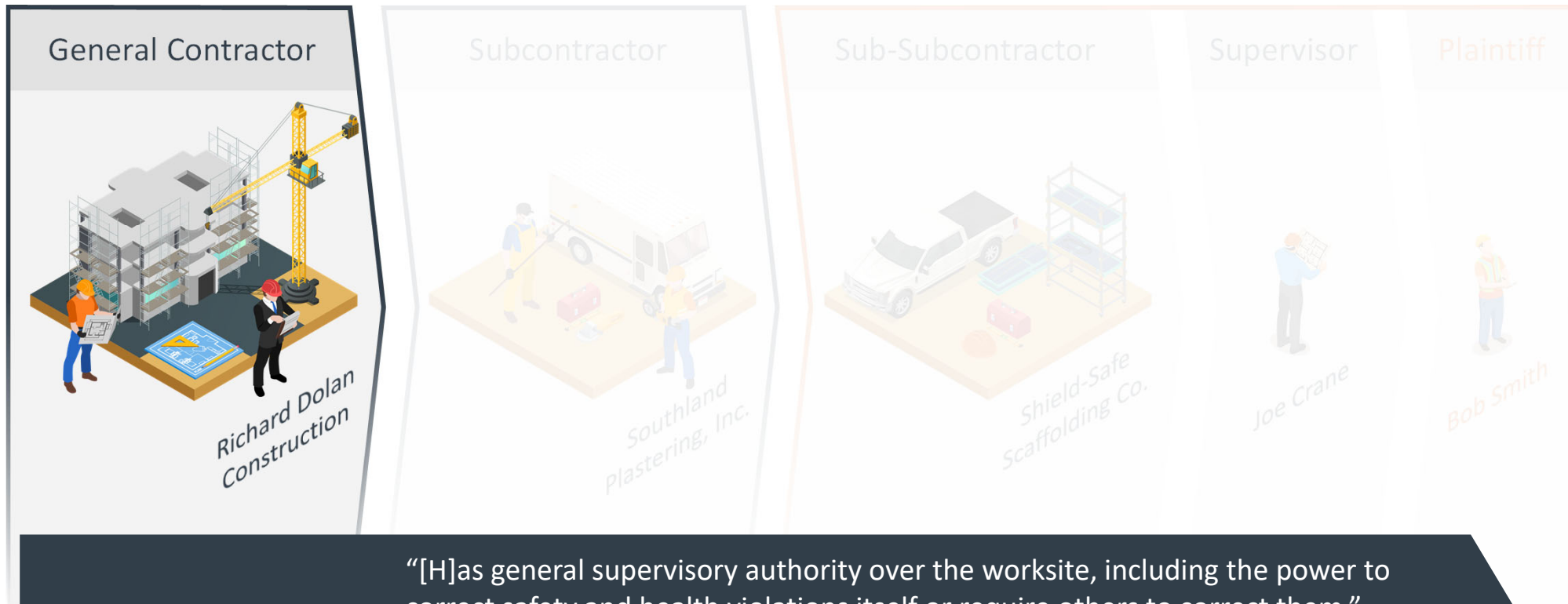
Employers and Liability

Navigating Contractors and Scaffolding



Employers and Liability

Navigating Contractors and Scaffolding

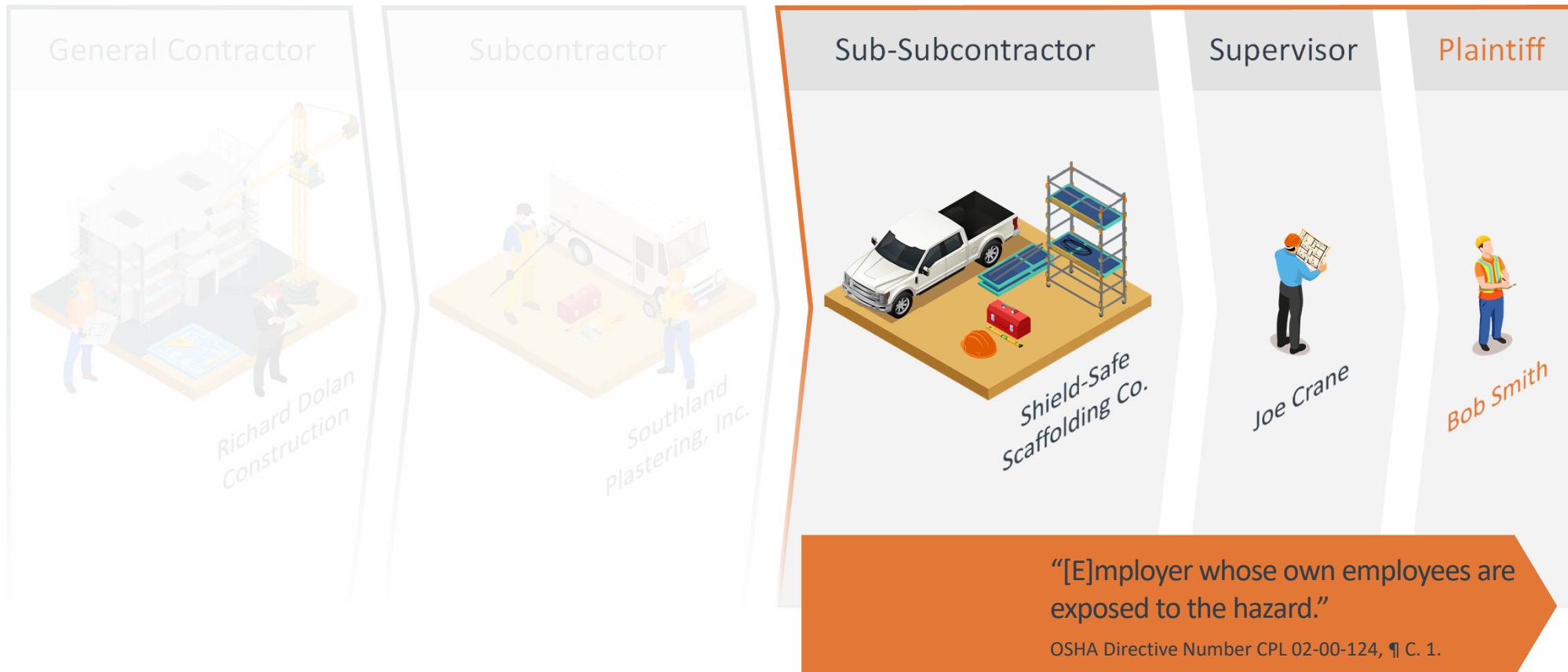


“[H]as general supervisory authority over the worksite, including the power to correct safety and health violations itself or require others to correct them.”

OSHA Directive Number CPL 02-00-124, ¶ E. 1.

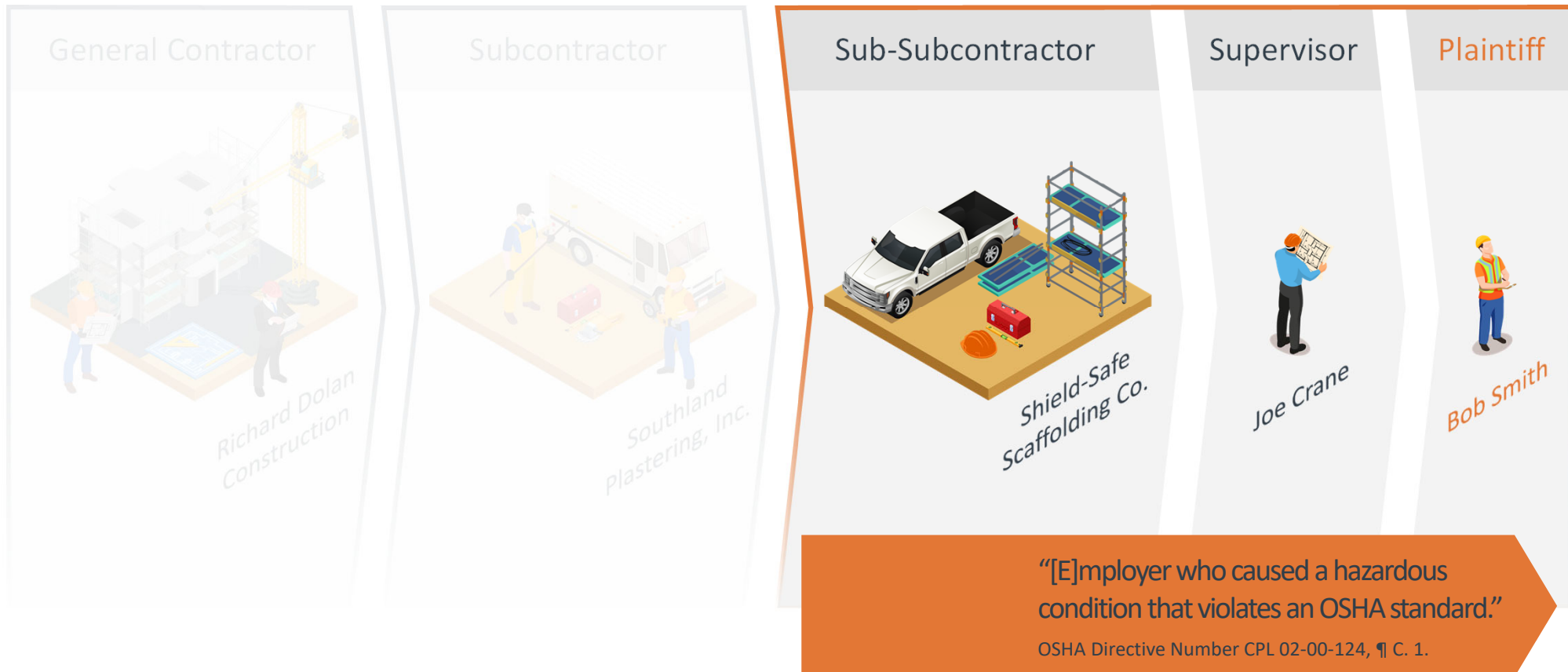
Employers and Liability

Navigating Contractors and Scaffolding



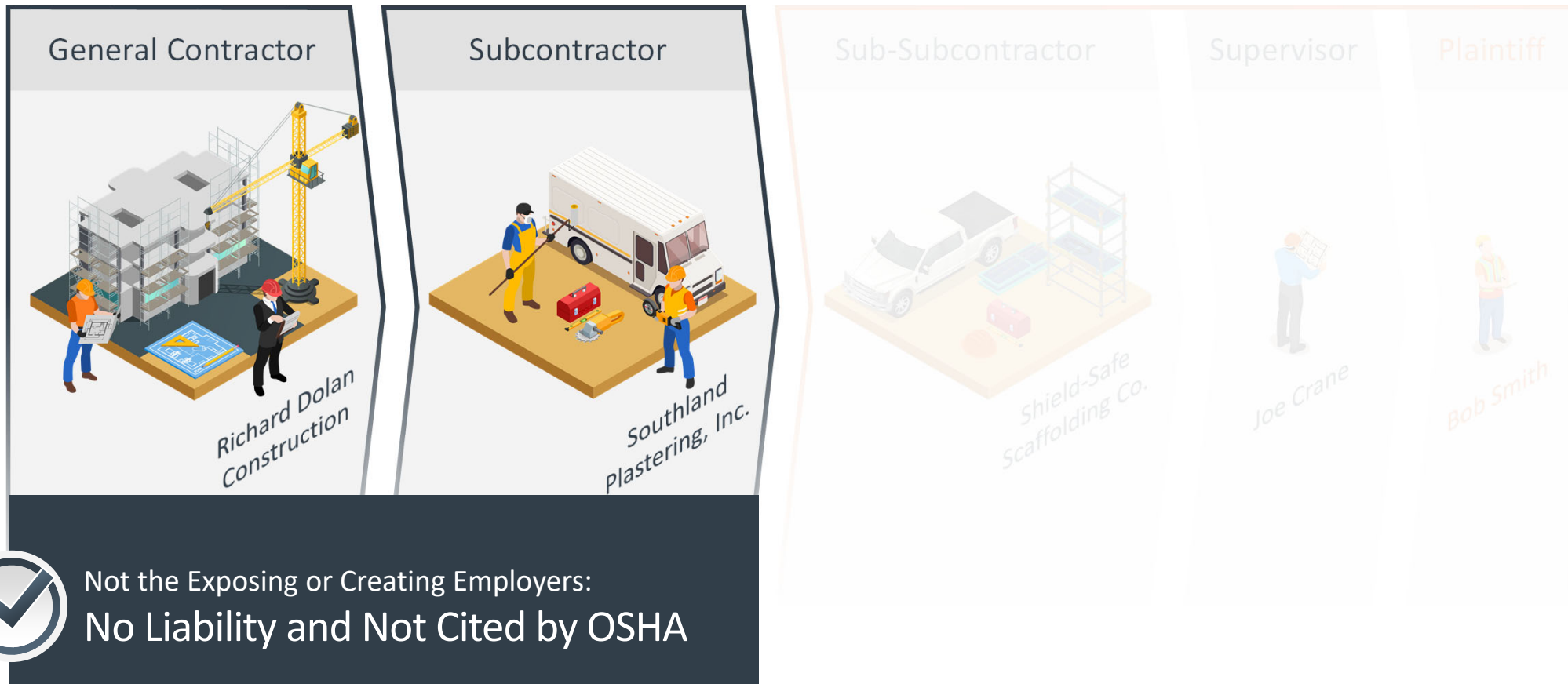
Employers and Liability

Navigating Contractors and Scaffolding



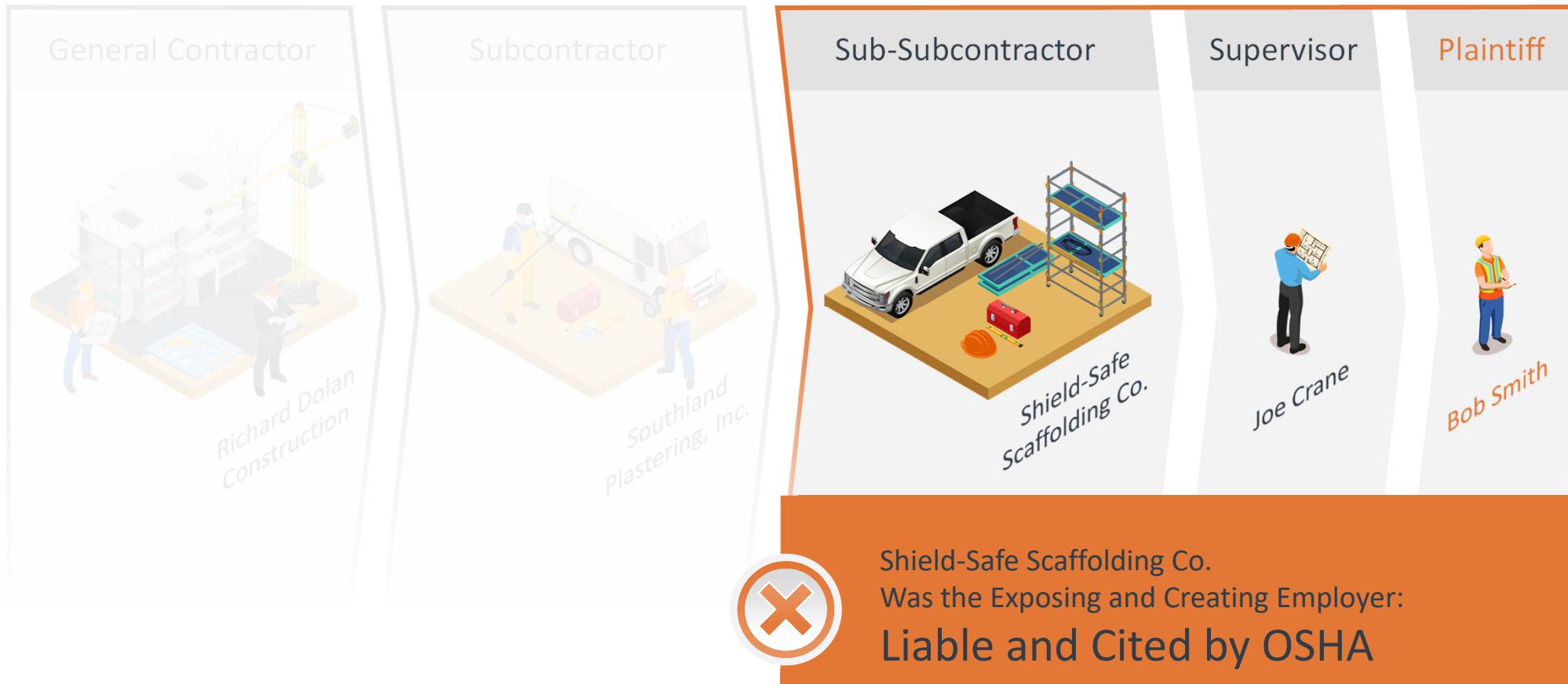
Employers and Liability

Navigating Contractors and Scaffolding



Employers and Liability

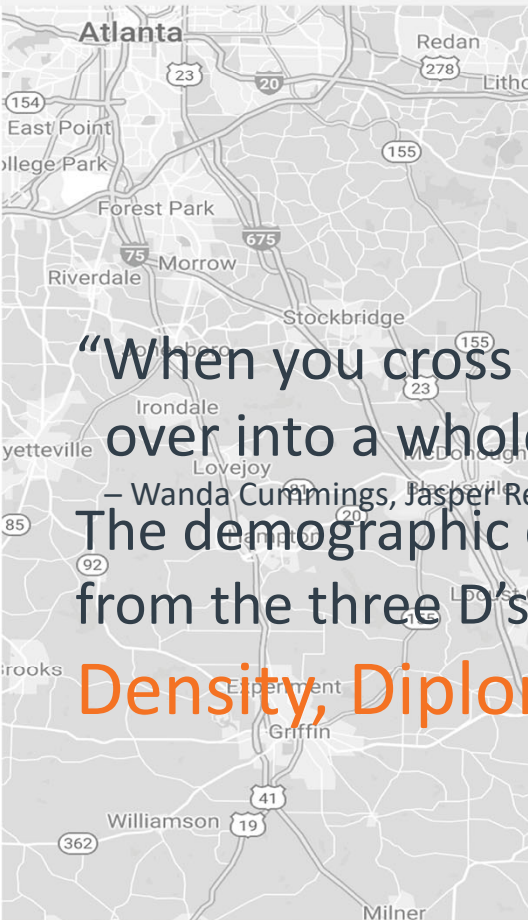
Navigating Contractors and Scaffolding



Visual Communications & Story Development



Pronounced Demographic Differences

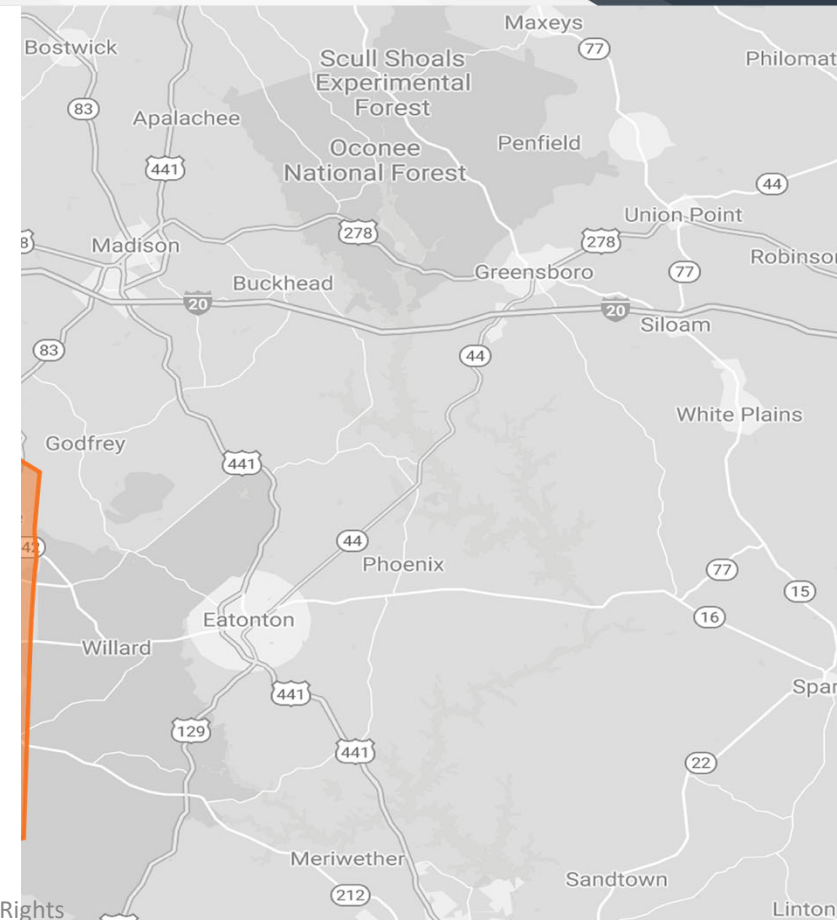


“When you cross over the line, you cross over into a whole other country.”

– Wanda Cummings, Jasper Resident, Retired Antique Store Owner

The demographic differences stem from the three D’s:

Density, Diplomas, & Diversity



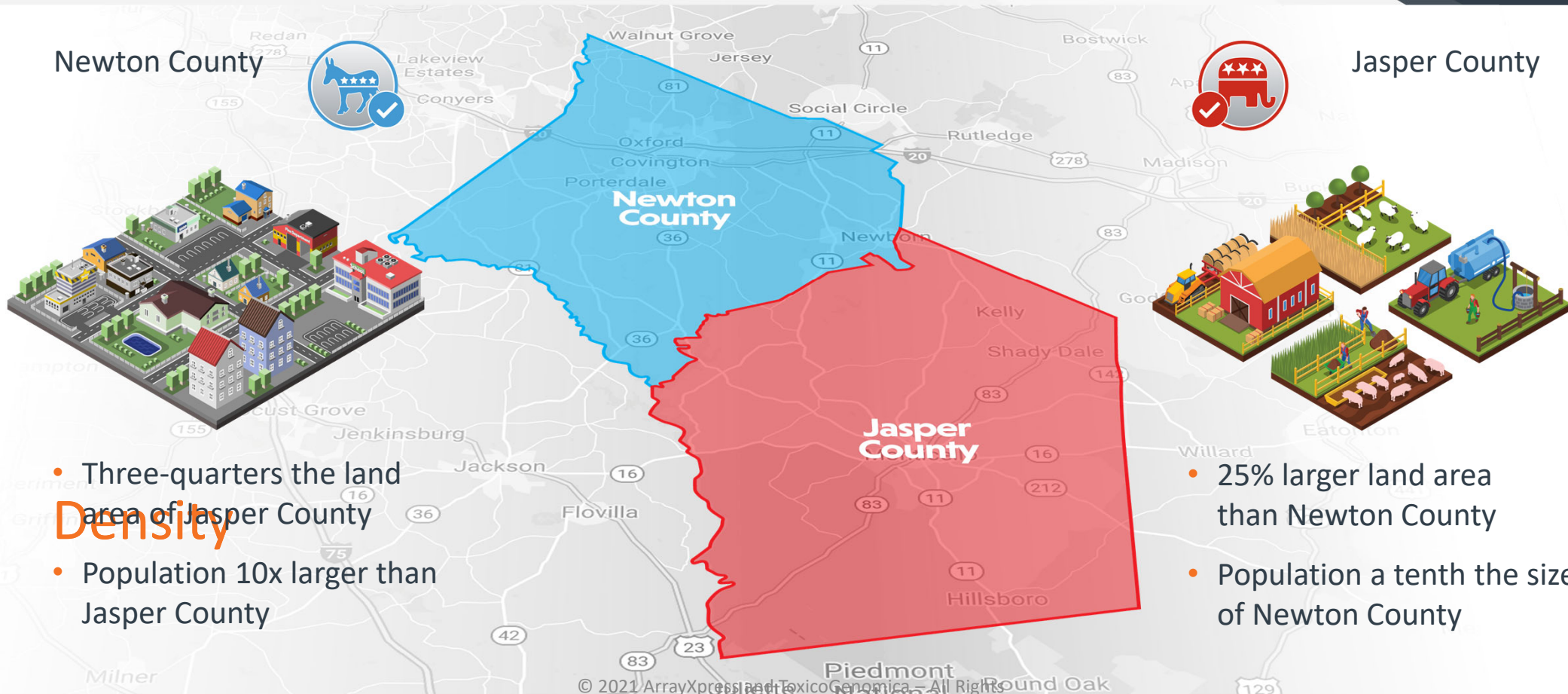
Newton County v. Jasper County

Density, Diplomas, & Diversity

Newton County



Jasper County



- Three-quarters the land area of Jasper County
- Population 10x larger than Jasper County

- 25% larger land area than Newton County
- Population a tenth the size of Newton County

Newton County v. Jasper County

Density, Diplomas, & Diversity

Newton County Diplomas



- Twice the percentage of residents with a college degree than Jasper County



Has More Wealth



Attracts Tech Investors



Attracts Film Directors

Newton County v. Jasper County

Density, Diplomas, & Diversity

Newton County Diversity



- More ethnically diverse, with a minority majority
- Fast growing suburbs with sprawling housing developments



Has become a refuge for the Atlanta working class looking for more property at lower prices

Newton County v. Jasper County

Density, Diplomas, & Diversity



Newton County

Density

- Three-quarters the land area of Jasper County
- Population 10x larger than Jasper County



Diplomas

- Twice the percentage of residents with a college degree than Jasper County



Diversity

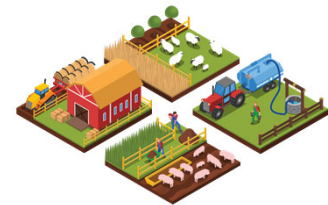
- More ethnically diverse, with a minority majority
- Fast growing suburbs with sprawling housing developments



Jasper County

Density

- 25% larger land area than Newton County
- Population a tenth the size of Newton County



Diplomas

- Half the percentage of residents with a college degree than Newton County



Diversity

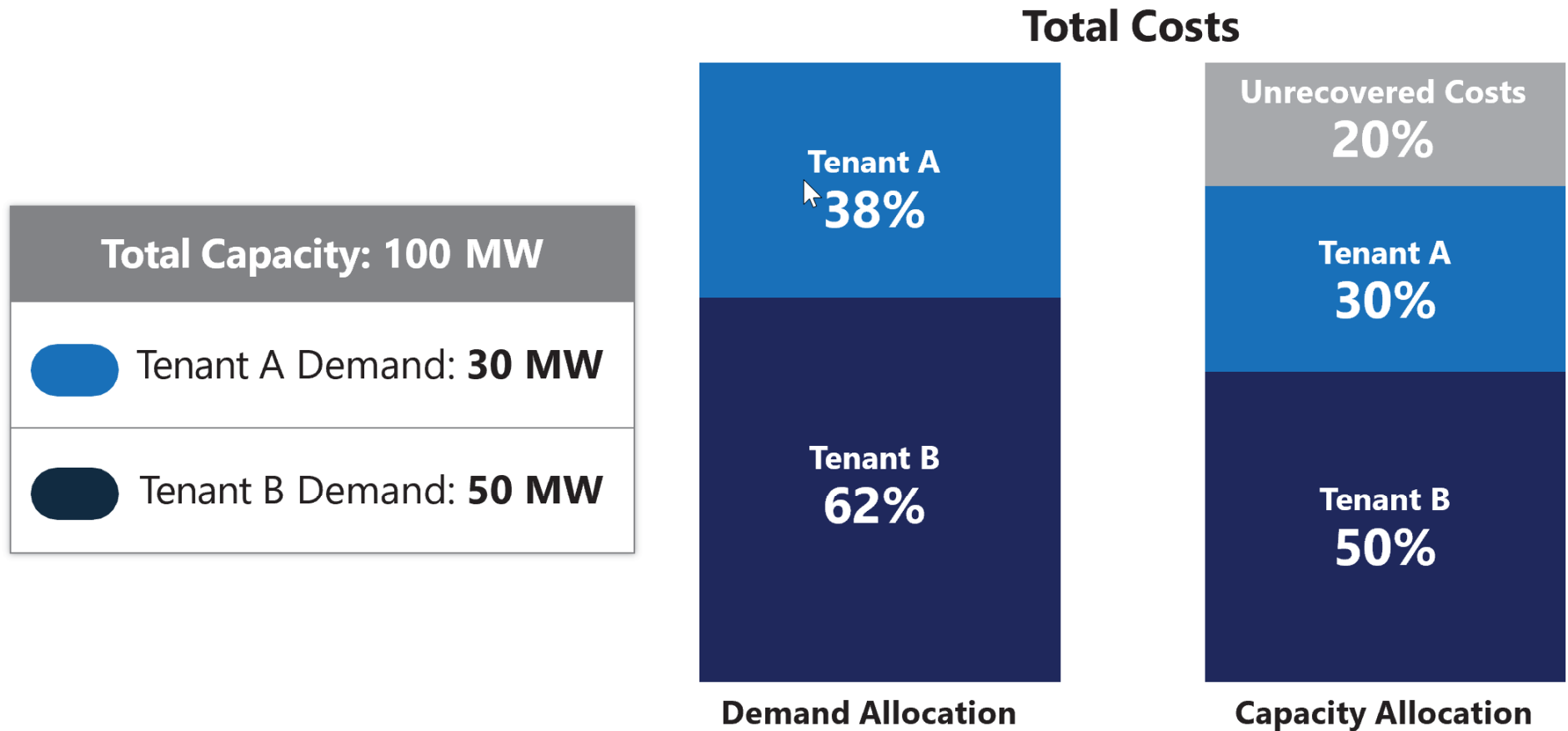
- Less ethnically diverse – 80% white population
- Mostly rural, with an economy heavily reliant on agriculture



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Cost Allocation – Demand vs. Capacity



Mr. Smith's Total Work History

Worked for Over 60 Different Companies

B & B Insulation Inc.
Earl Campbell Construction Co
Betco Constructors, Inc.
Brazosport Machine Works
Brown & Root Inc.
C I C Inc.
Cardinal Construction Co. Inc.
Daniel International Corp.
Enstar Engineering Inc.
Fish Engineering & Construction, Inc.
Freeport GCI, Inc.
ICS Inc.
J.E Merit Constructors, Inc.
Little Construction Co
Mericon International Inc..
Payne & Keller Co.
PSE, Inc.
Pullman Incorporated
Rald Industries, Inc.
Stanley Construction Co.
Star Insulation Co. Inc.
Straus Systems, Inc.
Synchro Construction Co. Inc.
TRI-Construction Co., Inc.
U.S. Contractors Inc.
UPE Incorporated
Used Power Equipment, Inc.
Velasco Scale & Equipment Co.

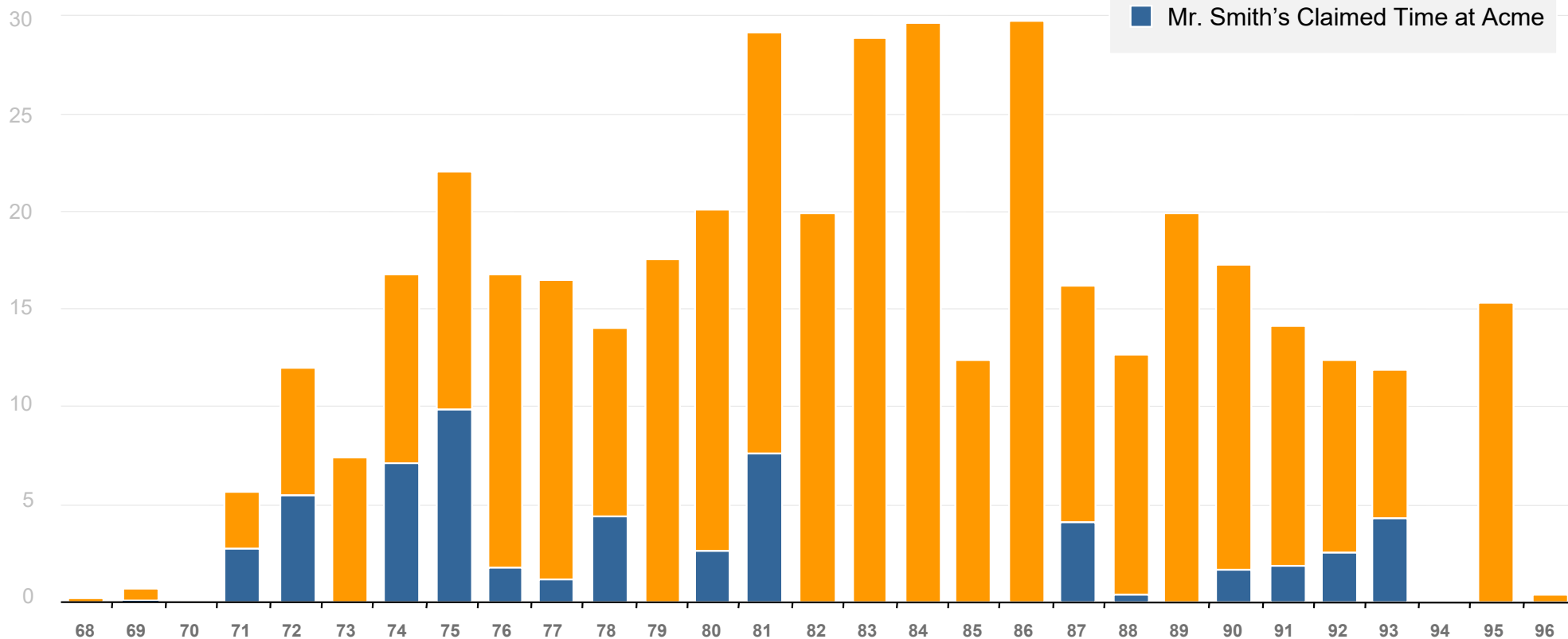
ACSE
ACSEC
Austin Industrial, Inc.
Ebasco Constructors, Inc.
Babcock & Wilcox Construction Co.
Bechtel Construction Co.
Belmont Constructors, Inc.
Billups Service Station
Brand Insulations, Inc.
Brazos Pipe & Steel Co.
Brazos River Harbor Navigation
C F Braun & Co. A Corp.
C F Braun Constructors, Inc.
Catalytic Industrial MMTNNO Inc
CBS Corp-Westinghouse Elec Tax Dept
Chromalloy American Corporation
Dee Jays Marine & Cossin Mobile Home
DeJean Contract Maintenance Co., Inc.
Fluor Enterprises, Inc.
Foster Wheeler Energy Corp.
Fred Claiborne Ford Inc.
H B Zachary Company
Hoover Fabricators, Inc.
IHP Industrial, Inc.
John D. King (K&L Welding Shop)
Joy Technologies, Inc.
KBW Marine Inc.
Kellogg Brown & Root, Inc.

Kroger Co.
Larry D & Lisa D. Lovett
Quality Fluid Control
Maencor Inc.
Matthews-Buckner Construction, Inc.
Monical & Powell, Inc.
The N.W. Kellogg Co.
Robert S Parks Construction Co.
Rolands Restaurants Inc.
Smith Welding Works Inc.
Technical Contractors, Inc.
Thompson Industrial Contractors, Inc.
Triangle Instrument & Piping Inc.
Yeargin Construction Co., Inc.

Mr. Smith's Work History

1968 - 1996

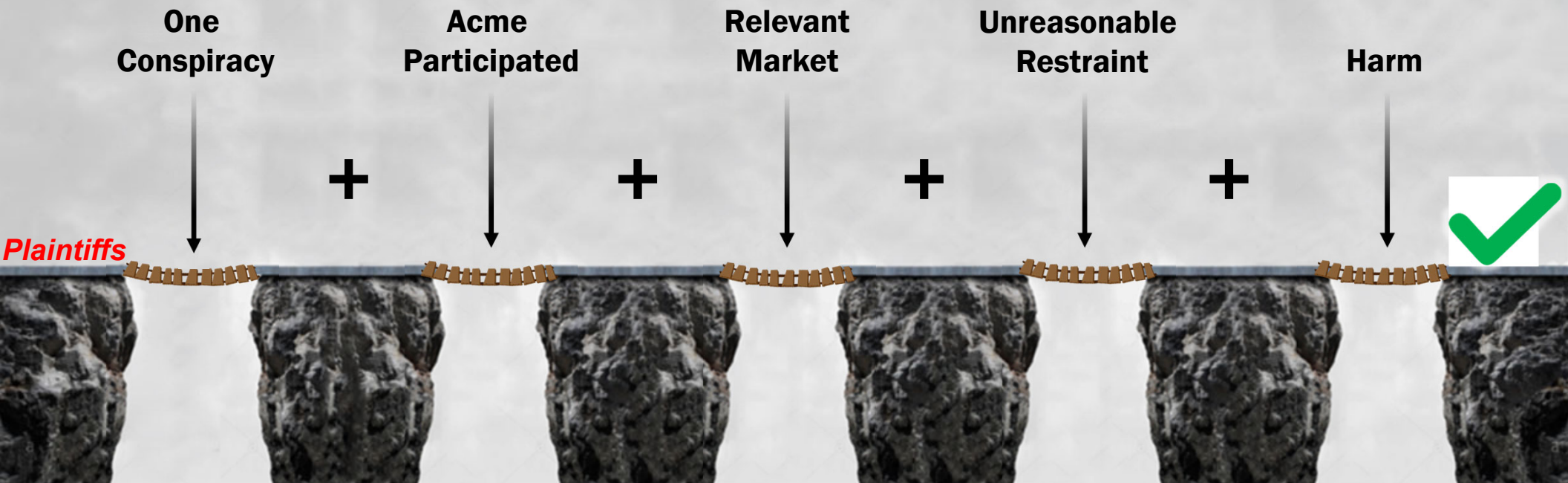
\$ Dollars (Thousands)



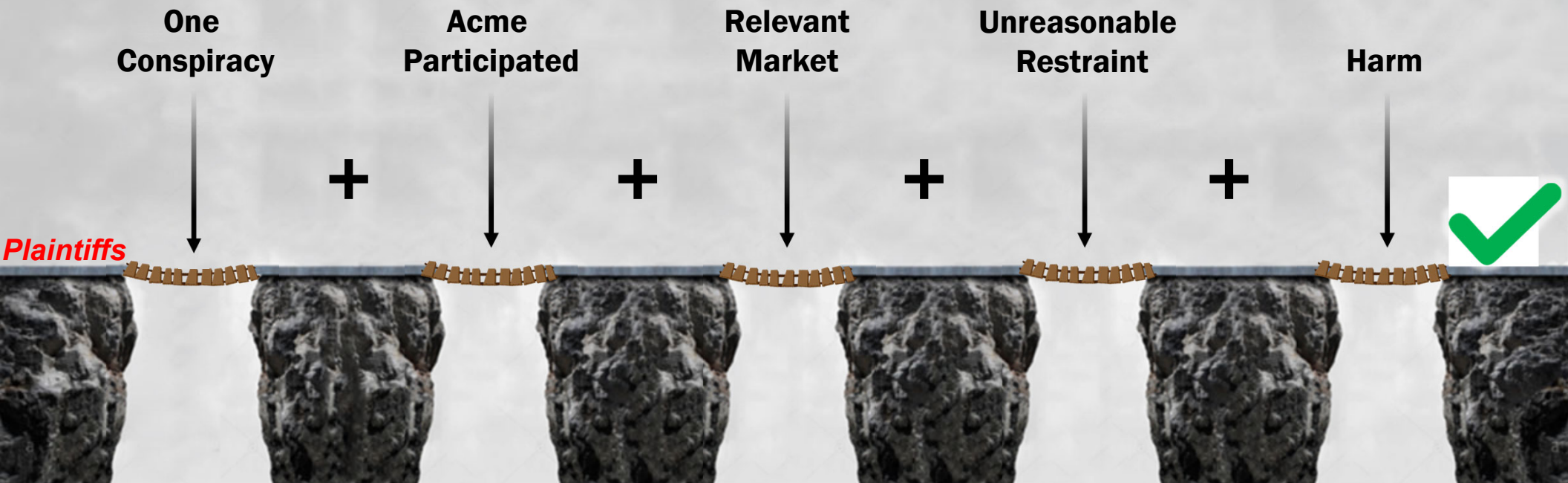
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***Plaintiffs Must Prove
All Of The Following:***



***Plaintiffs Must Prove
All Of The Following:***



Genetic Predisposition vs. Genetic Susceptibility

Before...

Genetic Predisposition IS NOT Genetic Susceptibility

Pro-Plaintiff

- Plaintiff's genetic profile caused the toxin to have a more powerful impact
- Eggshell Plaintiff

**Pure
Susceptibility**

Intermediate

- Inherited mutation **may** increase susceptibility
- Inherited mutation **may** predispose toward injury

Pro-Defense

- Inherited mutation caused the injury
- Powerful alternative cause argument

**Pure
Predisposition**

Genetic Predisposition vs. Genetic Susceptibility

After...

Genetic Predisposition to Cancer



Inherited (germline) mutations drive a person to cancer at rates far beyond normal, regardless of exposures

Some germline mutations inevitably will cause a cancer (e.g. TP53)

Cancer

Inherited (Germline) Mutations Can Cause Vast Increases in Endogenous Somatic Mutations That Can Drive Cancers

Typical Flow



MLH1 Gene Mutated



+530-980%

Increase of Endogenous Somatic Mutations

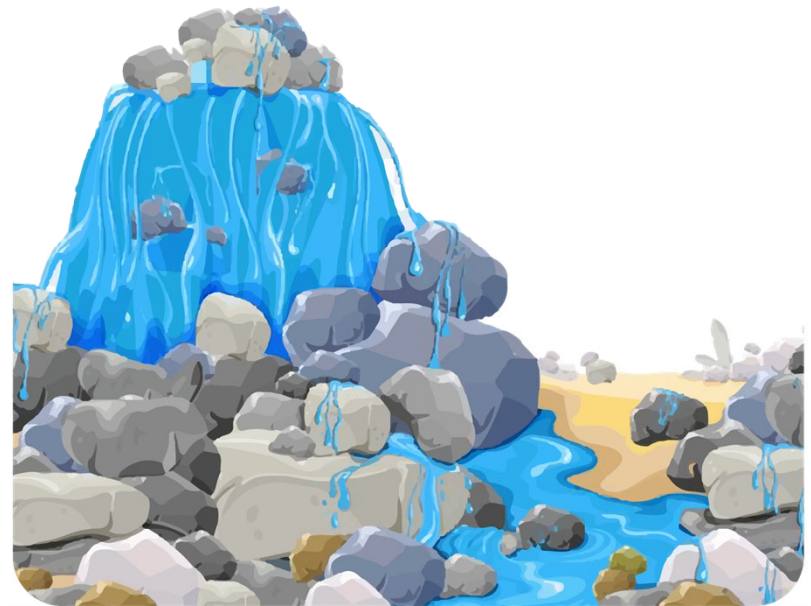
PMS2 Gene Mutated



+4,500%

Increase of Endogenous Somatic Mutations

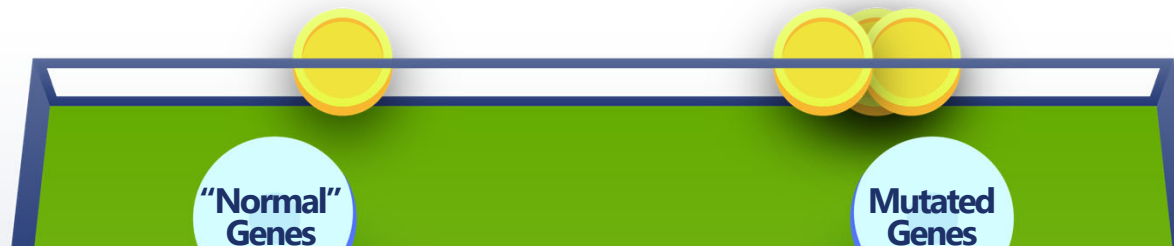
MLH1 and PMS2 Genes Mutated



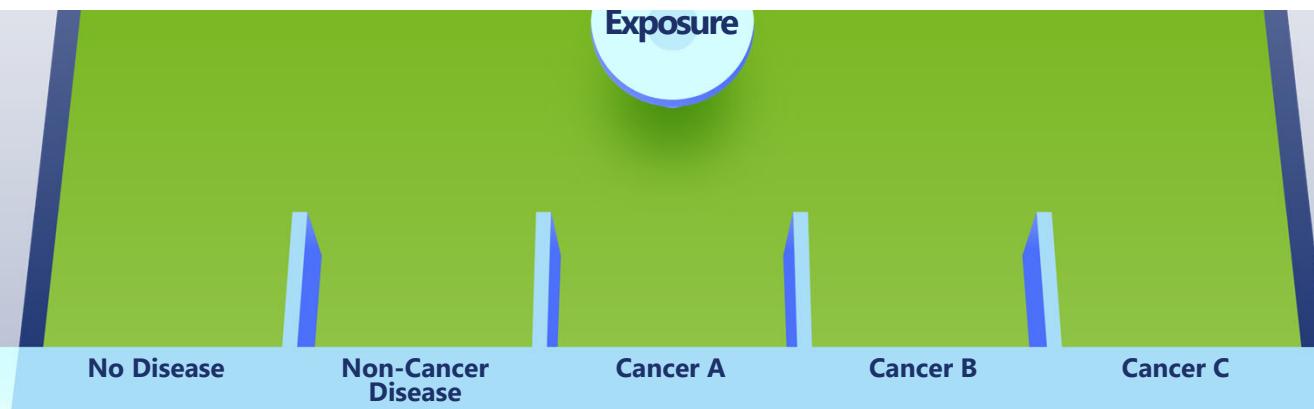
+7,480%

Increase of Endogenous Somatic Mutations

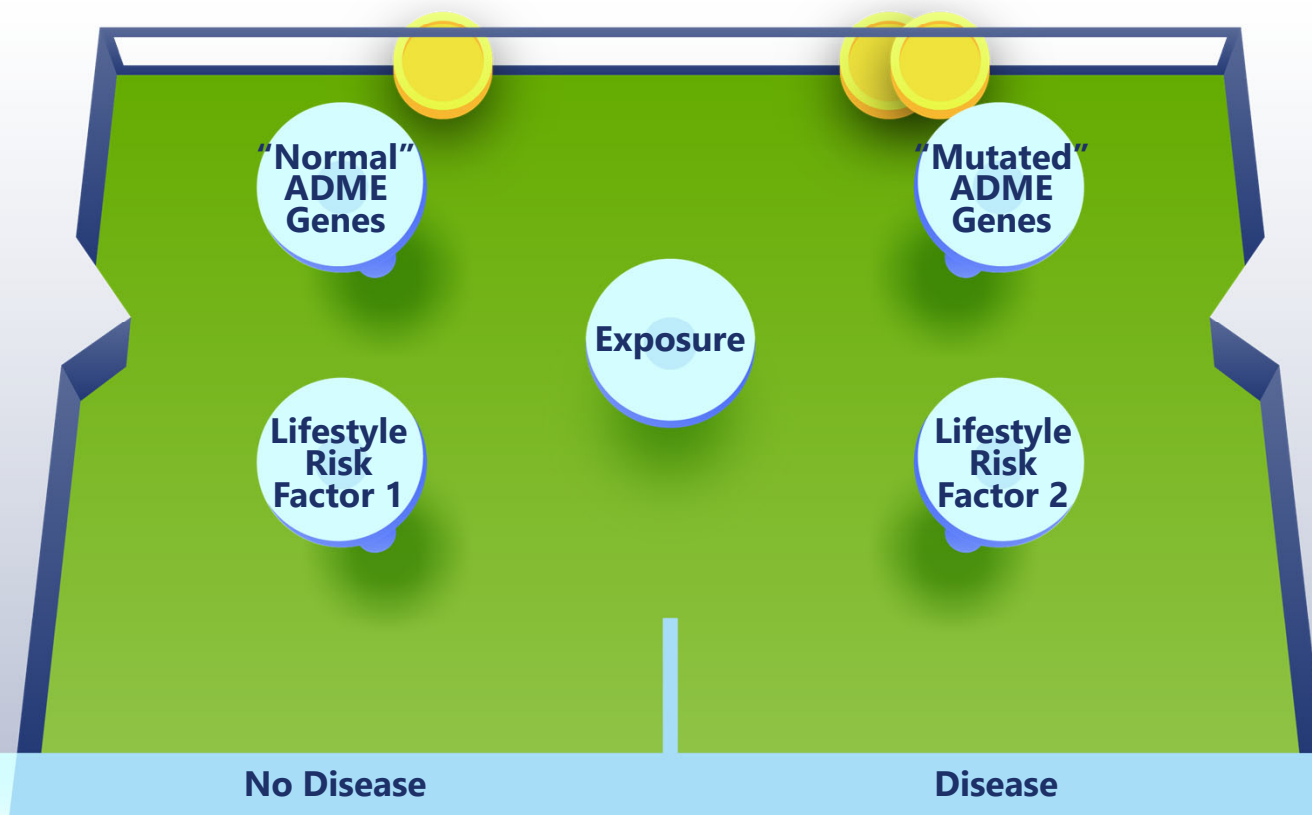
Genetic Susceptibility to Cancer



Some inherited (germline) mutations can make other factors (such as chemical exposures) more likely to increase the risk of cancer



Organic Solvent Susceptibility



Predisposition vs. Susceptibility

Genetic Predisposition is a Separate Concept From Genetic Susceptibility

Predisposition

Genetic Predisposition

- ✓ Exposure to toxicant is irrelevant to mutation's role in particular injury
- ✓ Individual develops particular injury because of specific inherited (germline) mutations in one or more genes
- ✓ Risk of developing injury depends on penetrance of mutations

Cancer

Susceptibility

Genetic Susceptibility

- ✓ "Normal" ADME Genes: Individual response is toxicant-specific
 - a. E.g., for organic solvents or pharmaceutical genetic susceptibility: Individual develops particular injury because of genetic mutations involving metabolism of a toxicant (i.e., ADME genes)
- ✓ "Mutated" ADME Genes
- ✓ Lifestyle Risk Factor 1: Exposure to toxicant is irrelevant to mutation's role in particular injury
- ✓ Lifestyle Risk Factor 2
- ✓ Specific genes have been demonstrated to produce genetic susceptibility (e.g., ADME genes or immune response genes)

No Disease

Disease

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Summary

IT is Not Information Overload – It is Filter Failure

- Don't show everything just because you can
- Connect the dots (don't just add more dots)
- Flashy icons and animations do not “jazz things up”
- Teach key concepts clearly
- Having everything on a computer does not take the place of a good narrative



Thank You!