



# Cultural Implications of Evolving the National Weather Service to Provide Impact-Based Decision Support Services

NWS VLab Forum  
04/18/18

Dr. John Ten Hoeve  
Deputy Director, Office of Organizational Excellence

OOE Collaborators: Julie Wagner, Megan Knox, Jeff Jeffress, Elyse Hagner, Peyton Robertson



# The Office of Organizational Excellence

## What We Do

*OOE applies strategic thinking across the NWS, challenges the status quo, enables change, and creates enterprise and internal connections*

## Focus Areas



### Strategy

*Helping NWS plot the course for a successful future*



### Organizational Health & Culture

*Ensuring a high performing and engaged workforce*



### External Engagement

*Cultivating and sustaining effective partnerships*



### Governance

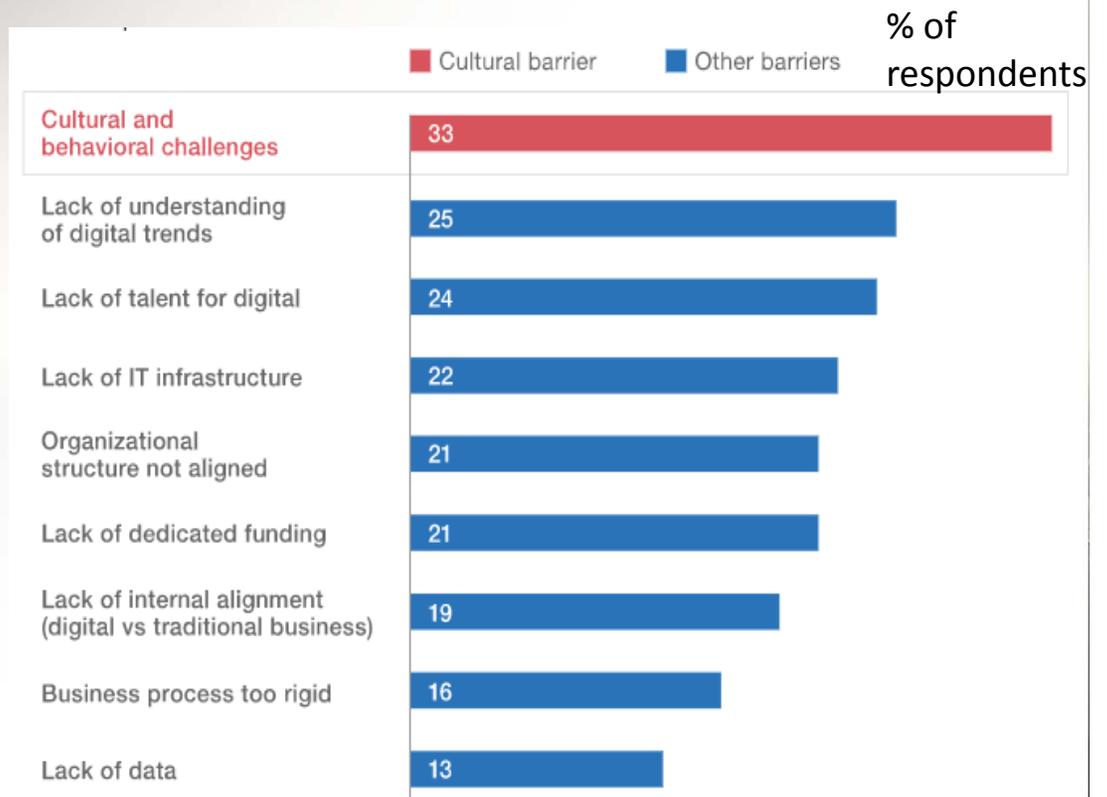
*Maintaining the processes that ensures NWS is a well run and effective organization*

[weather.gov/ooe](http://weather.gov/ooe)

# What is Organizational Culture?

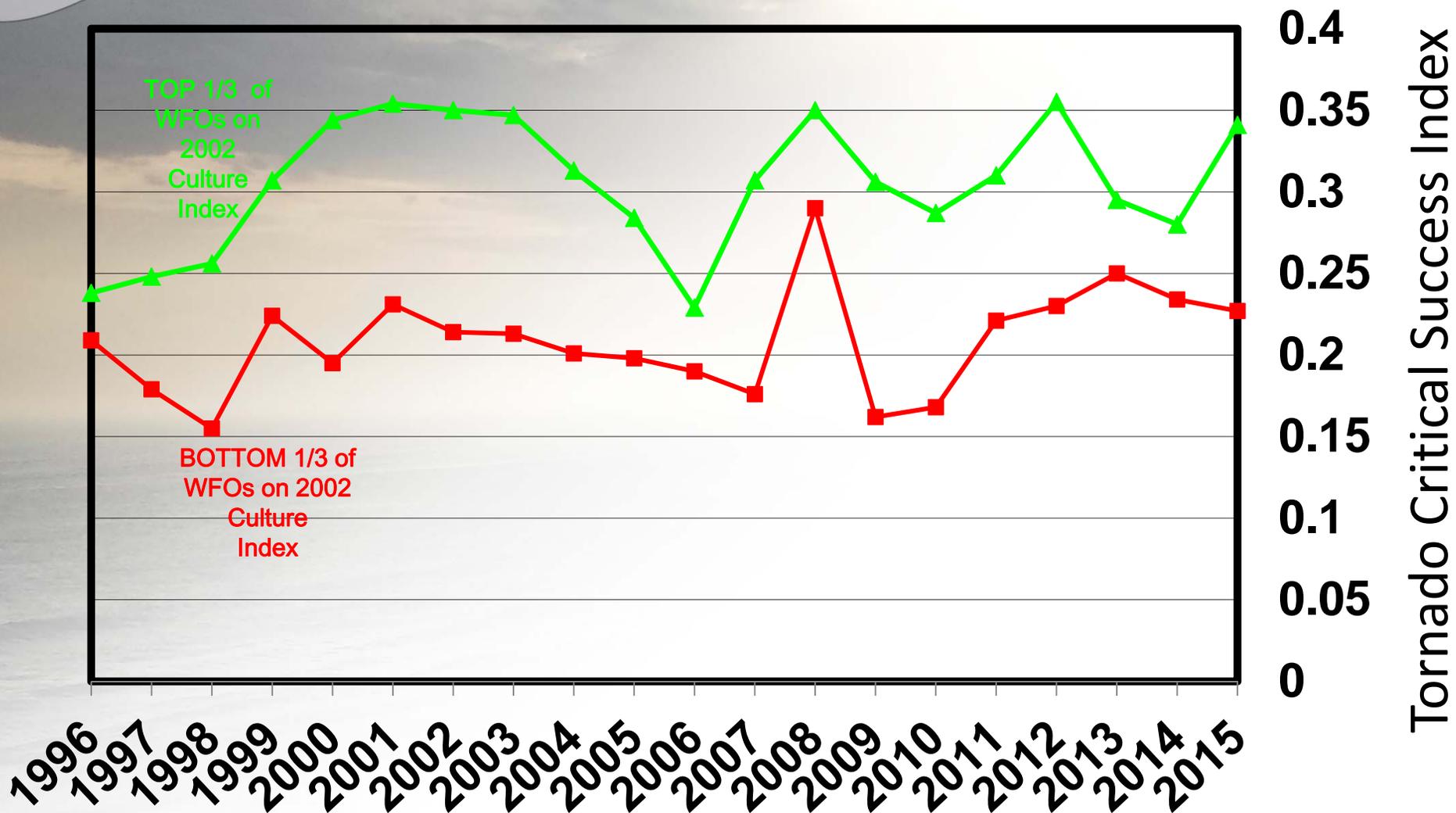
The *behaviors, habits, values, and norms* which are reflected in our workplace environment and our attitude or feelings about work.

## What is biggest barrier to effectiveness in the digital age?



Survey of 2,135 Global Executives  
*Culture for a Digital Age*, McKinsey, 2017

# Impact of NWS Culture on Core Products and Services



# NWS Culture Surveys

Department of Commerce  
NATIONAL WEATHER SERVICE  
2nd Level Subagency Report

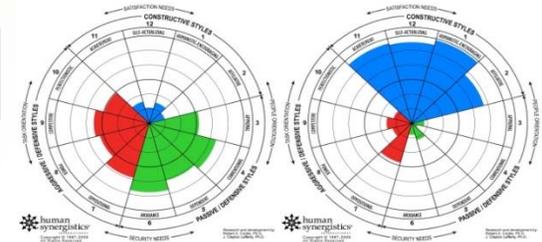
My Work Experience (continued)

3. I feel encouraged to come up with new and better ways of doing things.

	N	Positive	Neutral	Negative
Governmentwide	385,690	55.2%	19.0%	25.8%
Department of Commerce	9,736	60.1%	20.2%	19.7%
National Oceanic and Atmospheric Administration	2,166	62.8%	17.3%	19.9%
NATIONAL WEATHER SERVICE	625	63.1%	16.3%	20.7%

4. My work gives me a feeling of personal accomplishment.

	N	Positive	Neutral	Negative
Governmentwide	385,314	69.6%	15.0%	15.4%
Department of Commerce	9,804	76.1%	13.0%	10.9%
National Oceanic and Atmospheric Administration	2,189	75.3%	13.0%	11.7%
NATIONAL WEATHER SERVICE	634	77.4%	11.4%	11.2%



## Federal Employee Viewpoint Survey (FEVS)

**When:** Annually

**Responses:** 542 (2017)

**Survey Owner:** Office of Personnel Management

- Focuses on employee satisfaction

## Organizational Health Index (OHI)

**When:** June 2015 & February 2017

**Responses:** ~2000 each

**Survey Owner:** McKinsey and Company

- Focuses on effect of organizational health on performance

## Organizational Culture Index (OCI)

**When:** June 2016

**Responses:** 112 (HQ and Southern Region)

**Survey Owner:** Human Synergistics

- Compares current culture vs. ideal culture and levers for change

# Culture Strengths Observed in Surveys

## Motivated

- 66% of staff are highly motivated
- 88% enjoy the work they do

## Mission-oriented

- 86% of staff believe NWS is successful in accomplishing its mission

## Customer-focused

- 72% of staff feel the organization is good at managing constituent and stakeholder networks

## High Job Satisfaction

- Staff report high levels of job satisfaction (70%) and pay satisfaction (73%)

## Strong Supervisor-Employee Relationships

- 68% of staff trust their immediate supervisor

# Culture Weaknesses Observed In Surveys

## Trust & Employee Engagement

- 30% of employees do not feel leadership asks for opinions regarding big decisions

## Humanistic & Encouraging Environment

- A majority of respondents would like a more humanistic, encouraging, and supportive culture

## Role Clarity

- 40% of staff report that job design and organizational structures muddy roles and responsibilities

## Accountability and Recognition

- 40% of staff believe they are not held accountable based on results

## Innovation & Learning

- Only 15% of staff say that we regularly adopt external best practices

# Organizational Culture Roadmap



<b>I. Understand the Culture</b>	<b>II. Operationalize the Culture</b>	<b>III. Maximize Leader Impact</b>
Surface Actionable Culture Intelligence Through Employee-Led Diagnosis	Equip Employees to Apply the Culture In Their Day-to-Day Work	Expand Leader Role Modeling to Include Remodeling Business Processes

Creating a Culture That Performs: Moving from People to Process to Maximize Culture Outcomes, Gartner, 2017

# Inaugural NRAP Culture Team (2017)



**David Kochevar**  
 Meteorologist  
 Anchorage, AK  
 Interest: gain understanding of culture & its relation to EVOLVE, move forward on a common goal



**David Tomalak**  
 IT/Meteorologist  
 Boulder, CO  
 Int: apply tools from Colorado Leadership Development Program, promote good communications



**Megan Syner**  
 Warning Coord Meteorologist  
 Great Falls, MT  
 Interest: build relationships w/ change- makers, involve wider audience in change process



**Geoff Grochocinski**  
 Meteorologist  
 Duluth, MN  
 Interest: apply Masters in Mgmt & Change Leadership (enrolled now), use dialogue as a method of change



**Kevin Deitsch**  
 Senior Meteorologist  
 St. Charles, MO  
 Interest: bridge WFOs to promote best practices, support transition to modern wx entity w/ DSS @ forefront



**Kimberly McMahon**  
 Meteorologist  
 Burlington, VT  
 Interest: practice leadership skills, focus on the positive & effective communication, ID links between culture & productivity, feedback to HQ



**Julie Wagner**  
 NRAP Culture Team Coord  
 Silver Spring  
 Interest: increase awareness, understanding & action around org culture; support the team



**Mark Burger**  
 Meteorologist @ CWSU  
 Olathe, KS  
 Interest: gain hands on experience creating positive org culture, practice leadership skills



**Lauren Nash**  
 Meteorologist  
 Huntsville, AL  
 Interest: promote positive work environ as a way to support mission, share 'voices from the field' with HQ



**Ricky Shanklin**  
 Warning Coord Meteorologist  
 Paducah, KY  
 Interest: be at forefront of evolution of NWS, expand my horizons, practice leadership skills



# Sharing Best Practices – Quotes from the Culture Team

## Accountability and Recognition

“We get ‘on the spot’ swag awards for attention to the mission. One forecaster in our office got an award for proactively reaching out to firefighters during a large hazardous materials fire to update them on changing wind conditions”



Photo Credit: <http://fox6now.com/2017/11/15/crews-battle-5-alarm-fire-at-south-st-louis-warehouse-we-will-be-here-for-a-long-time/>

# Sharing Best Practices – Quotes from the Culture Team

## Trust & Employee Engagement

“Our office did an internal review of our services and our messaging at a staff meeting, and discussed ways we could improve for the next event. I think most of the staff learned ways to ramp up our messaging to the public and our partners in case an event like that occurs again.”



# Sharing Best Practices – Quotes from the Culture Team

**Humanistic &  
Encouraging  
Environment**

“In our office, people don’t often talk about their forecasts. I explained to my colleagues the benefit of hearing their thought process and from sharing mine. Now I found other people who feel the same way, which is satisfying and improves our forecasts”



# Organizational Culture Knowledge Base

[Culture Is?](#)

[Why Culture?](#)

[How to Address?](#)

[EvolveNWS](#)

[Resources](#)

## NWS Organizational Culture

**Welcome to the NWS Organizational Culture Portal!** These resources are designed to help our NWS community to better understanding and use organizational culture. Understanding organizational culture is a journey.

**What is Culture:** Culture is like a fabric with thousands of threads. Each thread represents a behavior, habit or value. Individually, each behavior doesn't amount to much, but woven together they create a very strong system. To learn more, go [here](#).

**Why Culture Matters:** NWS organizational culture determines our performance more than we think, sometimes with greater impact than strategy. To learn WHY the NWS must engage culture as an essential tool to aid in the protection of life and property, go [here](#).

**How to Address Organizational Culture (What Can I Do):** Once we begin to understand culture, we can use it help us protect life & property. To learn about culture initiatives & experiments used by your NWS colleagues (forecasters, MIC/HIC, and SES), go [here](#).

**How Does Organizational Culture Help us EVOLVE:** Unlocking time to increase DSS services changes how we work. To learn about how EvolveNWS will change our culture, from impacts to our identity as meteorologists to expectations about customers service, go [here](#).

**Don't Stop Here, Keep Learning:** Check out our Culture Learning Corner & Resource Page. The Culture Coffee Break is the best way to break through the jargon and understand NWS colleagues understanding about culture. See excerpts below, or for more info go [here](#).

# Culture Consulting

- Provide tailored support to interested offices
- Identify strengths and weaknesses
- Identify strategies for improvement based on peer to peer examples and other best practices

## NWS OFFICE X

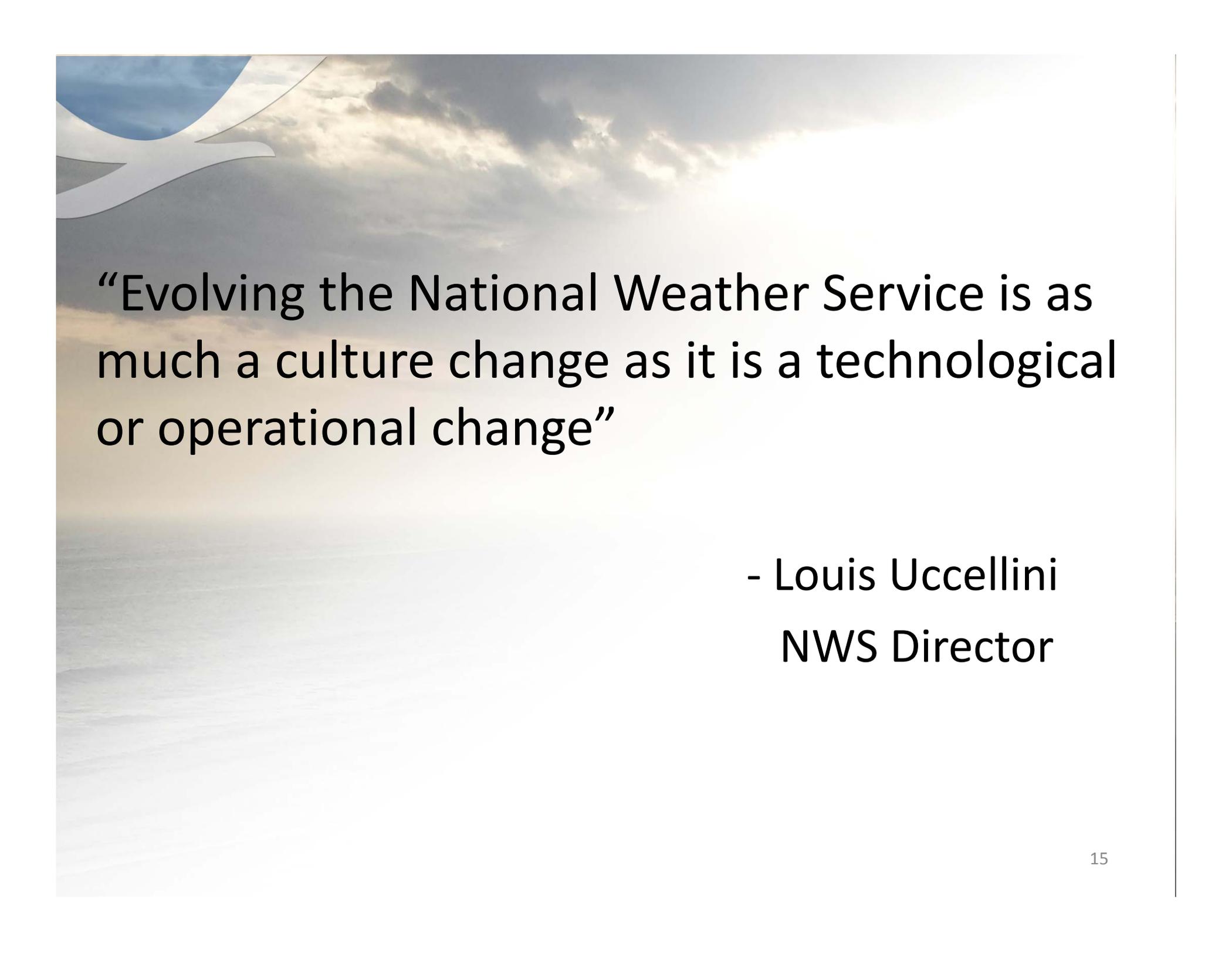
N=14

	Score
Overall OHI score	38
Direction	27
Leadership	24
Culture/ work environment	25
Accountability	36
Coordination & control	29
Capabilities	68
Motivation	61
Innovation & learning	18
External orientation	58

## NWS - AGGREGATE

N=1953

	Score
Overall OHI score	52
Direction	47
Leadership	50
Culture/ work environment	47
Accountability	49
Coordination & control	30
Capabilities	73
Motivation	78
Innovation & learning	28
External orientation	68



“Evolving the National Weather Service is as much a culture change as it is a technological or operational change”

- Louis Uccellini  
NWS Director

# Last Forecast Process Change: Switching from Text Forecast to Gridded Forecast



BULLETIN - ERS ACTIVATION REQUESTED  
TORNADO WARNING  
NATIONAL WEATHER SERVICE WICHITA KS  
630 PM CDT FRI APR 26 1991

THE NATIONAL WEATHER SERVICE IN WICHITA HAS ISSUED A  
TORNADO WARNING EFFECTIVE UNTIL 730 PM CDT  
FOR PEOPLE IN THE FOLLOWING LOCATION...

IN SOUTH CENTRAL KANSAS

“Right now we own our product,  
because it’s our words. It won’t be  
our words with the new system.”

STURDIER BUILDING OR GET INTO A DITCH OR COVERT...  
HEDGES

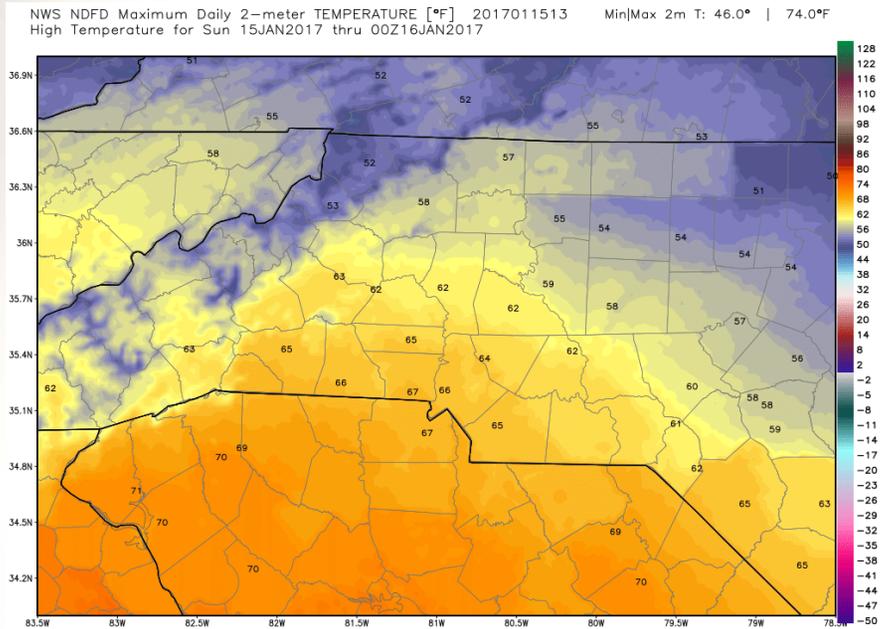
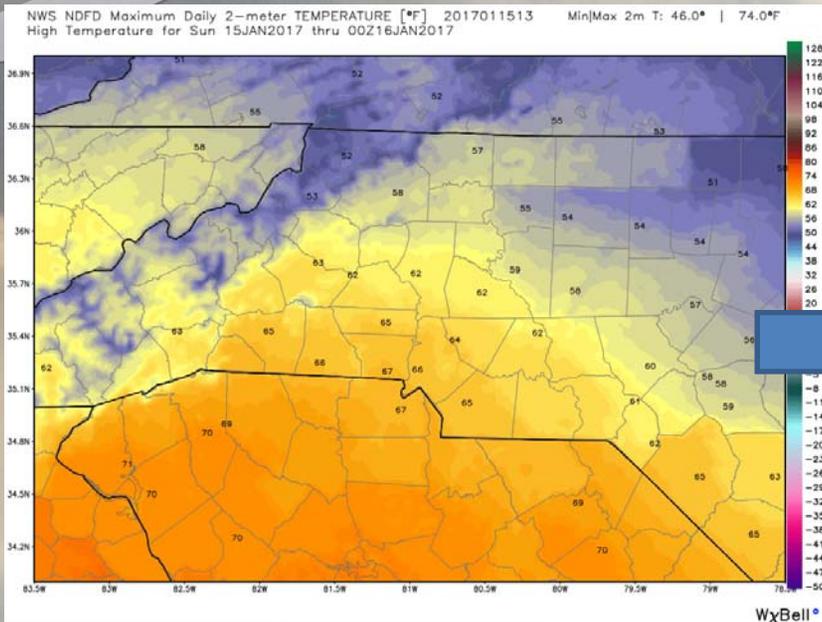


Image Credit: <http://rowancountyweather.com/blog/2017/01/15/sunday-weather-update> WxBell

## Cultural Impacts

- Lose literary autonomy
- + Gain greater meteorological detail by incorporating new science and technologies

# Forecast Process Change Today: Gridded Forecast + Impact Based Decision Support Services



NATIONAL WEATHER SERVICE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Decision Support Briefing #4  
As of: 9am January 4, 2018

### Main Points

Hazard	Impacts	Location	Timing
Snow	<ul style="list-style-type: none"> <li>8-12" - locally higher.</li> <li>1 to 2" / hr snowfall rates</li> <li>Blizzard conditions for Long Island and portions of Southern Connecticut.</li> <li>Difficult to impossible travel</li> </ul>	Most of Long Island, and Southern Connecticut	Through this Evening
		NYC, Most of Lower Hud Valley and NE NJ	Through late afternoon
Wind	<ul style="list-style-type: none"> <li>5-10", with 1" / hr snowfall rates</li> <li>Significant t</li> <li>3-6"</li> <li>30 - 45 MPH</li> <li>45 - 55 MPH</li> </ul>		
Cold	<ul style="list-style-type: none"> <li>Blowing and Potential for</li> <li>Wind Chills</li> <li>Frostbite and from prolon</li> </ul>		
Surge	<ul style="list-style-type: none"> <li>Minor to Loc</li> <li>Flooding, wi</li> <li>inundation</li> <li>Structural di</li> <li>ice laden wa</li> <li>and Great S</li> </ul>		

## Cultural Impacts

- + Gain literary autonomy through IDSS
- + Greater ability to “save lives and property” through IDSS
- Fear of losing autonomy over the digital forecast
- Fear of losing meteorological acumen. Just “plugging in” the blend without understanding meteorology

Mission-oriented

Customer-focused

Role Clarity

Innovation & Learning<sup>17</sup>

# Possible Activities to Address Cultural Barriers

## - Value and Reward What Matters:

- Align performance metrics, reward systems, and hiring with new strategies, including IDSS
- Show examples of how IDSS allows NWS to realize its mission

Purpose

## - Continue Innovation, Learning, & Maintaining Expertise:

- Ensure NWS builds and adopts state-of-the-art science and technology
- Ensure future operational workflows maintain situational awareness, forecaster expertise, and ability to add local skill when it matters most

Mastery

## - Improve Role Clarity:

- Define the roles/responsibilities of the components of the future forecast process

Autonomy

OOE will target the following organizational health areas to promote optimal NWS performance and support continuous improvement and employee satisfaction.



Trust

Encourage greater communication and employee engagement on the direction of the agency and the initiatives to get there



Innovation

Develop a culture of innovation that captures and operationalizes internal and external ideas and best practices



Role Clarity

Ensure efforts to evolve the NWS clearly define future roles of NWS employees across the organization



Recognition

Support consistent recognition and awards, both for positive and negative performance

Establish a new cross-office team of leaders with responsibility for people-related activities to align their efforts in conjunction with a new NWS Strategic Plan.

Championed by the NWS Deputy Director

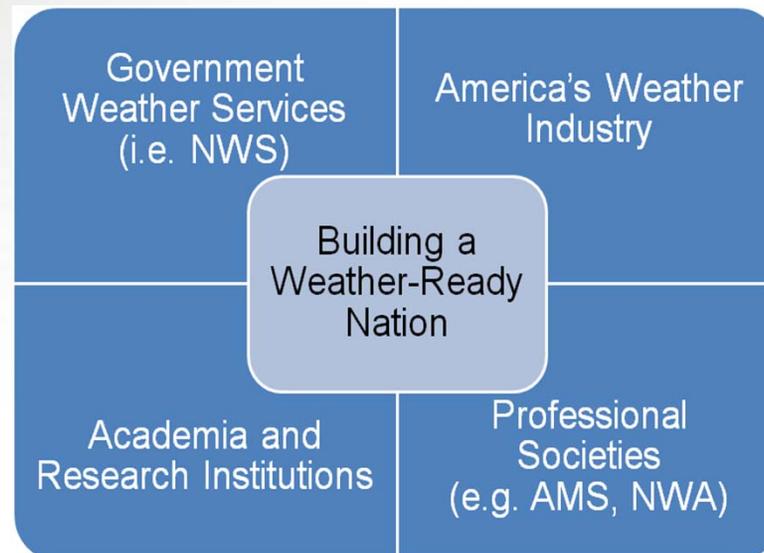
“Meaningful employee engagement must be a cornerstone of organizational change”

“Evolving the NWS will require both top-down and bottom-up changes and innovations”



# The Future?

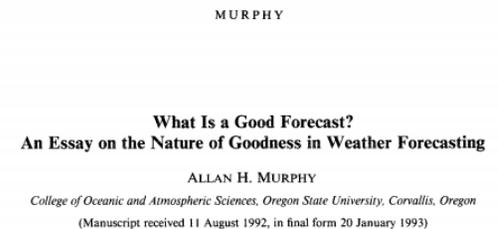
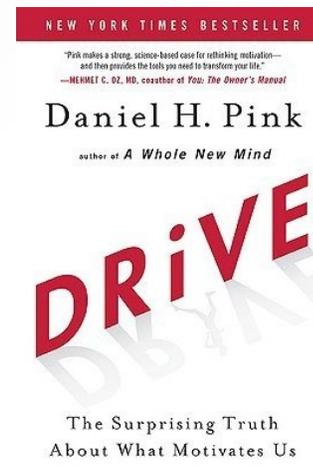
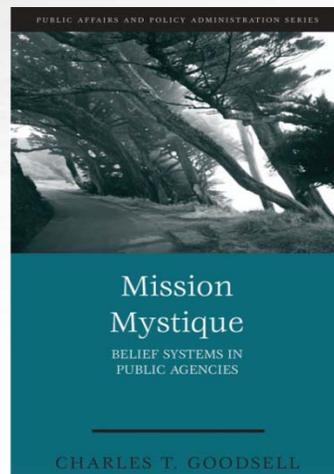
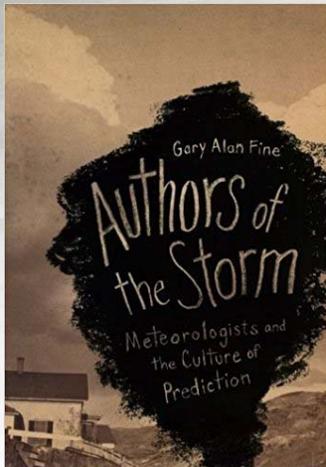
- A more human-centered, customer-centered approach to forecasting
- Value is measured through accurate forecasts that ALSO result in positive societal/business outcomes
- Recognition that forecasting should become more of a team sport to maximize these positive outcomes



# Thank you

- NWS Office of Organizational Excellence Colleagues
- NWS Culture Team
- NWS Evolve Program Management Office Colleagues
- Stephan Smith, NWS

## References:



ABSTRACT

Differences of opinion exist among forecasters—and between forecasters and users—regarding the meaning of the phrase “good (bad) weather forecasts.” These differences of opinion are fueled by a lack of clarity and/or understanding concerning the nature of goodness in weather forecasting. This lack of clarity and understanding complicates the processes of formulating and evaluating weather forecasts and undermines their ultimate usefulness.

Three distinct types of goodness are identified in this paper: 1) the correspondence between forecasters’ judgments and their forecasts (type 1 goodness, or *consistency*), 2) the correspondence between the forecasts and the matching observations (type 2 goodness, or *quality*), and 3) the incremental economic and/or other benefits realized by decision makers through the use of the forecasts (type 3 goodness, or *value*). Each type of goodness is defined and described in some detail. In addition, issues related to the measurement of consistency, quality, and value are discussed.

Relationships among the three types of goodness are also considered. It is shown by example that the level of consistency directly impacts the levels of both quality and value. Moreover, recent studies of quality/value relationships have revealed that these relationships are inherently nonlinear and may not be monotonic unless the multifaceted nature of quality is respected. Some implications of these considerations for various practices related to operational forecasting are discussed. Changes in these practices that could enhance the goodness of weather forecasts in one or more respects are identified.