Implementing SMS at the University of North Dakota

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UND's System

- Part 141 Pilot School
  - 110 Aircraft
  - 8 Rotorcraft
  - 23 Simulation Type Devices
  - 9 UAS
- UAS Degree Program
- Part 145 Maintenance Repair Station
- UAS FAA Designated Test Site
- Additional Locations
  - Phoenix, Az
  - Crookston, Mn

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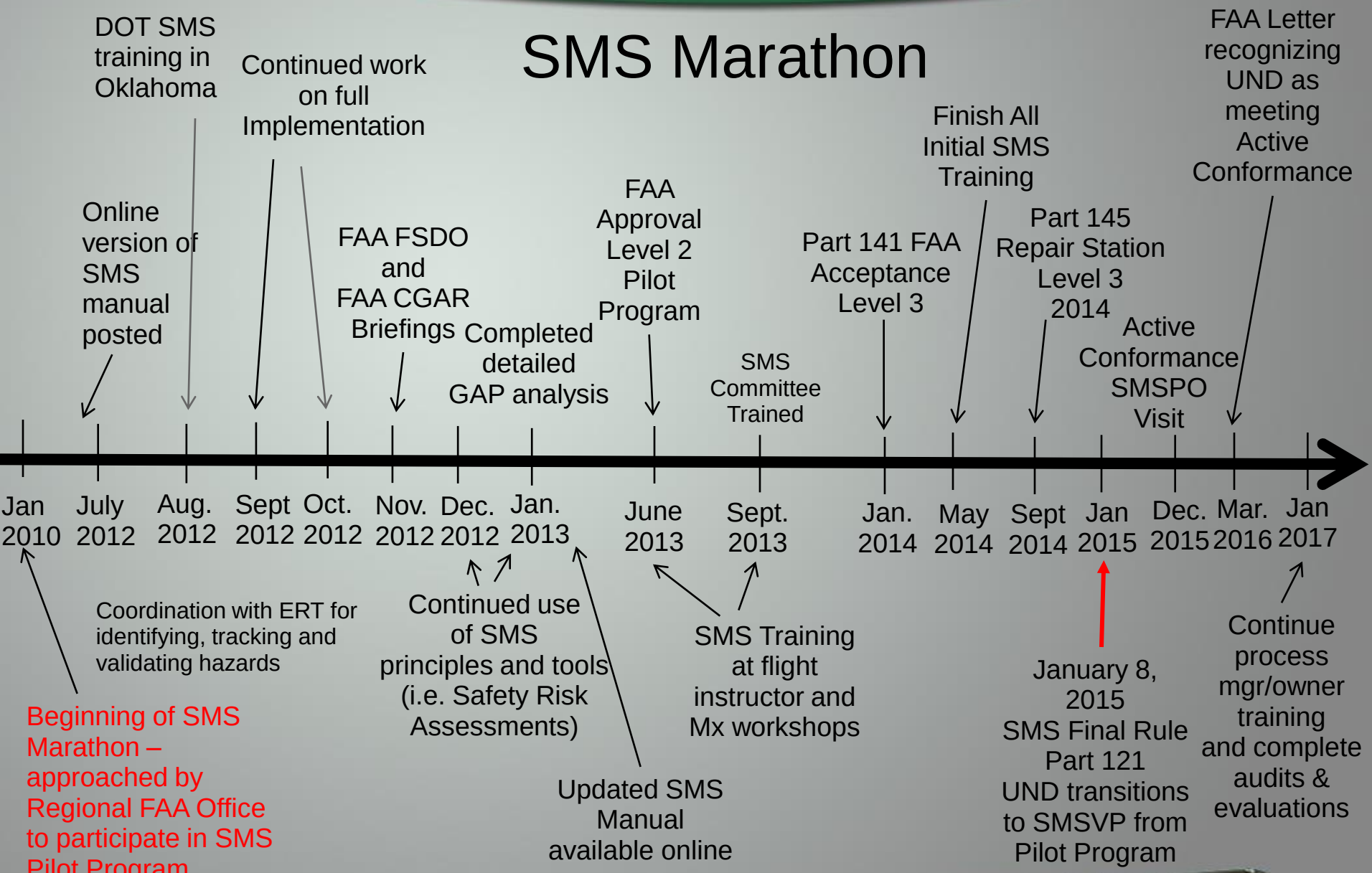
SMS Marathon



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The Standard

Product/service providers as the next step in the evolution of safety in aviation.

- ATC
- Part 121
- Part 61
- Part 135
- Part 139
- Part 141
- Part 142
- Part 145

<u>Non-certificate holders…</u>

- UAS Operations
- Contracting with SMS operators
- Contractors with Federal Agencies
- International Companies
- Design and Manufacturing

Making it work for UND

It must be:

- Practicable
- Usable, and
- Scalable
- Led by Decision makers

Success with SMS

- System thinking
- Proactive strategies
- Change in mindset – Mission vs Safety
  - Reduce risk to lowest practical level

Successes with SMS

- Producers becoming Protectors
- Safety department – white hat
- Organizational vs Individual
  - proactive vs reactive
  - The what and the why not the who

Successes with SMS

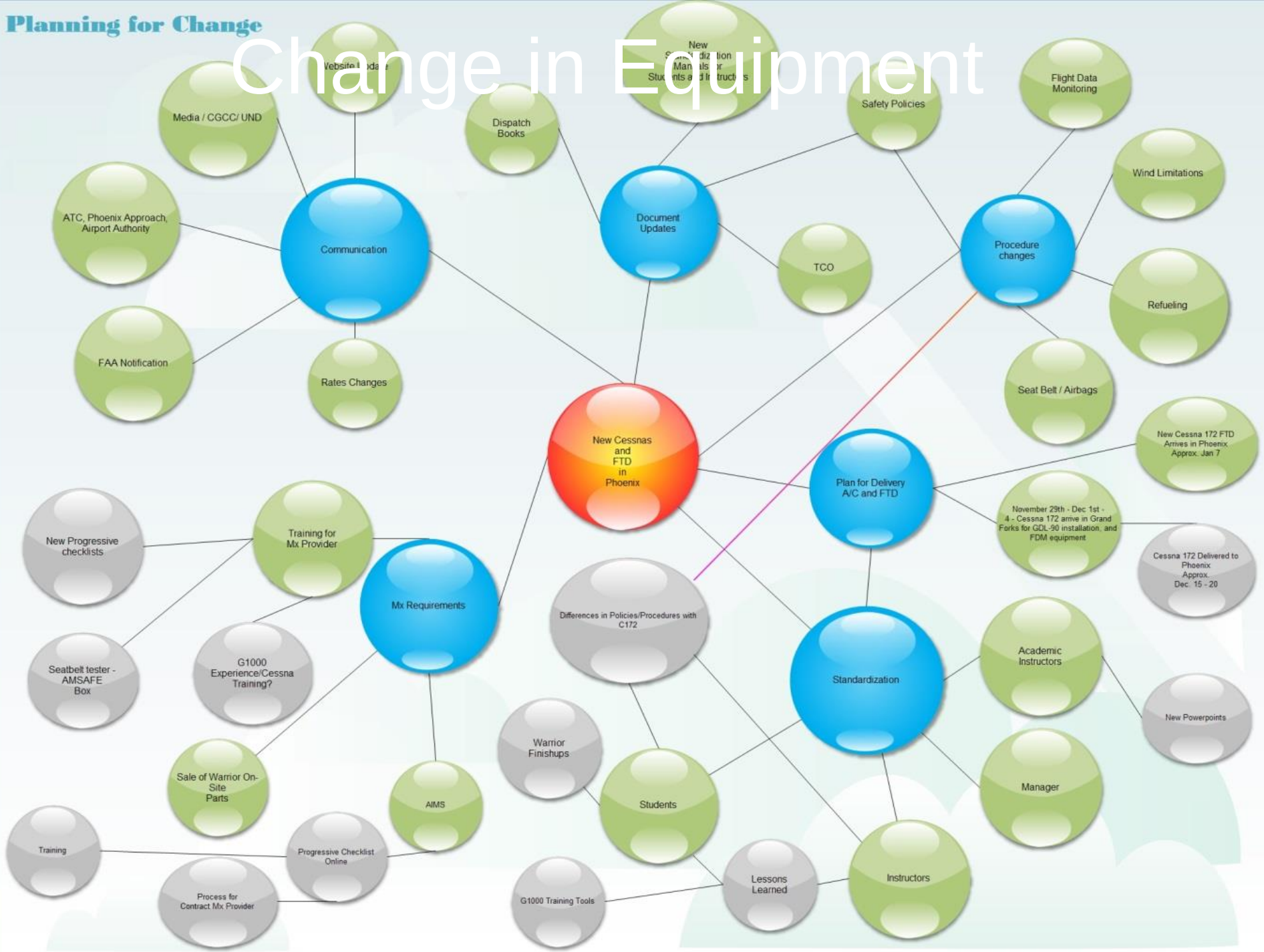
- Managing change
- Not stopping at the “fix” like a safety program
  - Safety Assurance Processes
  - Identifying unintended consequences
  - Applying lessons learned for continuous improvement

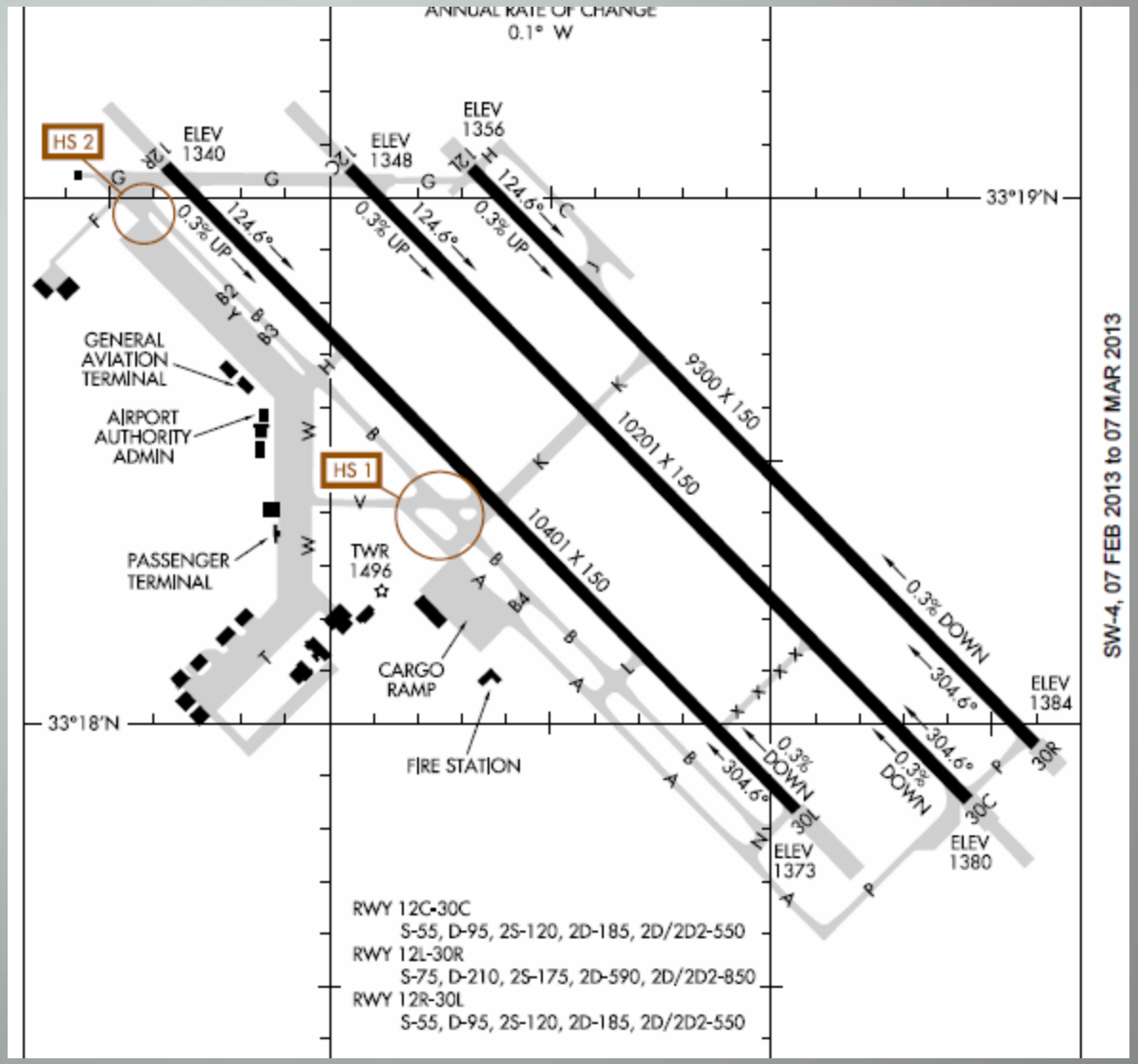
Case Study – Conducting a proactive safety risk assessment (SRA)

- Phoenix C172 New Fleet
  - Training aspect – stabilized approaches to prevent LODC/hard landings

Planning for Change

Change in Equipment




ANNUAL RATE OF CHANGE
0.1° W
HS 2
HS 1
ELEV 1340
ELEV 1348
ELEV 1356
ELEV 1384
ELEV 1373
ELEV 1380
33°19'N
33°18'N
0.3% UP
124.6°
9300 X 150
10201 X 150
10401 X 150
0.3% DOWN
304.6°
GENERAL AVIATION TERMINAL
AIRPORT AUTHORITY ADMIN
PASSENGER TERMINAL
TWR 1496
CARGO RAMP
FIRE STATION
SW-4, 07 FEB 2013 to 07 MAR 2013
RWY 12C-30C
S-55, D-95, 2S-120, 2D-185, 2D/2D2-550
RWY 12L-30R
S-75, D-210, 2S-175, 2D-590, 2D/2D2-850
RWY 12R-30L
S-55, D-95, 2S-120, 2D-185, 2D/2D2-550

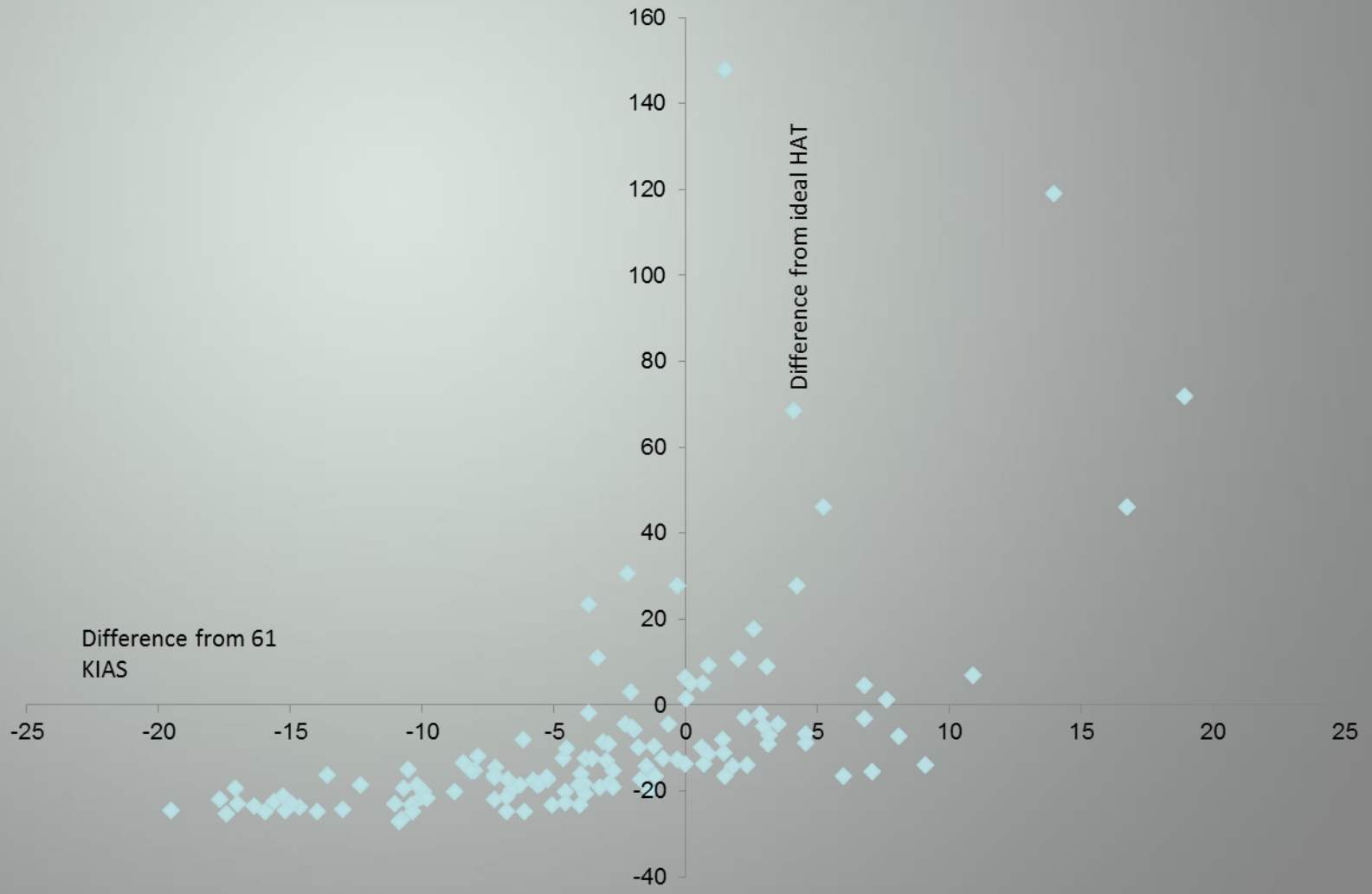
Process

- Pre-Mitigation –
  - Data collected from new Cessna arrival in Phx – Feb 8, 2013
- Post-Mitigation 1 –
  - Data collected from Feb 8 – Feb 18, after 1st follow up meeting with Site Manager and flight instructors
- Post-Mitigation 2 –
  - Data collected after Feb. 18, following instructor meeting with Director of Aviation Safety in Phoenix.

- There is a time and expense especially with Safety Assurance – but what is the alternative?

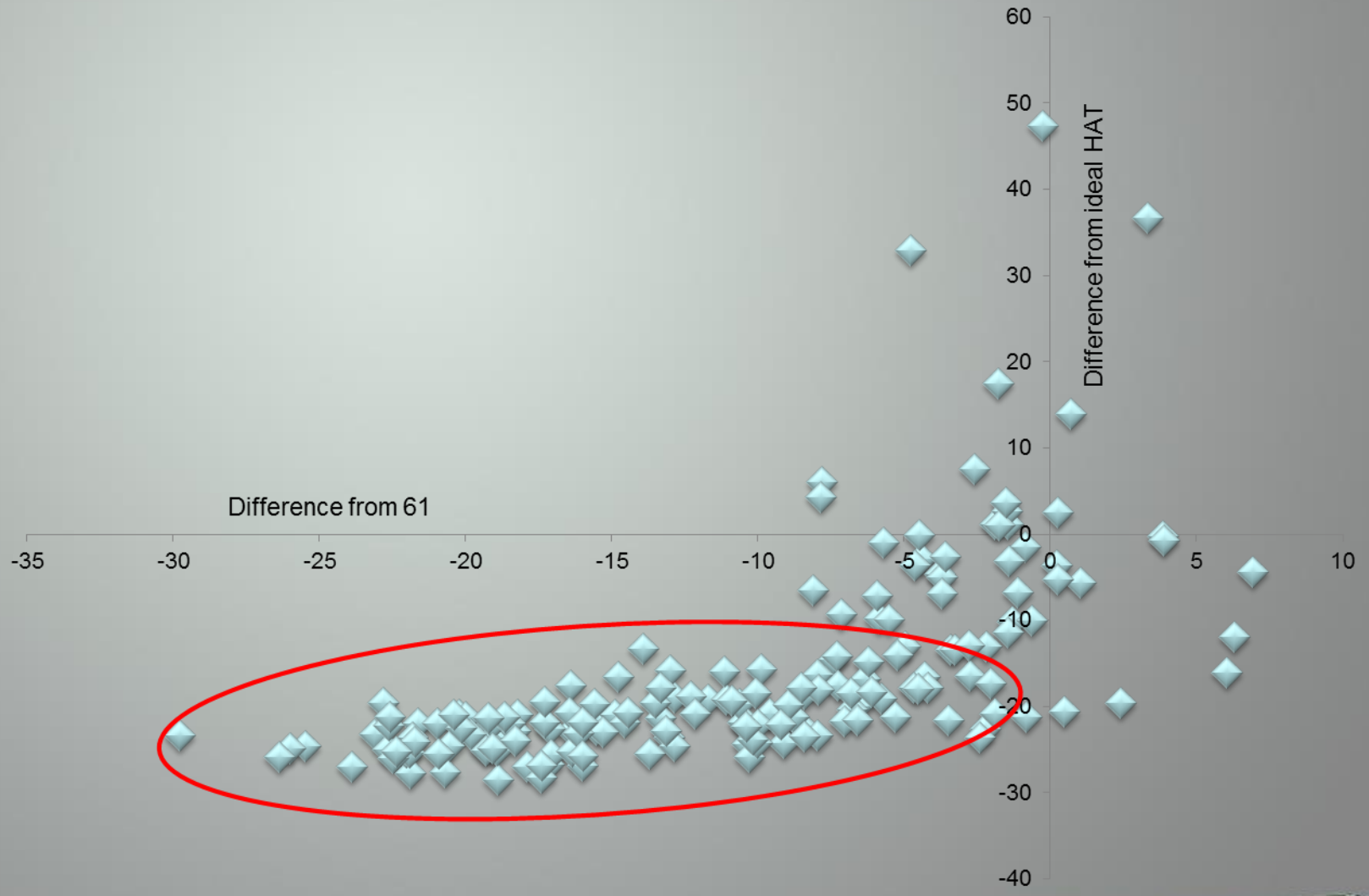
High-Low, Fast-Slow Tool

Pre-Mitigation RWY 30L KIWA, n=127



High-Low, Fast-Slow

Pre-Mitigation RWY 30R KIWA, n=178

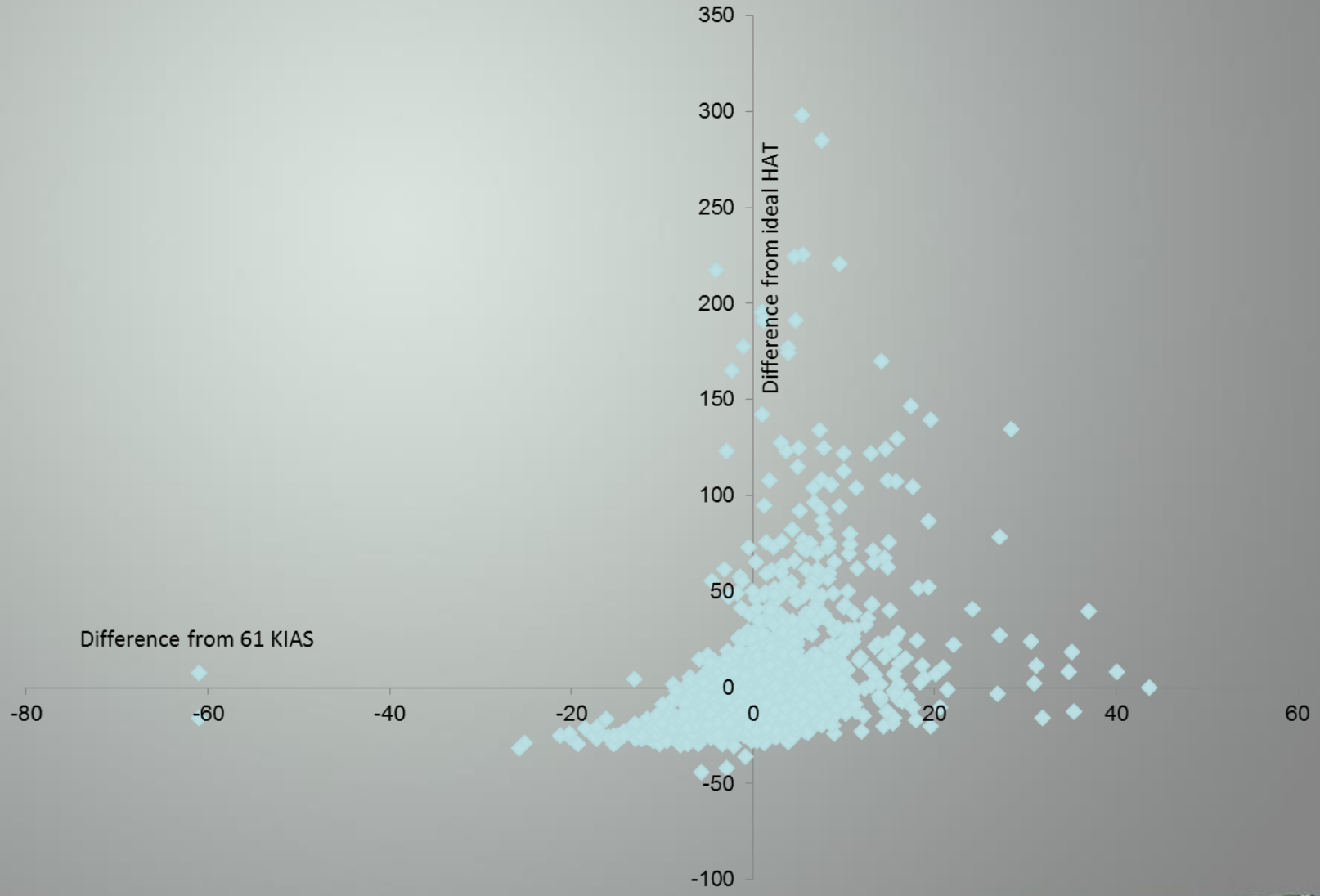


Additional Training and Awareness Before an Incident

- Pilots landing
  - Prior to adjacent the PAPIs
- What did we do?
  - Go to the technical experts
    - What is happening
    - Why?
- What we found?
  - 30R – PAPIS 1500ft down runway
  - 12R – ATC and Pressures to Depart runway at next taxiway

High-Low, Fast-Slow Tool

March 2013-January 2014 RWY 30L KIWA, n=1723



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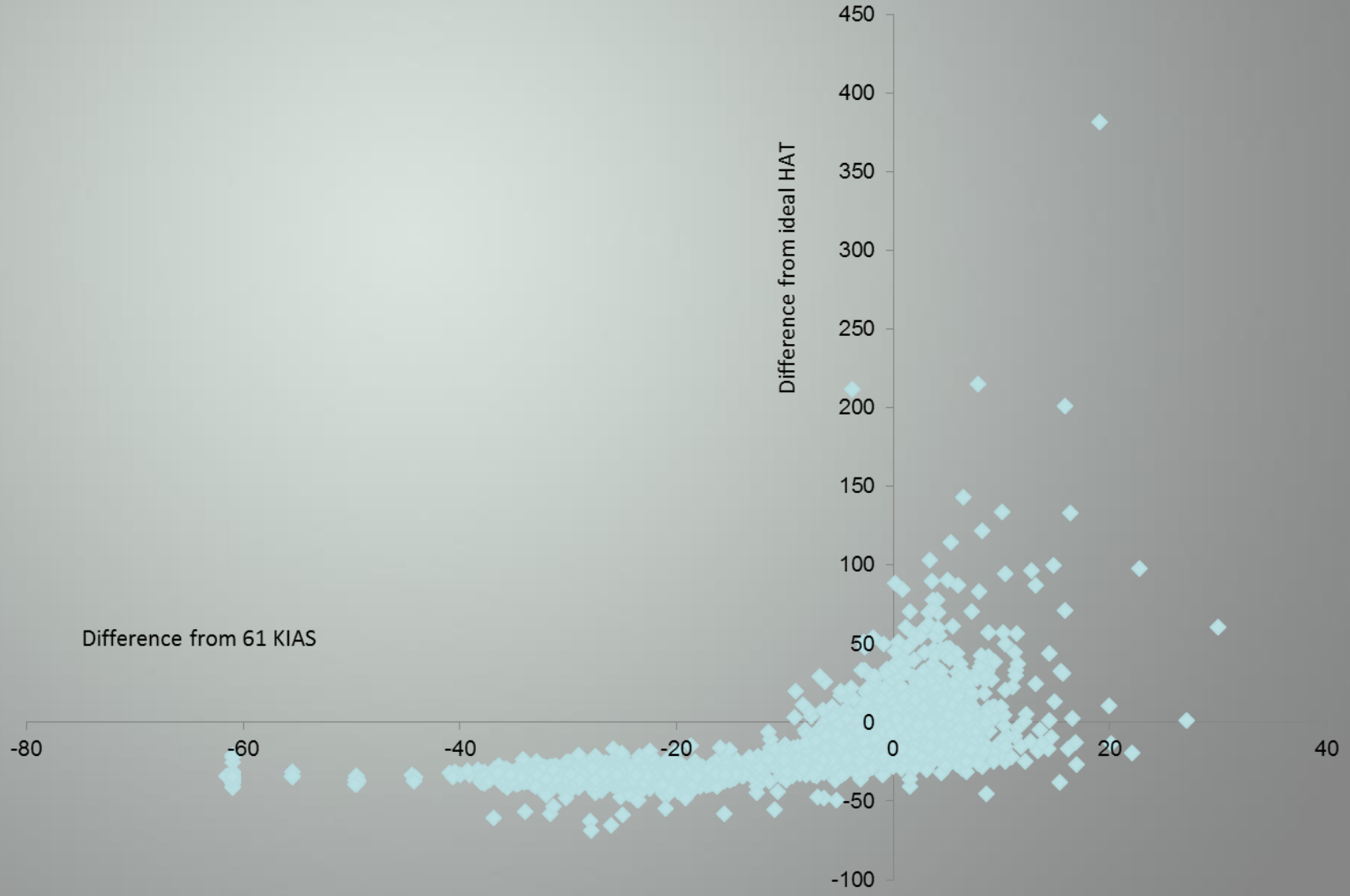
High-Low, Fast-Slow Tool

March 2013-January 2014 RWY 12R KIWA, n=3863



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Overall Results

- improvement in height airspeed management

- Most improvement on 30R and 30L
- Least improvement on 12R

Not done!

- Continuous Monitoring as an organization
- Do you have a “Robust SMS”?

Other Success

- Additional examples of Safety Risk Assessments
  - Gear up – SA reveals new issues
  - High temperatures – planned to check policy
- Safety Culture Surveys
  - Continuous improvement
    - Identifying different cultures within our organization

Other Success

- Improved Relationship with FAA
  - Using our Surveys during observations
- FAA role is evolving, analyzing and asking certificate holders regarding:
  - ability to identify and correct its own problems
  - to produce more evidence of its own data collection and risk analysis activities.
  - why didn't the cert. holder's safety management activities identify this problem
  - why did the management system not contain and/or correct the problem?

Challenges

- Working with FAA to keep it practical, usable, and scalable.
  - Preventing SMS from becoming another checklist for the FAA to complete and enforce.
- Knowing where to stop on SRAs
- Resources for continual training due to turn over and recurrent training requirements
  - Especially leadership

Challenges

- Annual performance evaluations
- Document and program management (SA)
- Resources to continue audits and evaluations.
- Objective measurements showing SMS is improving safety.

Lasting Benefits of SMS

- SMS will help to establish and maintain a safety record that is good for business.
  - Reduce accidents and injuries
  - Reduce material losses
  - Increase productivity/profitability
- Where we expect continuous improvement of operational processes.
  - Resulting in better end product.
  - Educating students for industry
- Marketing
- A closer relationship developing with airlines and other aviation organizations.
  - Working together to complete external audits
  - Flight Training Safety Info Share – UAA this fall

Thank you!

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