Better Science Through Leadership Development

Considering Professional Development for Lab Environments

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NCPRE Creates Tools, Resources, and Programs To Advance Institutional Integrity

Leadership development programs and tools including AUDiT

Programs and tools for labs, their leaders and members

Assessment: SOURCE, CARES: environment information, benchmarking

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Cultures of Excellence
Our premise is that excellence is more than *what* work is done, it also encompasses *how* work is done:
with rigor, reproducibility, inclusion, and integrity.
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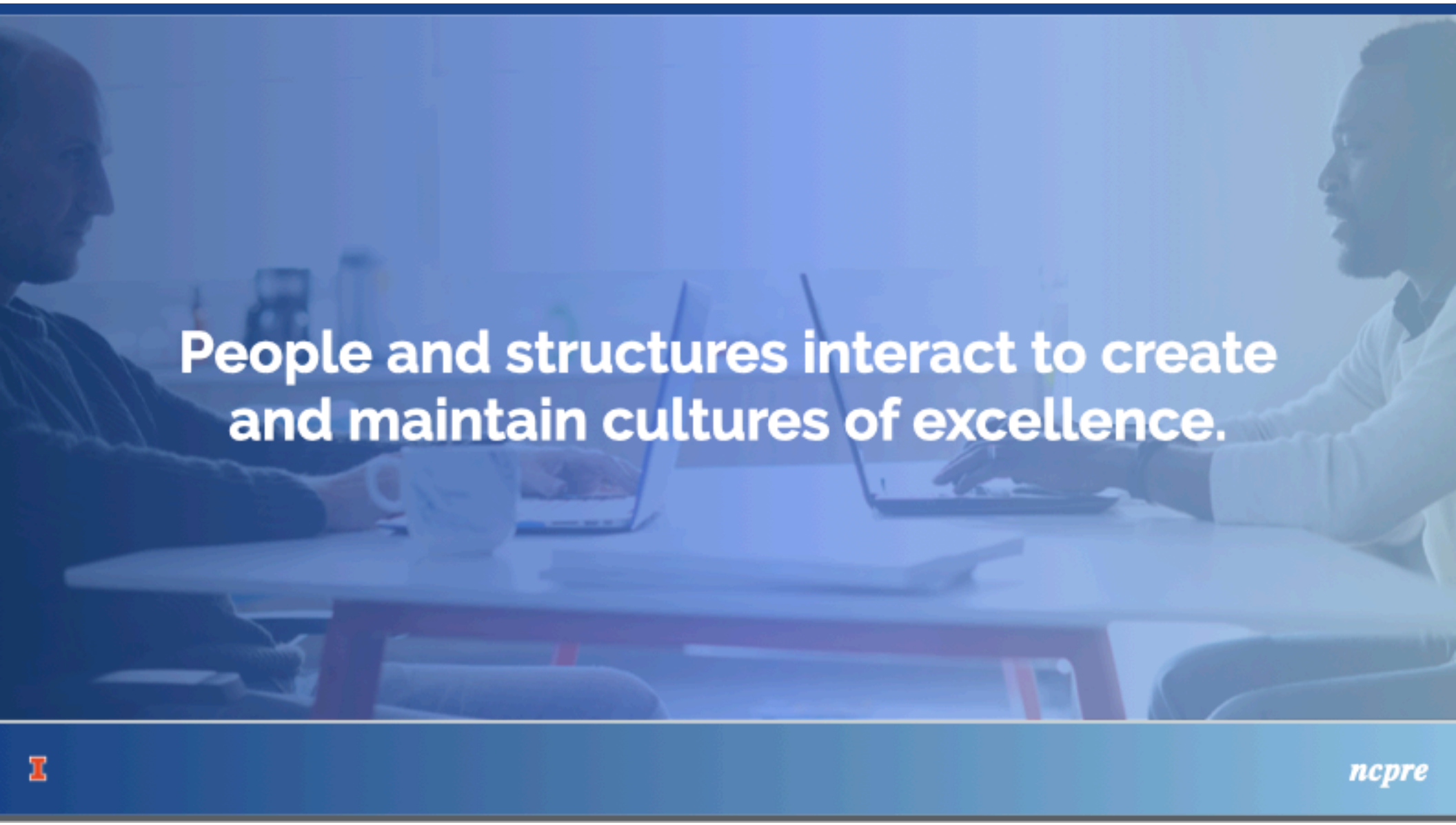
People and structures interact to create and maintain cultures of excellence.
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Today's complex problems
require effective collaboration.
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Diversity in working groups leads to greater creativity and productivity...
especially for new, complicated, or difficult problems.
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Cultures that feature ethical professional conduct require attention to
everyday behaviors and interactions *and*
learning about responsible conduct of research.
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Principle: Meet Audiences Where They Are

interviews, focus groups, literature reviews,

tailor examples, exercises, and activities to participants

Principled Academic Leadership Range

Train the Trainers

TCU

Department Leaders

NTU Leadership Academy

ALMI

Research Theme Leaders

Labs That Work for Everyone

Labs That Work for Everyone

early career → *Institutional leaders*

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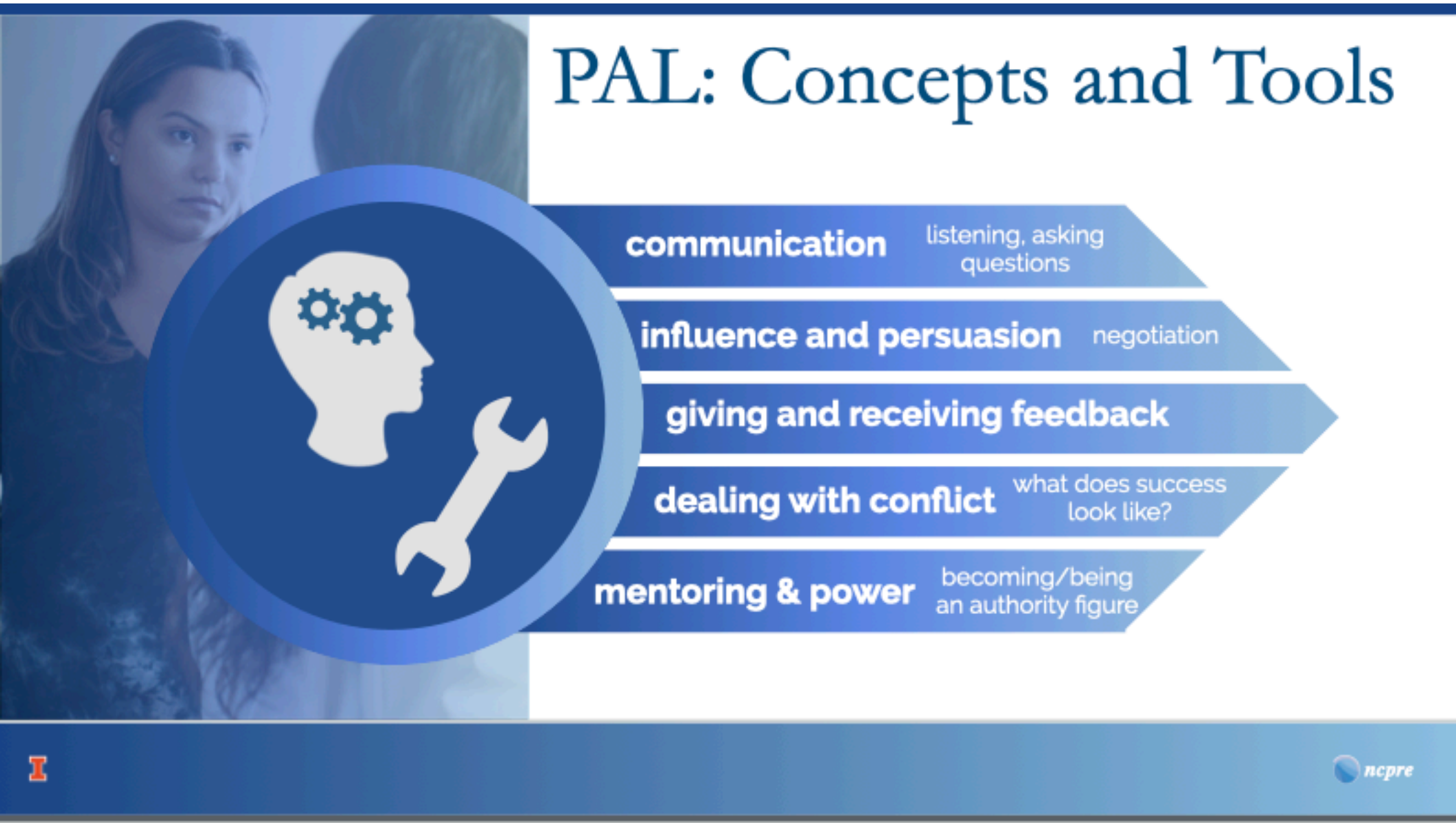
Principled Academic Leadership Foundations


PAL: Concepts and Tools
communication
listening, asking questions
influence and persuasion
negotiation
giving and receiving feedback
dealing with conflict
what does success look like?
mentoring & power
becoming/being an authority figure
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Lab Leader Responsibilities

Student, Trainee, Staff Professional Development
Professional development of lab members, career foundations and learning

Scholarship
Research creativity, integrity, data management, productivity, dissemination

Management
Ethical, legal, respectful fiscally responsible

Labs That Work
FOR EVERYONE
Case Study
BETTER SCIENCE via
LEADERSHIP DEVELOPMENT
Practical tools for teamwork in lab settings rooted in personal values,
to deal with colleagues directly, constructively, fairly, and inclusively.
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Labs That Work
FOR EVERYONE
Case Study
BETTER SCIENCE via
LEADERSHIP DEVELOPMENT
Build trusting relationships
Make effective and ethical decisions
Have difficult conversations to solve problems
Grow from mistakes or missteps
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LTW: Two (Three) Audiences

Lab Together, as a Unit

Lab Leaders

Enhance leadership skills, including, communication, motivation, and problem-solving

Lab Members

Enhance professional interactions; understand how to transition into a leadership role; why effective leadership matters for their own and others' success

Labs That Work Module One: Cultures of Excellence

Online Program Structure

Scene + **Interviews & Information** + **Logbook Activities** = **20-30 MINUTES**

100 minute feature film divided into 3 Acts presented through 27 Episodes + 3 Act-based Integration Segments

LTW Module One: Cultures of Excellence

Applying scientific skills of observation and analysi90 pts to interpersonal interactions.

THEMES

Know and Manage Yourself

Focus on values, recognize pitfalls & blind spots, adopt habits of leadership, contribute to a culture of excellence

TOOLS

Develop Communication & Conflict Resolution Skills

Practice respectful collaboration: assess before reacting, prepare, practice personal scripts, bystander interventions, effective questions, active listening

PRODUCTS

Align Your Values and Actions

Develop values-rooted approaches, an individual development plan, and lab policies that promote creativity and productivity

Labs That Work FOR EVERYONE

Evidence-Based Approach

Set in real lab environments, showing nuanced situations.

Relatable lab-based content **supports intrinsic motivation**

Engaging story rooted in real-world scenarios **increases retention**

Concepts, then reflection, and opportunities for practice **encourage transformative change**

Lab Culture Factoid:
Research Culture and Concerns for Reproducibility

Wellcome Trust survey of over 4,000 researchers in 2020 found

61%

Felt pressured by their supervisor to produce a particular result

13%

would not feel comfortable approaching their supervisor if they couldn't reproduce lab results

LTW Pilot Responses

"I would say that this is the best program for accomplishing those kind of [communication/ interpersonal] goals."

"LTW had the most tangible strategies that could be implemented in a practical sense."

LTW Pilot: Favorite Quotes

"I felt seen."

Lab Member

"I was viewing this as an opportunity for me to become a better PI."

Lab Leader

Conflicting Messages, Priorities

"Our lab is special; we cannot use a one-size fits all program. I need more choices."

"There are too many choices."

"We have very specific needs, so need materials tailored to our uses."

"Just give me a one-pager that tells me what to do."

"Our lab needed to customize this and you should provide more resources to support that."

"There are too many resources to figure out. I want clear and short directions."

needs formatting

PAL Unit Leader Program Reactions

"This program really helped me feel good about the leadership positions I am in. It reminded me how important the good leaders I have and have had in my life have been to me personally and has re-energized me to try and be a strong, trustworthy, reliable leader. This course has made me stand up straighter."

"You provided us with so many tools that I hadn't really considered to be tools. It seemed like a common theme in many of the lessons was to always come back to finding common ground – why are we here?... That was a huge realization for me."

- Getting buy-in for an intentionally lengthy and in-depth course
- Consistent investment from leaders
- Commitment for assessment

Lessons Learned

This is a human endeavor; skills are needed

Time is always an issue

Without assessment, funding wins

Generational issues are real

Lessons Learned, *Continued*

Practical Tools, Approaches

Relevant, Relatable, Tailored, Real

Normalizing Topics for Discussion

Talking with Each Other: Improved Relationships

If we care about it, we should assess it

...and use that evidence to shape actions, policies.

ORGANIZATIONAL CLIMATE
Observable (therefore reportable) aspects of organizational life – policies, practices, procedures, norms
ORGANIZATIONAL CULTURE
Deeper foundation of beliefs and values of the organization (more subterranean, less observable)
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Our Surveys: SOURCE & CARES

Work Unit Climate Surveys

These are not **engagement** or **employee satisfaction** surveys

They measure **perspectives** and **perceptions** of **key reportable dimensions** of the **organizational environment**

Work Unit Climate Surveys

SOURCE
Research Integrity Climates

- RCR Resources
- Regulatory Quality
- Integrity Socialization
- Integrity Norms
- Advisor-Advisee Relations
- Lack of integrity Inhibitors
- Department Expectations

Developed by Carol Thrush and Brian Martinson

CARES
Work Unit Interpersonal Climates

- Psychological Safety
- Hostility / Abuse of Power
- Conflict Resolution
- Sexual Harassment

Supported by the Sloan Foundation, with American Geophysical Union

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NCPRE Results Analysis Engine DATA

SOURCE: 26 in database

Faculty researchers and scientists	Graduate students in research	Postdoctoral researchers	Staff researchers	Undergraduate or non-research grad students
13K	8.7K	1.9K	5.2K	3.2K

CARES: 5

1.5K	900	175	500	25

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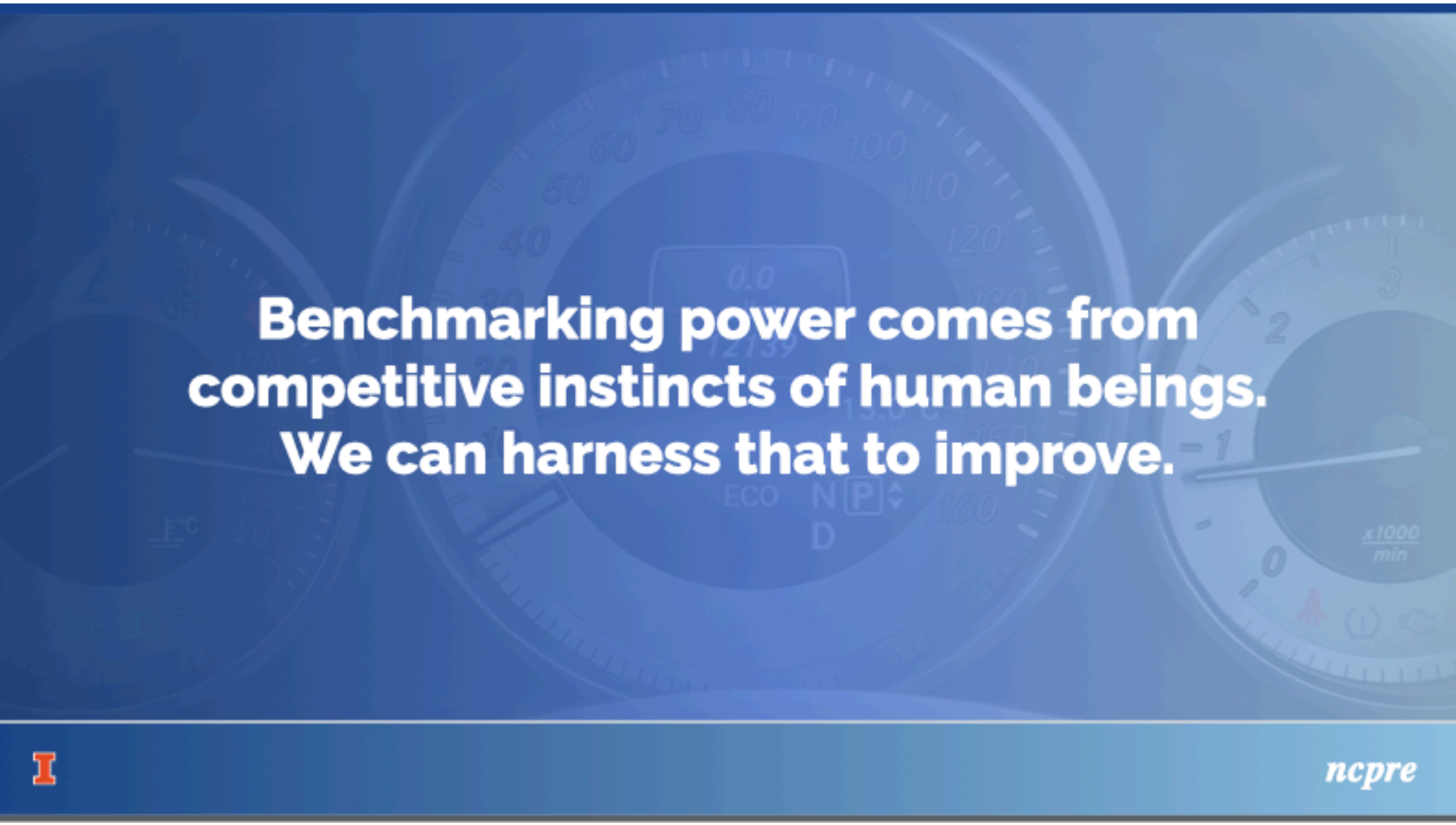
Benchmarking power comes from
competitive instincts of human beings.
We can harness that to improve.
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BESSI: Behavioral, Emotional, and Social Skills Inventory

Anger management

Capacity for optimism

Capacity for social warmth

Cultural competence

Capacity for trust

Leadership skill

Perspective-taking skill

Teamwork skill

Responsibility management

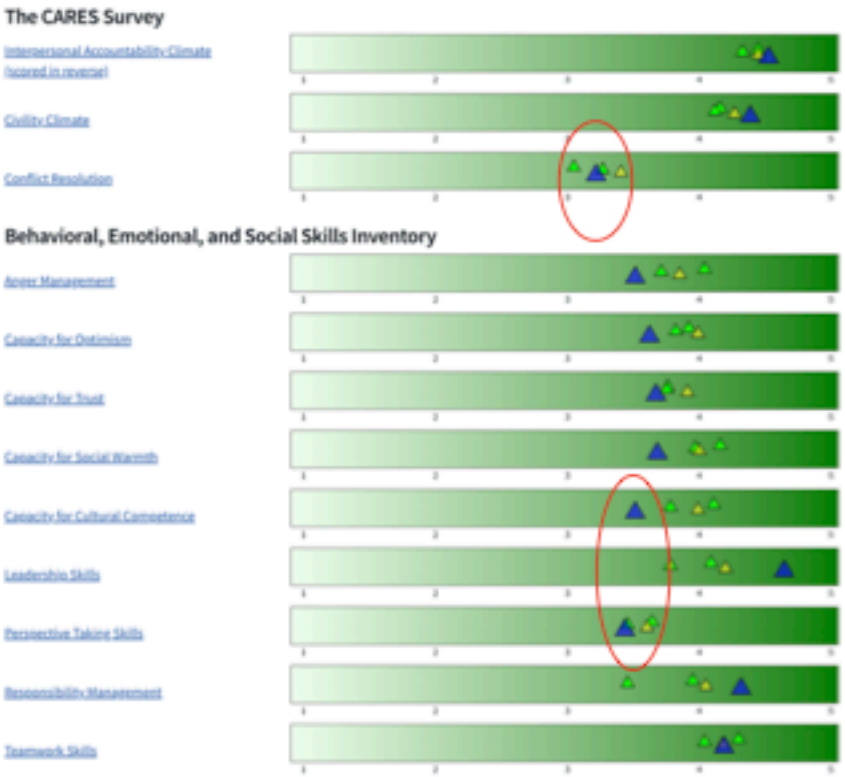
BESSI and CARES Correlations

BESSI Facet	Outcome Variable	Correlation Coefficient	N	Lower C.I.	Upper C.I.
BESSI Perspective Taking Skill Mean	Sexual Harassment Mean	**0.42**	83	0.22	0.58
	Conflict Resolution Mean	**0.59**	108	0.45	0.70
	Civility Mean	**0.61**	156	0.51	0.70
	Hostility Mean	**-0.60**	135	-0.70	-0.48

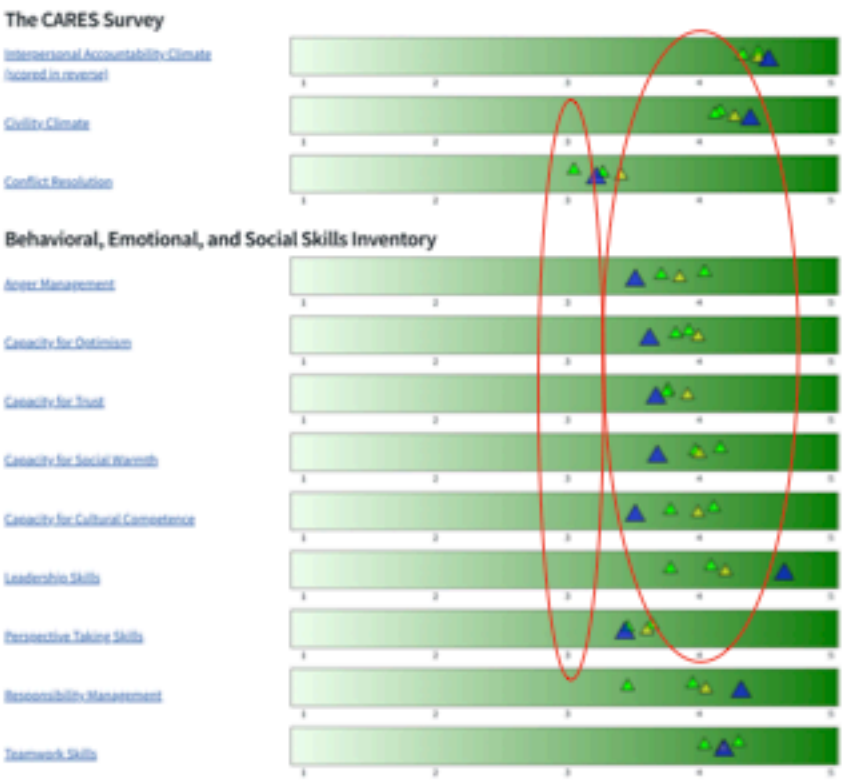
BESSI and CARES Correlations

BESSI Facet	Outcome Variable	Correlation Coefficient	N	Lower C.I.	Upper C.I.
BESSI Cultural Competence Mean	Sexual Harassment Mean	**0.39**	83	0.19	0.56
	Conflict Resolution Mean	**0.45**	108	0.28	0.59
	Civility Mean	**0.51**	156	0.38	0.62
	Hostility Mean	**-0.48**	135	-0.60	-0.34

Using the CARES and BESSI to find Intervention Points



Using the CARES and BESSI to find Intervention Points

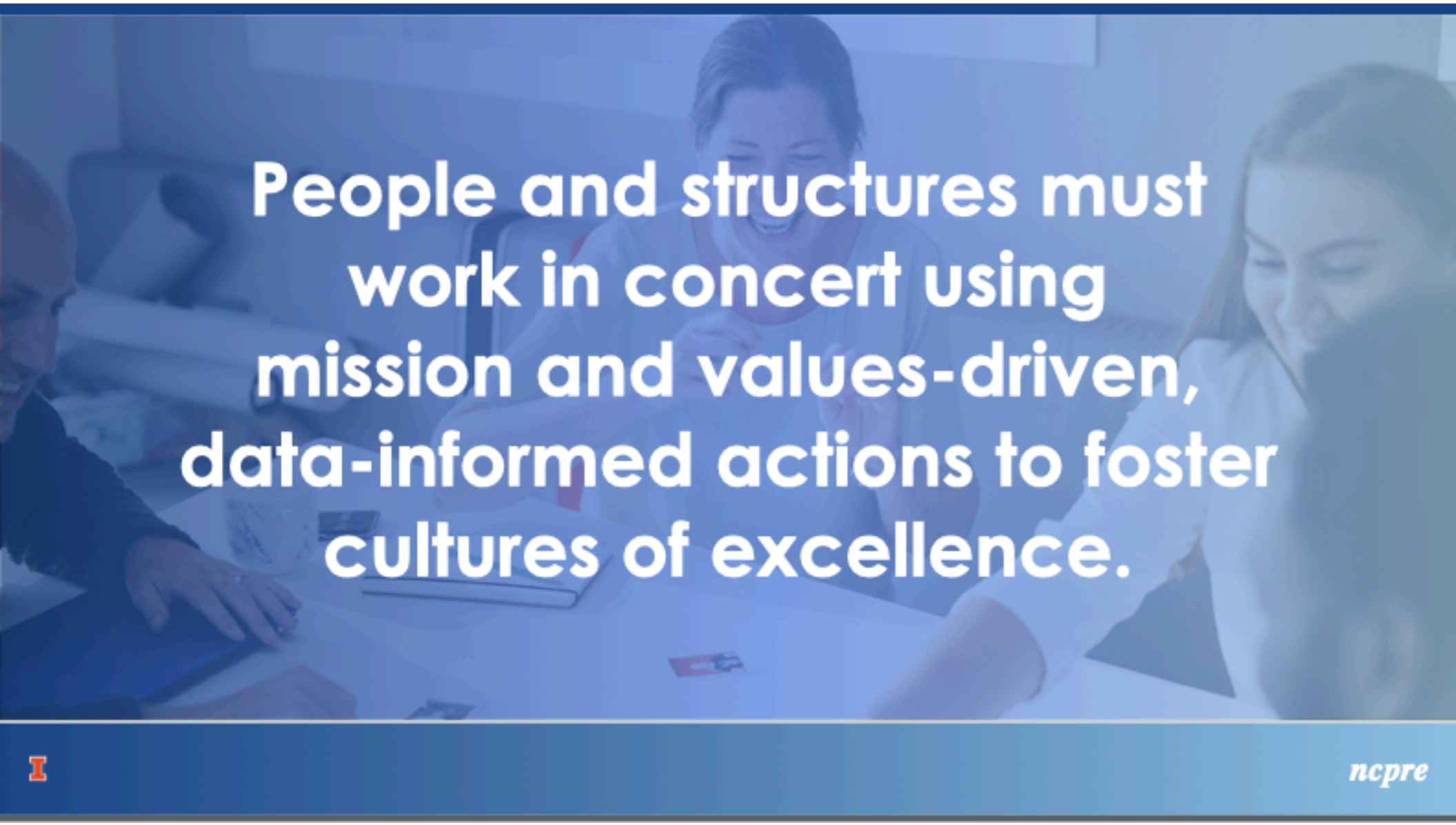


Identifying Intervention Points

Experimental Adjective Study

- Abusive
- Anxiety provoking / Stressful
- Authoritarian
- Competitive (unproductively)
- Creative/Curious
- Dedicated
- Disciplined / Focused
- Discouraging
- Careful
- Collaborative / Cooperative
- Collegial
- Communicative
- Competitive (productively)
- Competitive (unproductively)
- Creative/Curious
- Dedicated
- Disciplined / Focused
- Discouraging
- Discriminatory / Biased
- Disorganized / Chaotic
- Disrespectful
- Dynamic
- Dysfunctional
- Efficient
- Encouraging
- Enthusiastic / Motivating
- Flexible
- Friendly
- Fun
- Hardworking
- Hostile
- Inclusive / Open-minded
- Independent (empowering)
- Individualistic (not team-oriented)
- Inefficient
- Isolated / Isolating
- Just / Fair
- Lacking resources (e.g. funding)
- Leaderless
- Learning / Discovery focused
- Low morale
- Micromanaging
- Non-communicative
- Open / Transparent
- Overworked / Workaholic
- Productive
- Professional / Ethical
- Relaxed
- Respectful
- Rigid / Inflexible
- Just Safe / Stable
- Supportive
- Team / Group-oriented
- Time-Pressured / Rushed
- Toxic
- Uncertain / Unpredictable
- Uncollaborative / Uncooperative
- Unfriendly
- Unjust / Unfair
- Unproductive
- Unprofessional / Unethical
- Unsupportive
- Welcoming

PMI-cos kmeans 4 cluster
Lacking.resources..e.g..funding.
Leaderless
Time.Pressured...Rushed
Inefficient
Disorganized...Chaotic
Rigid...Inflexible
Unproductive
Low.morale
Individualistic...not.team.oriented.
Not.communicative
Unsupportive
Uncooperative
Uncertain...Unpredictable
Discriminatory...
Isolating
Unjust...Unfair
Unfriendly
Competitive...unproductively.
Micromanaging
Overworked...Workaholic
Unprofessional...Unethical
Disrespectful
Abusive
Hostile
Relaxed
Hardworking
Safe...Stable
Competitive...productively.
Dedicated
Professional...
Supportive
Learning...Discovery
Motivating
Disciplined
Productive
Independent...
Open...Transparen
Team...Group.oriented
Flexible
Fun
Creative.Curious
Efficient
Careful
Communicative
cluster
1
2
3
4
Dim2 (5.4%)
Dim1 (80.8%)
5.0
2.5
0.0
-2.5
-10
-5
0
5


People and structures must work in concert using mission and values-driven, data-informed actions to foster cultures of excellence.
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“Action expresses priorities”