SMS: The Mindset

How corporate culture can affect SMS implementation and be effected by it

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Business Airport World Expo| London Farnborough, UK | 19-21 March, 2013

Agenda

- SMS: What it is, what it isn't, and the additional element
- What is safety culture?
- How can safety culture impact SMS implementation?
- How can SMS implementation impact safety culture?

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What an SMS is not…

- It is **<u>not</u>** a product that can be bought or a series of boxes to check

- It is **<u>not</u>** a guarantee of sufficient safety performance*

- It is **<u>not</u>** something that can be bolted on to organizational processes

- It is **<u>not</u>** sufficient if practiced mechanically*

Hudson, 2001; Van Dyke, 2006

What an SMS is…

- An SMS is a collection or "toolbox"

- A set of beliefs and practices (culture)*

- "…it [SMS] is held together by a fourth component – safety culture."*

*Transport Canada; Sumwalt, 2012

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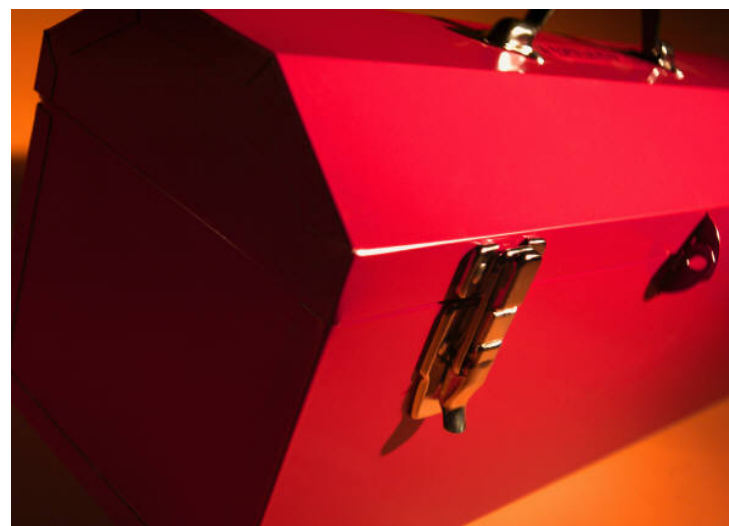
What is SMS?

First and foremost, it is a <u>system</u> to manage safety

- Composed of four sub-systems that interact with each other to achieve the goal of the system

- What is the goal of the system?
  - Identify hazards, reduce risk and assure an optimal level of safety performance

- What are the four sub-systems?
  1. **Safety policy**: foundation of the SMS
  2. **Safety risk management**: proactively seek out hazards, assess and mitigate risk
  3. **Safety assurance**: monitor operations and collect data to assure safety performance, identify emerging hazards and gauge SMS performance
  4. **Safety promotion**: dissemination of safety information, SMS performance data, and commitment to training

*Transport Canada; Sumwalt, 2012

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Goal of an SMS

- The processes of an SMS (toolbox items) should work together

- The goal of a system approach to safety is to further reduce the incident rate by making safety 'behavior driven.'*

- If everyone is trained to do their jobs in a safe manner and proactively look for hazards, then a company can improve their defenses and build an organization more resistant to human error.*

*Transport Canada

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Culture and SMS

- A developed systems approach to managing safety can help improve culture, assuming the worst-case-scenario of a pathological organization is not in place
- An "ideal" or "appropriate" culture must be in place to implement SMS

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What is safety culture?

This remains a hot topic of debate

- Safety culture as a term was not created by the aviation industry

- "Safety culture" was first used in a 1986 IAEA report on the Chernobyl disaster*

Van Dyke, 2006

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What is safety culture?

- Continental Express accident near Eagle Lake, Texas in 1991:
  - *"The failure of Continental Express management to establish a corporate culture which encouraged and enforced adherence to approved maintenance and quality assurance procedures…"**
  - *"The NTSB has on a number of occasions identified a weak safety culture as being a factor in accidents in several transportation modes."**

- So what is it?

Van Dyke, 2006; Sumwalt, 2012

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What is safety culture?

"There is no such thing as 'safety culture' in and of itself, but rather organizational culture and how this culture affects and/or influences safety, positively or negatively."*

Antonsen, 2009

What is safety culture?

Organizational culture

- Each organization will have its own distinct cultural environment

Western

Eastern

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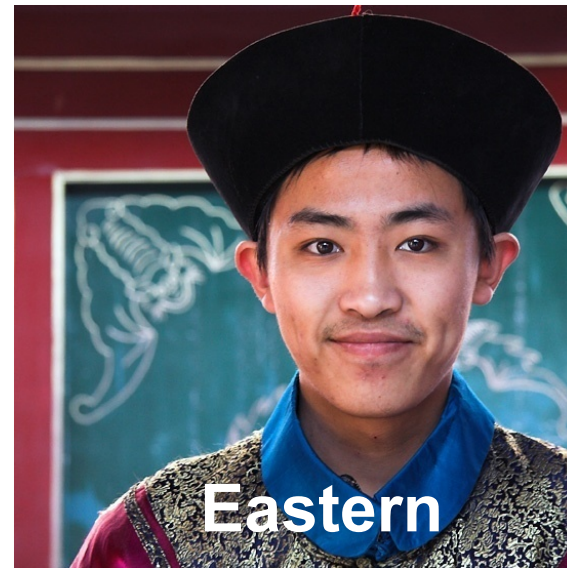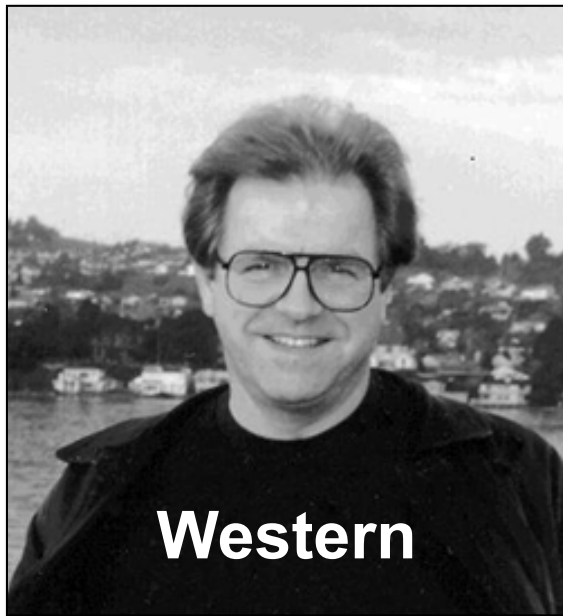
What is safety culture?

Organizational culture: A definition

"*Shared values (what is important) and beliefs (how things work) that interact with an organization's structures and control systems to produce behavioral norms."*

- In layman terms: The way we do things 'round here
- Research has shown that even in one organization different functional units can have subcultures.*

* Reason, 2006; Antonsen, 2006

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What is safety culture?

Organizational culture as it relates to safety

- "Safety culture may be taken as the enduring value and priority placed on workers and public safety by every group at every level of the organization."* or...

- "Organizations with positive safety culture are characterized by communication founded on mutual trust, by shared perceptions of the importance of safety, and by confidence in the efficacy of preventive measure."*

Van Dyke (2006): Reason (2006)

What is safety culture?

- Is there a way to give attributes or defined components (ingredients) to something so nebulous to aid in making it more tangible?
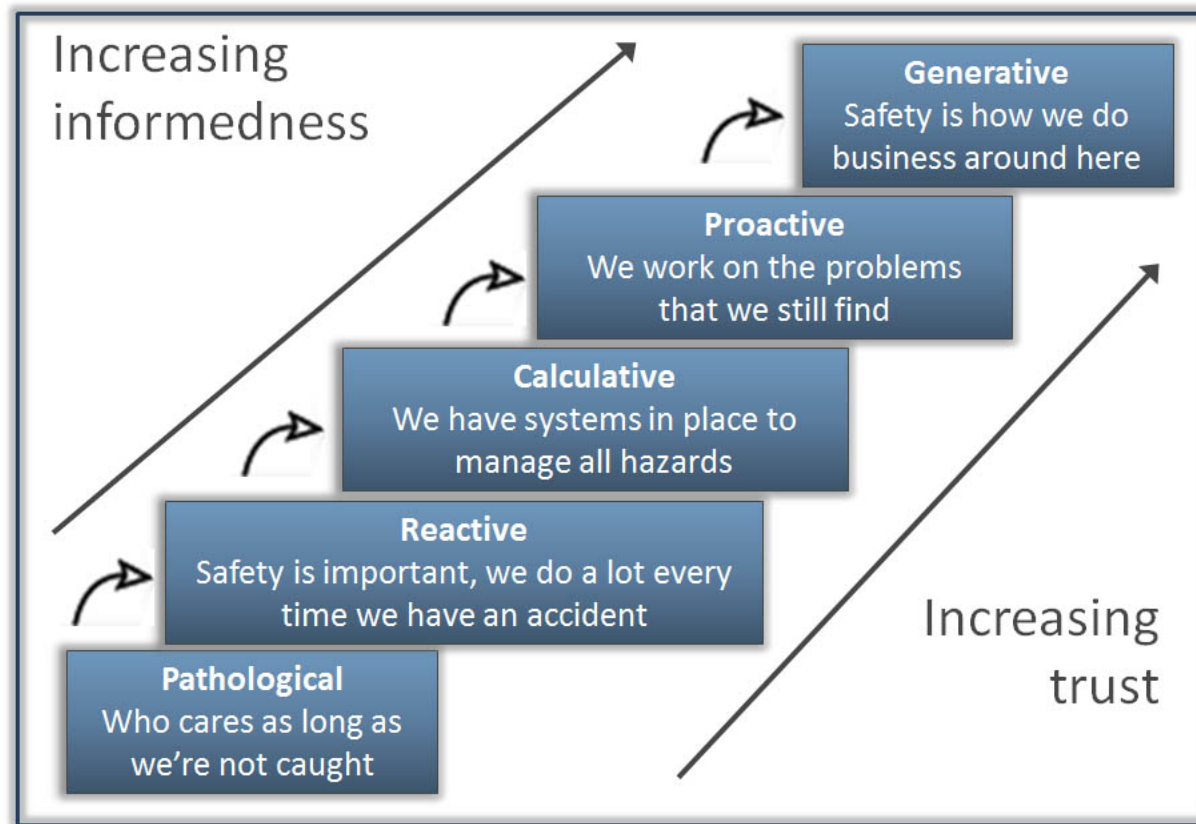 Yes. Four components of safety culture*:

  1. Reporting culture – people share within the system
  2. Just culture – people are held accountable to the system
  3. Flexible culture – people adapt to the system
  4. Learning culture – people improve the system

Informed culture

Reason (2006)

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What is safety culture?

- Is there a benchmark or yard stick to measure your safety culture against? Levels of safety culture maturity

Increasing informedness

Generative
Safety is how we do business around here

Proactive
We work on the problems that we still find

Calculative
We have systems in place to manage all hazards

Reactive
Safety is important, we do a lot every time we have an accident

Pathological
Who cares as long as we're not caught

Increasing trust

Hudson, n.d.

What is safety culture?

Attributes of each level of maturity*

- Pathological: the sick culture

- Reactive: the "knee-jerk" culture

- Calculative: the mechanically acting culture

- Proactive: seeking culture

- Generative: safety is intrinsic

Stolzer, Halford, & Goglia, 2011; Hudson, n.d.

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What is safety culture?

Measuring through climate

Triangle diagram:
- **Organizational Culture**
  ↓
- **Safety Culture**
  ↓
- **Safety Climate**

With acknowledgement to Dr. Robert Baron, The Aviation Consulting Group

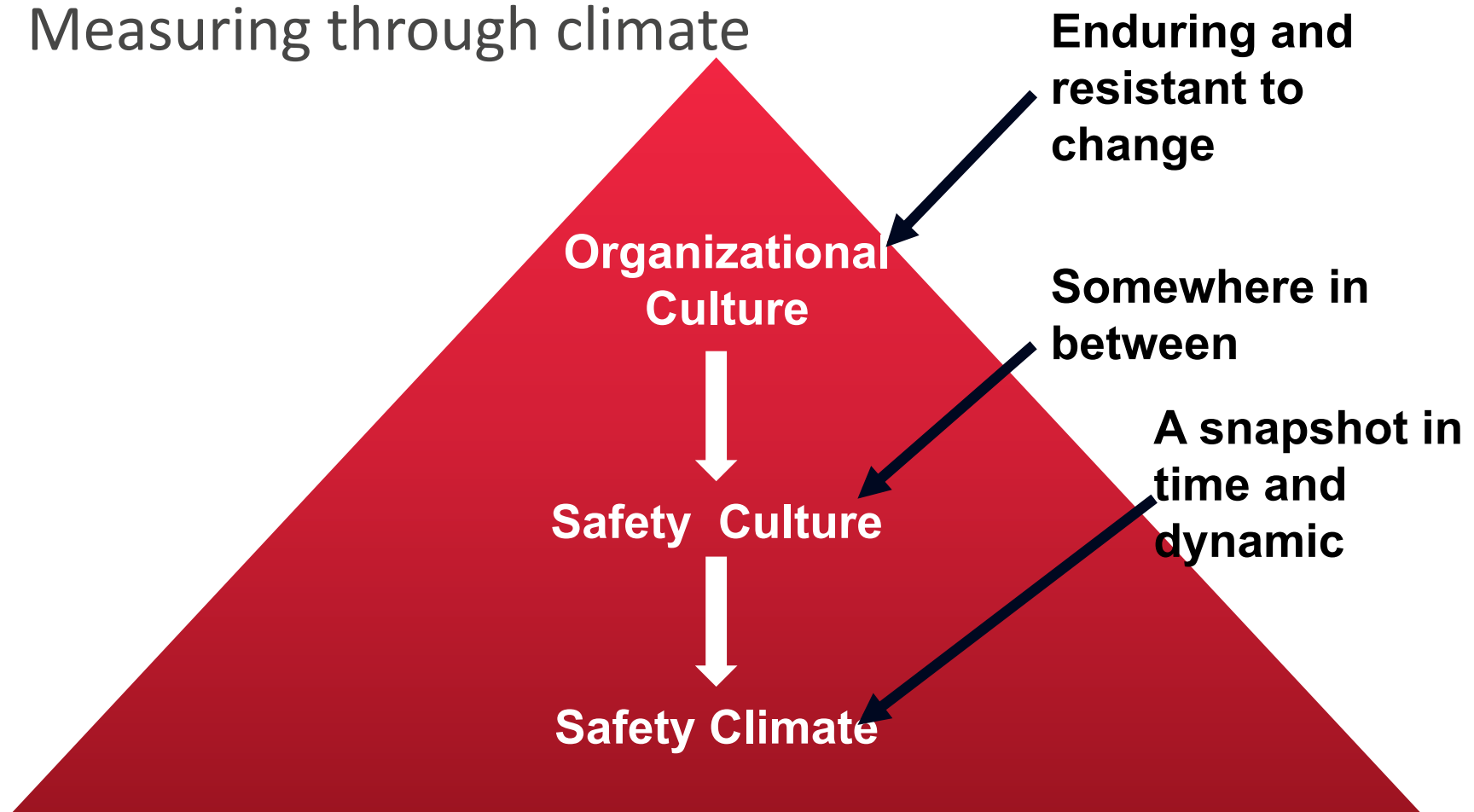UNIVERSAL Weather & Aviation, Inc.

What is safety culture?

Measuring through climate

- ## What is safety climate?
    - "...the surface features of the safety culture discerned from the workforce's attitudes and perceptions at a given point in time"*
    - "...a snapshot of the state of safety, providing an indicator of the underlying safety culture..."*

- ## Why is it important?
    - Perceived
    - Dynamic
    - Weather

Van Dyke, 2006; Hudson, n.d

What is safety culture?

Measuring through climate

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How can safety culture impact SMS implementation?

SMS can fail on a poor and unknown foundation poor and unknown foundation

How can safety culture impact SMS implementation?

Initial assessment - Internal

- ## Self-survey: TP 13844*
  - http://www.tc.gc.ca/eng/civilaviation/publications/tp13844-menu-275.htm

- ## Participant Survey:
  - Guidance for development found in "Safety Culture Framework for the ECAST SMS-WG"*

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How can safety culture impact SMS implementation?

Initial assessment - Internal

- **General Self - Observation***
  - Red Flags
    - Apathy
    - Lack of trust
    - Sacrifices made to save money/time
    - Reactive tendencies
  - Overheard comments:
    - Nobody ever listens to me
    - Nobody really cares
    - I hope…
    - This is the way we do things around here

Garcia & Boyer, n.d.

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How can safety culture impact SMS implementation?

Initial assessment - Internal

- Were there any red flags at NASA?

Garcia & Boyer, n.d.

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How can safety culture impact SMS implementation?

Initial assessment - External

- Value in using a third-party provider/consultant
  - Measuring safety climate
  - Acclimation

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How can safety culture impact SMS implementation?

Pitfalls with the different levels of maturity using Reason's four culture components

	Pathogenic	Reactive	Calculative
Reporting	• Messengers shot • No communication		
Just	• Little trust • No tolerance		
Flexible	• Lack of autonomy		
Learning	• Indecisions • Data not shared		
Other pitfalls	• Lack of accountability • No inter-department communication • No buy-in		

How can safety culture impact SMS implementation?

- Tips for SMS implementation in a **pathogenic** culture that might need attention

Intervention!

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How can safety culture impact SMS implementation?

Pitfalls with the different levels of maturity using Reason's four culture components

	Pathogenic	Reactive	Calculative
Reporting	• Messengers shot • No communication	• Denial • Low levels of trust	
Just	• Little trust • No tolerance	• Responsibility for failures	
Flexible	• Lack of autonomy	• Workforce not trusted	
Learning	• Indecisions • Data not shared	• Data stagnation • Information flow in one direction only • Lessons learned *after* the fact	
Other pitfalls	• Lack of accountability • No inter-department communication • No buy-in	• Knee-jerk procedures • Questionable legal requirements • Poor safety conditions	

How can safety culture impact SMS implementation?

Tips for SMS implementation in a reactive culture that might need attention

Four components of a SMS			
Safety Policy	**Safety Risk Management**	**Safety Assurance**	**Safety Promotion**
• Non-punitive policy • Management accountability • Advertise safety commitment	• Proactive risk management • Standards above legal requirements	• Enhanced data analysis • Manager awareness • Promote reporting • Inclusion of employees in fixes	• Bi-lateral data flow • Publicize successes • Training

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How can safety culture impact SMS implementation?

Pitfalls with the different levels of maturity using Reason's four culture components

	Pathogenic	Reactive	Calculative
Reporting	• Messengers shot • No communication	• Denial • Low levels of trust	• Information ignored
Just	• Little trust • No tolerance	• Responsibility for failures	• Selective blaming
Flexible	• Lack of autonomy	• Workforce not trusted	• Frontline employees not empowered
Learning	• Indecisions • Data not shared	• Data stagnation • Information flow in one direction only • Lessons learned *after* the fact	• No follow-up • "It's all good" (wink) • Lack of top-down feedback • Hindered bottom-up
Other pitfalls	• Lack of accountability • No inter-department communication • No buy-in	• Knee-jerk procedures • Questionable legal requirements • Poor safety conditions	• "Bookshelf" procedures • Complacency • False appearance

How can safety culture impact SMS implementation?

Tips for SMS implementation in a <u>calculative</u> culture that might need attention

Four components of a SMS			
Safety Policy	**Safety Risk Management**	**Safety Assurance**	**Safety Promotion**
• Accountabilities defined • Performance goals	• Communicating hazards	• Track performance indicators • Follow-up • Promote reporting • Inclusion of employees in fixes	• Informing accountable executive • Publicize successes • Relevant safety meetings

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How can safety culture impact SMS implementation?

Beyond calculative

- ## Life after calculative*
  - Mechanical performance

- ## SMS now becomes intrinsic to further culture maturity

- ## Safety management programs that can help take your culture to the next level:
  - Culture assessments
  - FOQA, LOSA
  - ASAP-type programs
  - Wider scope data sampling
  - Forecasting

Van Dyke, 2006

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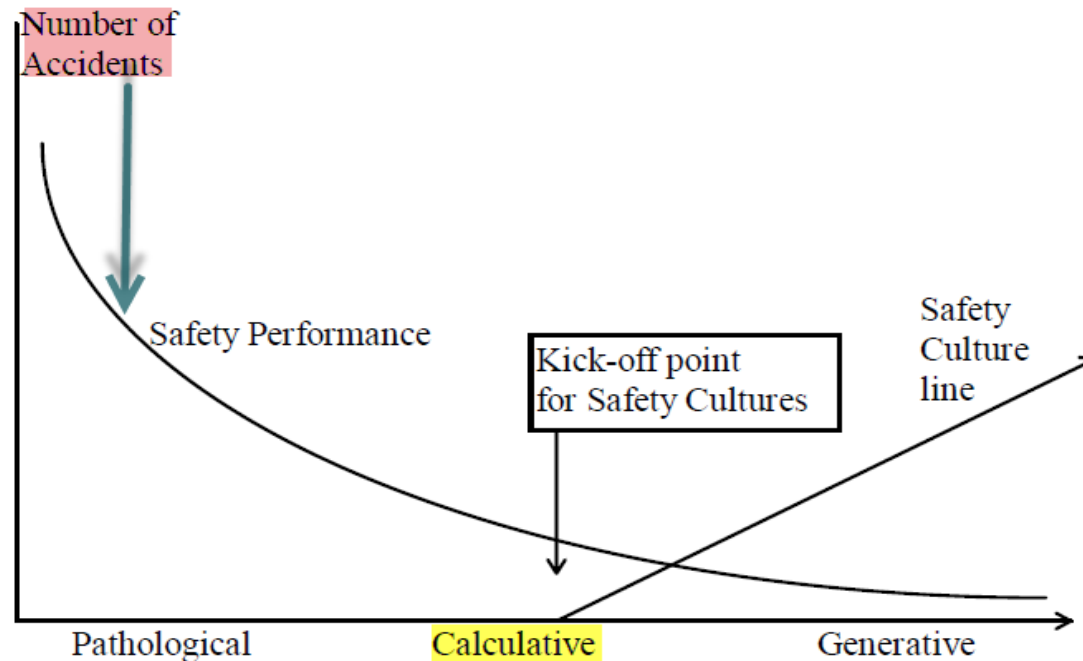# How can safety culture impact SMS implementation?
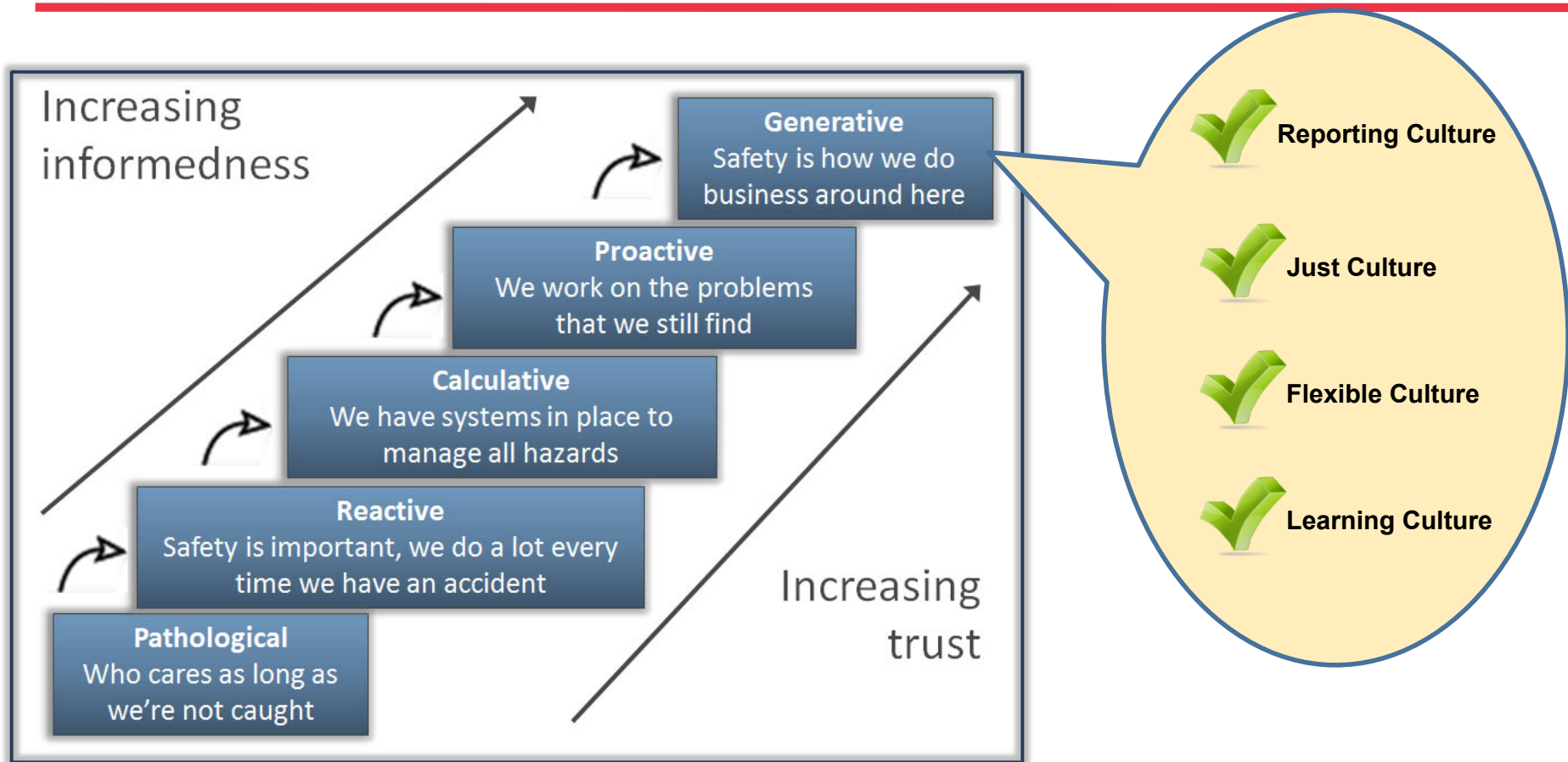
Beyond calculative

Figure 1: The safety performance will improve as the culture matures, but there can only start to be talk of a Safety Culture once the calculative stage has been passed
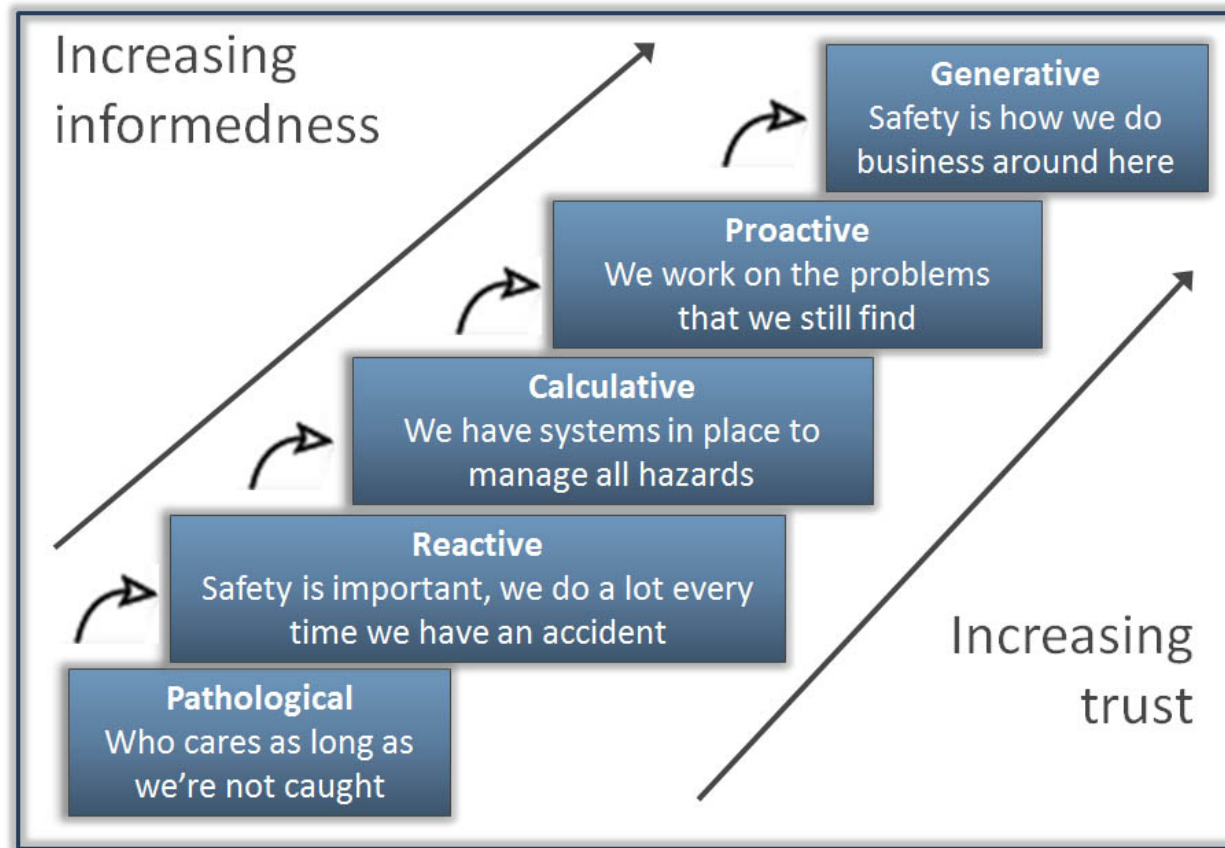
Hudson, Safety culture – theory and practice, 1999

How can safety culture impact SMS implementation?

Hudson, n.d.

Can SMS implementation impact safety culture?

- YES!

Increasing informedness

Generative
Safety is how we do business around here

Proactive
We work on the problems that we still find

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Reactive
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Increasing trust

Hudson, n.d.

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How can SMS implementation impact safety culture?

- Hope!

- "...a safety culture can only arise when the necessary technical steps and procedures are already in place and in operation.*

- "By constructing deliberate procedure, an organization can force itself into taking safety seriously"*

Hudson, Safety Culture: the ultimate goal, 2001

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How can SMS implementation impact safety culture?

Process impact through Reason's four components

1. ### Reporting culture
   - Implement a simple reporting process
   - Establish lines of communication

2. ### Just culture
   - Non-punitive action
   - Immunity
   - Policies and processes

3. ### Flexible culture
   - Employee training in hazard identification and risk management
   - Empowering managers
   - Robust operating procedures

4. ### Learning culture
   - Safety assurance processes
   - Lessons learned
   - Management accountabilities
   - Action groups
   - Processes

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How can SMS implementation impact safety culture?

The bottom line

- Deliberate, systematic processes can drive safety culture to a point

- Beyond that point, safety management becomes less extrinsic and more intrinsic

- Difficult news: Change is hard

- Good news: It can be and has been done

  – Research shows that smaller organizations, like corporate flight departments, are more likely able to develop toward the generative culture*

  – Smaller organizations are more flexible and focused*

Hudson, n.d.

How can SMS implementation impact safety culture?

Final quote

- "…an effective culture of safety is one that has practiced safety management until that skill set has become second nature – safety is simply the way business is done, and improvements to the system are considered improvements to the company as a whole." *

Stolzer, Halford, & Goglia, 2011

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Conclusion

- SMS is not a "product" but rather a system composed of people, processes, resources and culture

- Safety culture is viewed as organizational culture's attitude towards safety and is manifest through the safety climate

- Safety culture has four components: reporting, just, flexible and learning*

- Safety culture has five levels of maturity: pathogenic, reactive, calculative, proactive and generative*

Reason, 2006; Hudson, 1999

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Conclusion

- Safety climate should be measured prior to and during SMS implementation to get a "lay of the land" and a sense of maturity

- Safety culture weaknesses can affect SMS implementation

- SMS implementation can impact safety culture up to a point

- Beyond the calculative level of maturity, SMS becomes less about implemented processes and becomes more intrinsic

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Any questions?

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About the presenter

Jason Starke

- A former corporate pilot and United States Air Force veteran, Captain Jason Starke is an expert on aviation safety and operations. He currently serves as Safety Management and Integration (SM&I) Operations Manager for Universal Weather and Aviation, Inc.

- Jason has more than 21 total years of aviation experience and led his previous company's SMS and Emergency Response Plan implementation. As a pilot, he maintains currency with the Hawker and Challenger 600 aircraft and assists with simulator instruction on those aircraft. He has also flown the King Air 90, CE-421, Citation I, Citation II, V, VII, Hawker 800, and Challenger 601. He has also served as a presenter on SMS at industry events and holds a Bachelor's of Science in Meteorology and a Master's Degree in Aviation with specializations in safety and operations.

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