CULTURE

Data is a team sport

Most discussions of decision making assume that only senior executives make decisions or that only senior executives' decisions matter. This is a dangerous mistake. Decisions are made at every level of the organization, beginning with individual professional contributors and frontline staff. Every single choice and decision is extremely important in order to become a knowledge-based organization.

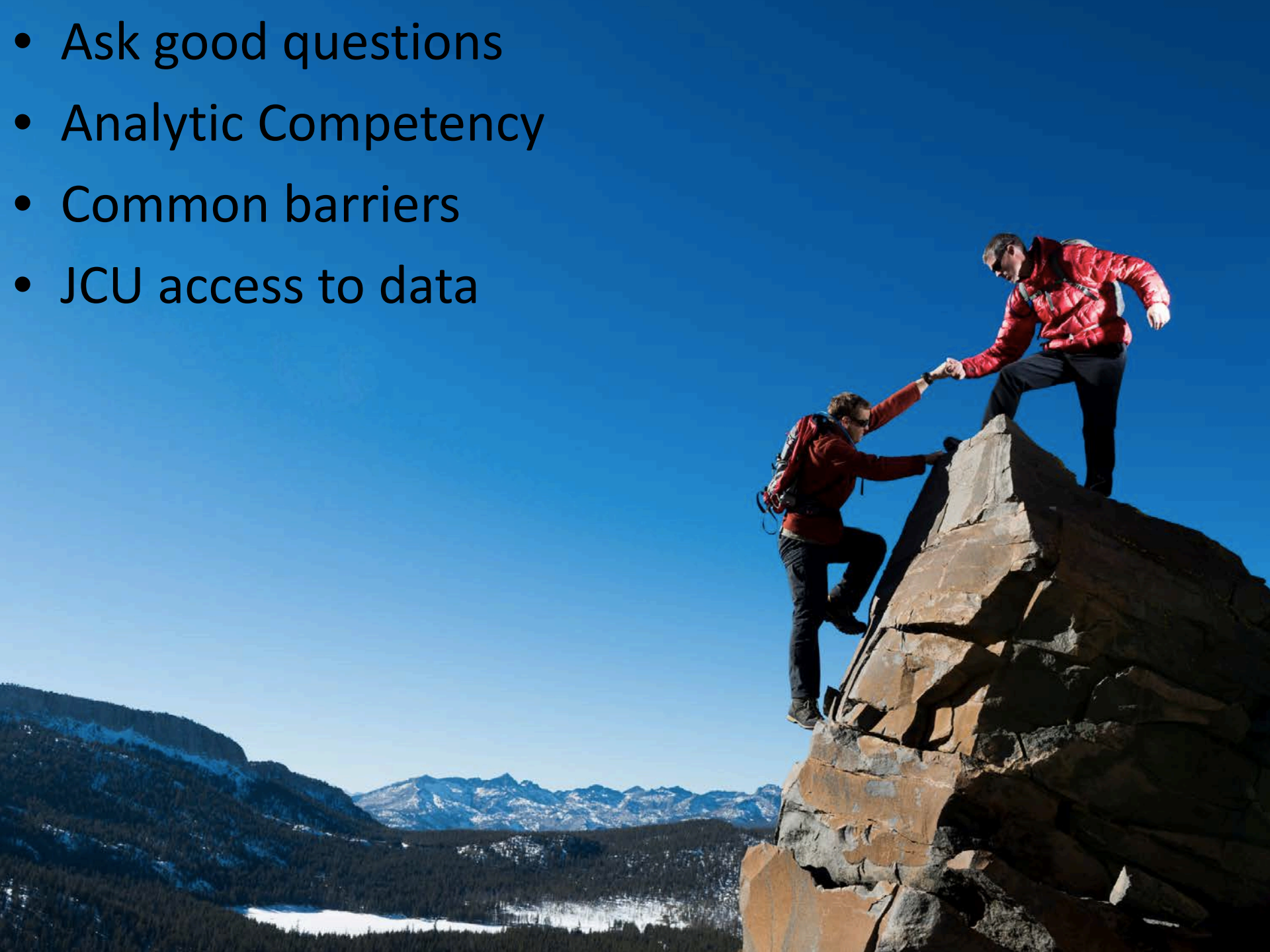
– Peter Drucker

Goal 3: Engaged Campus Community

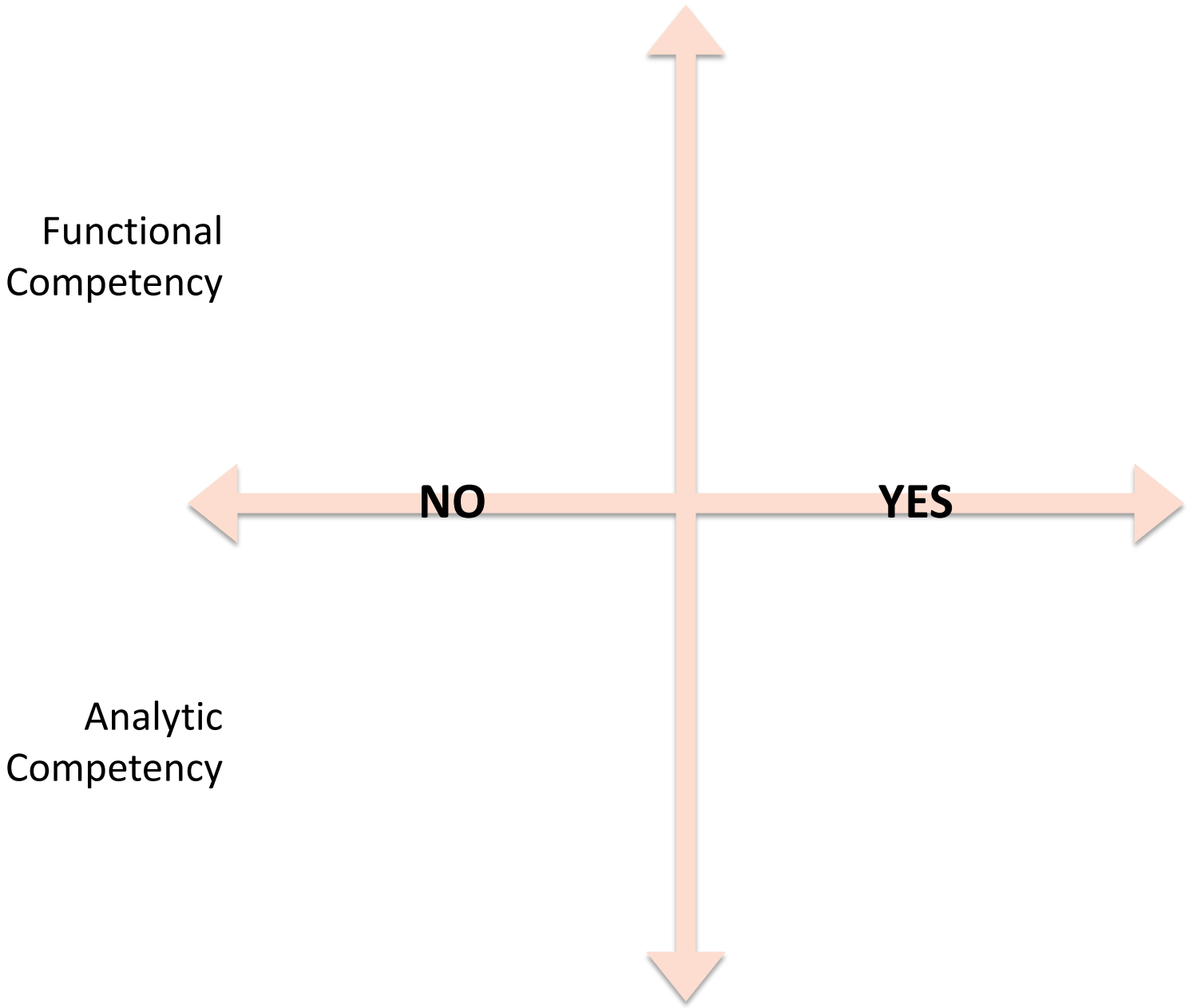
John Carroll will nurture a dynamic, collaborative and future-oriented institutional culture predicated on student, faculty, staff and alumni engagement to achieve operational excellence and competitiveness.

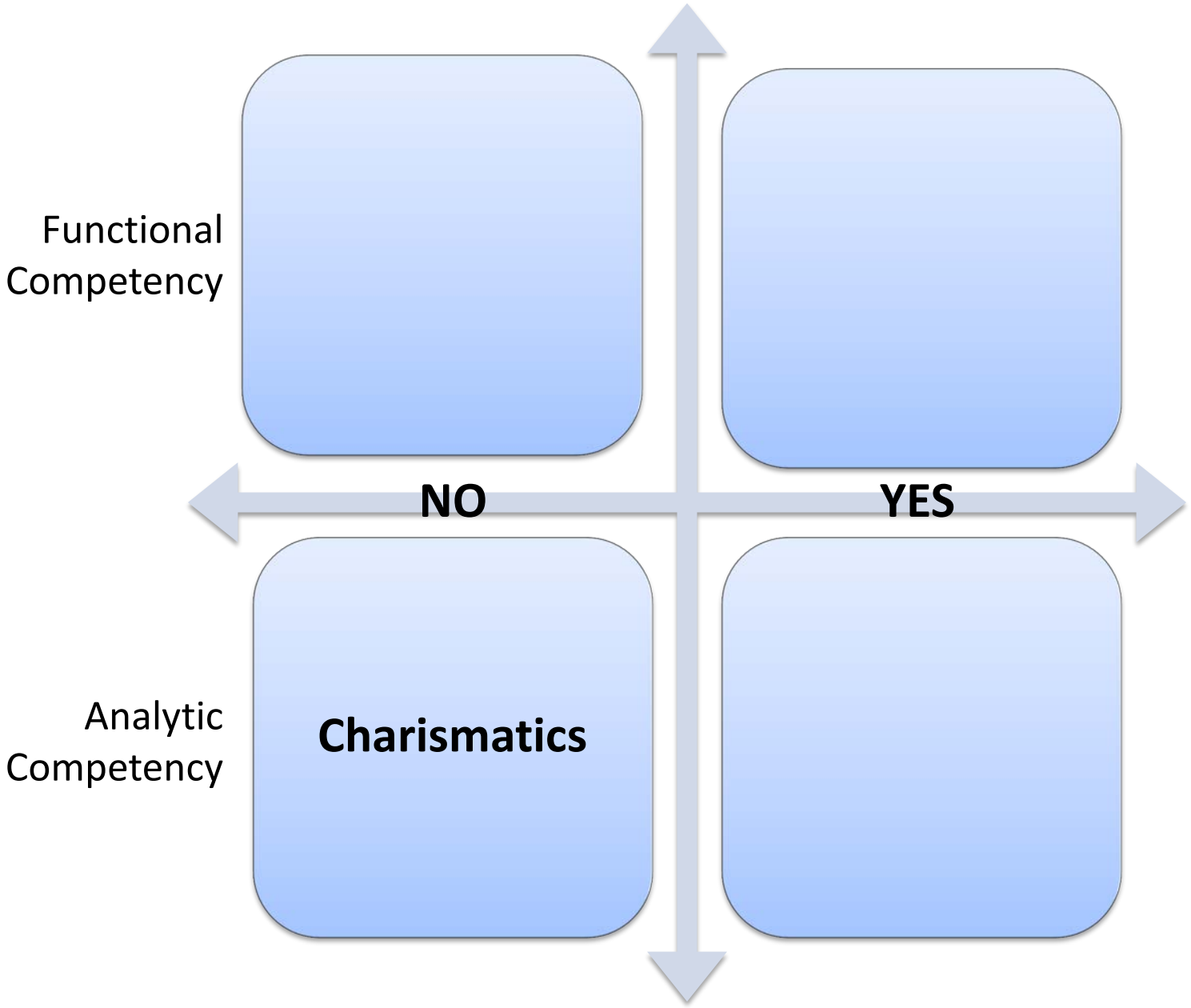
Objective #3 **Continuous Improvement**: Advance a culture of mission-centered and data-informed decision making for institutional improvement.

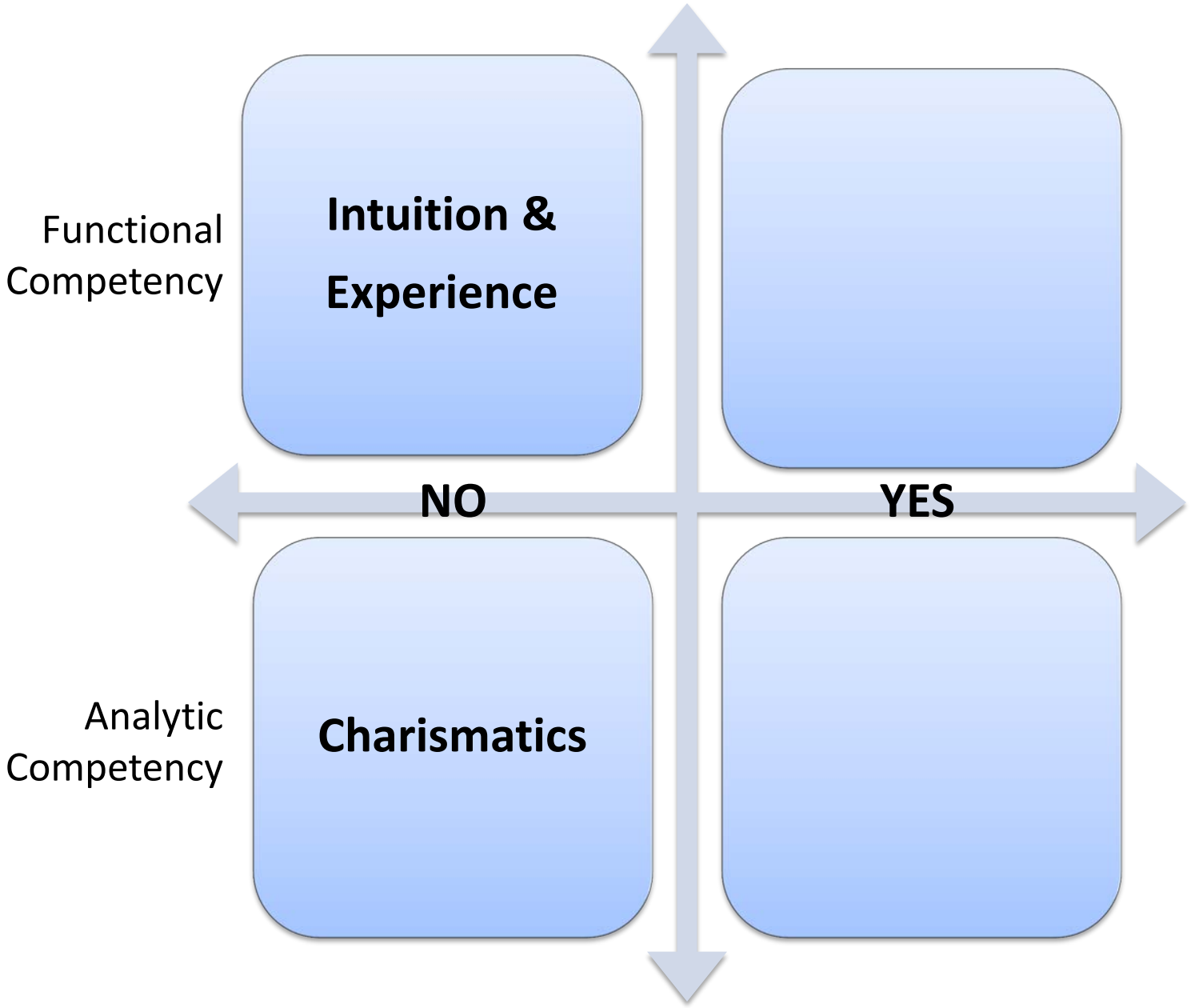
- Ask good questions
- Analytic Competency
- Common barriers
- JCU access to data

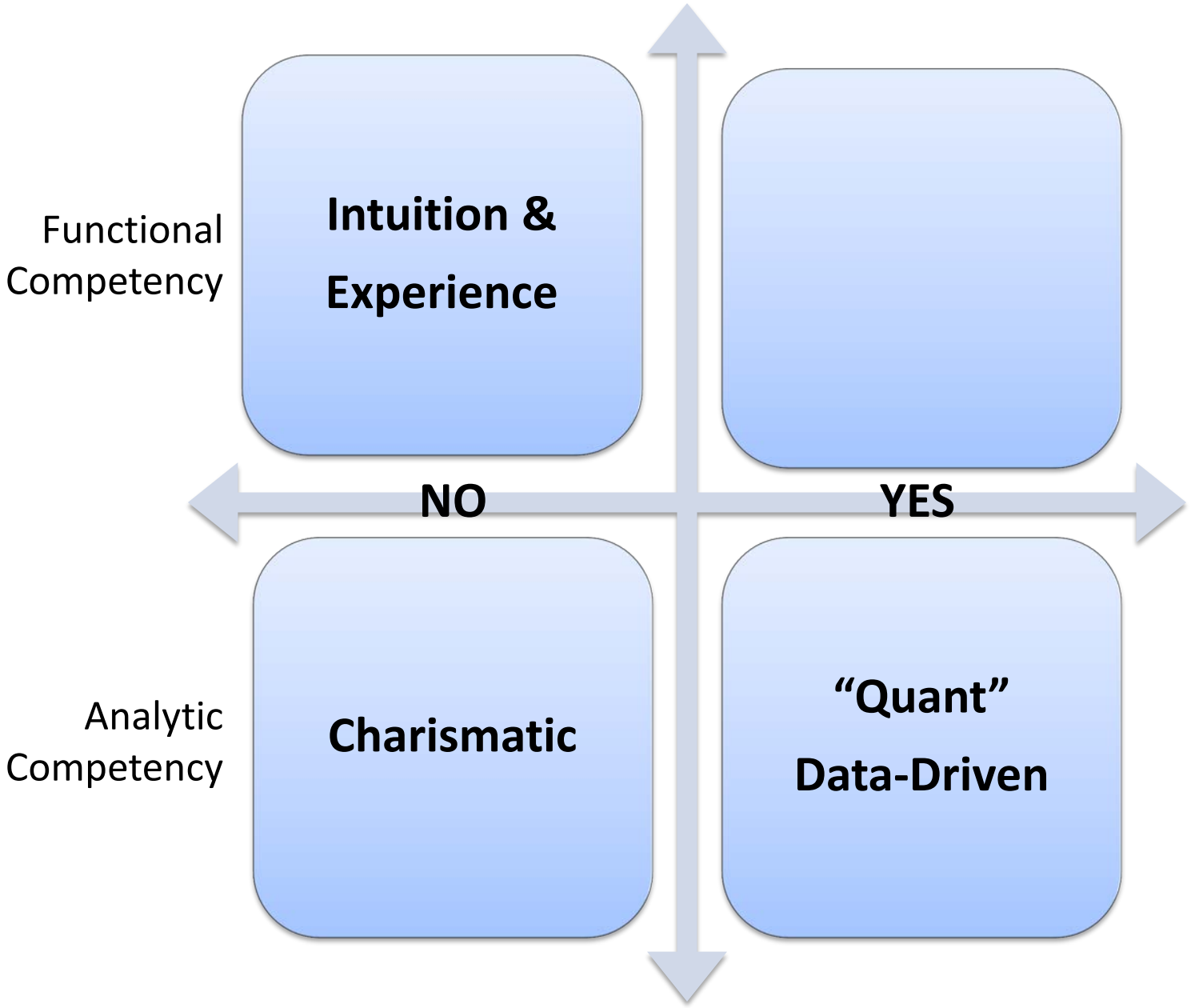


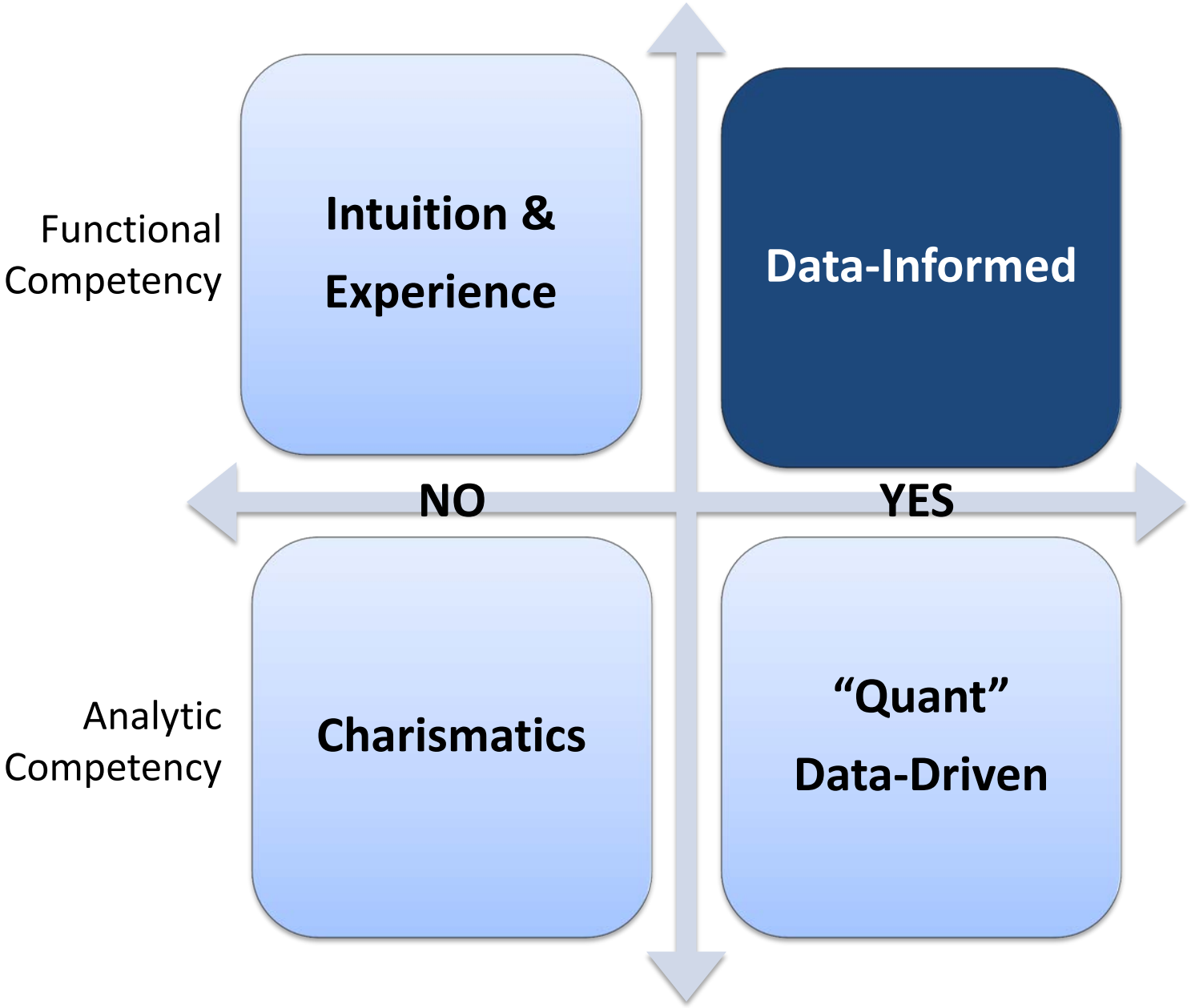
“Without data, all anyone has are opinions. Data elevates the probability that you’ll make the right decision.”


Functional
Competency
NO
YES
Analytic
Competency


Functional Competency
NO
YES
Analytic Competency
Charismatics


Functional Competency
Intuition & Experience
NO
YES
Analytic Competency
Charismatics


Functional Competency
Intuition & Experience
NO
YES
Analytic Competency
Charismatic
"Quant" Data-Driven

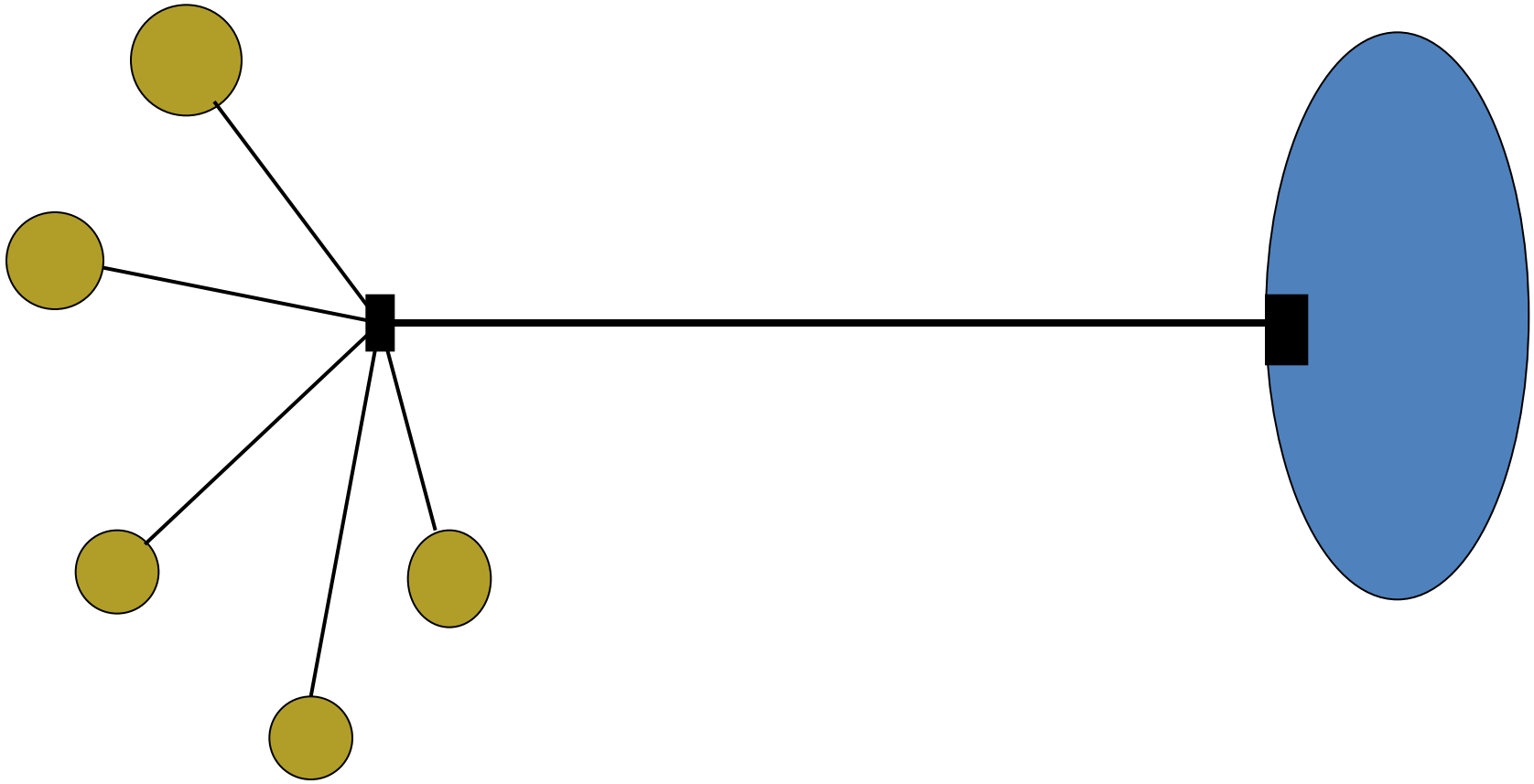

Functional Competency
Intuition & Experience
Data-Informed
NO
YES
Analytic Competency
Charismatics
"Quant" Data-Driven

Foreign aid workers were tasked with aiding a rural village in a developing country. One of the features of village life that experts noticed was the considerable time the women spent traveling quite long distances together to a water source to bring back water in jars to their huts.

The experts considered this problem and came up with a fairly low-tech solution to ease the women's burden: they created a pump and water pipe system from the water supply and installed taps in each hut. Then, instead of walking several times a day to pick up the water, the women could fill up their jars as often as they wished at their huts.

The experts waited for the praise and thanks of the villagers and were astounded instead by a hostile reaction: collectively, the women all refused to use the taps!

The Water Delivery System



What went wrong?

- Foreign aid workers were tasked with aiding a rural village in a developing country.
- One of the features of village life that experts noticed was the considerable time the women spent traveling quite long distances together to a water source to bring back water in jars to their huts.
- The experts considered this and came up with a fairly low-tech solution to ease the women's burden: they created a pump and water pipe system from the water supply and installed taps in each hut.
- Then, instead of walking several times a day to pick up the water, the women could fill up their jars as often as they wished at their huts.
- The experts waited for the praise and thanks of the villagers and were astounded instead by a hostile reaction.
- collectively, the women all refused to use the taps

Every day, we create 2.5 quintillion bytes of **data** — so much that 90% of the **data** in the world today has been created in the last two years alone

“Bigness” is only 20% of data’s personality

VOLUME

Data at Rest

Terabytes to exabytes of exsisting data to process

VELOCITY

Data in Motion

Streaming data, miliseconds to seconds to respond

VARIETY

Data in Many Forms

structured, unstructured, text, multimedia

VERACITY

Data in Doubt

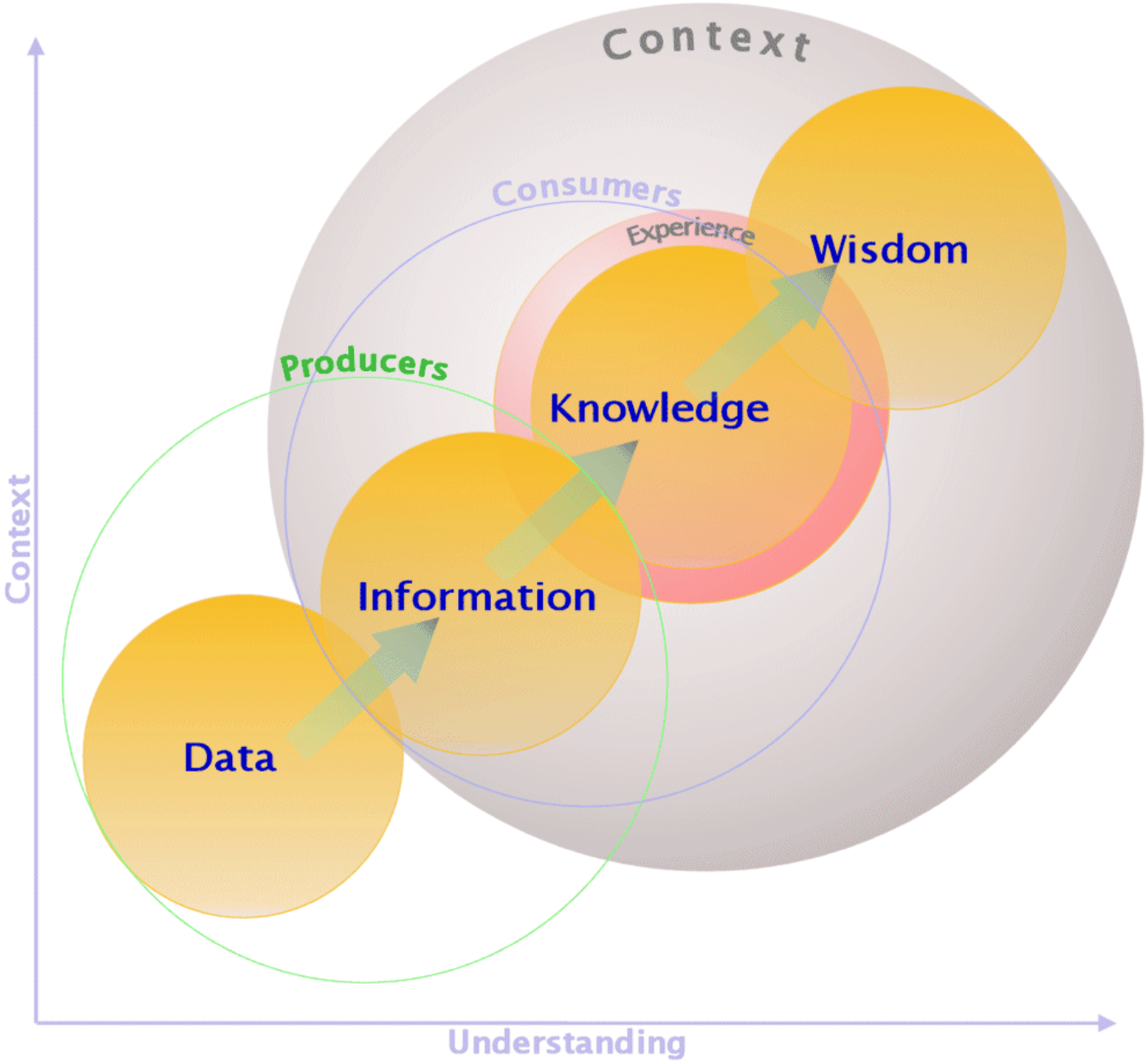
Uncertainty due to data inconsistency & incompleteness, ambiguities, latyency, deception and model approximations

VALUE

Data Quality

The ability of the data to add value into the decision-making process.

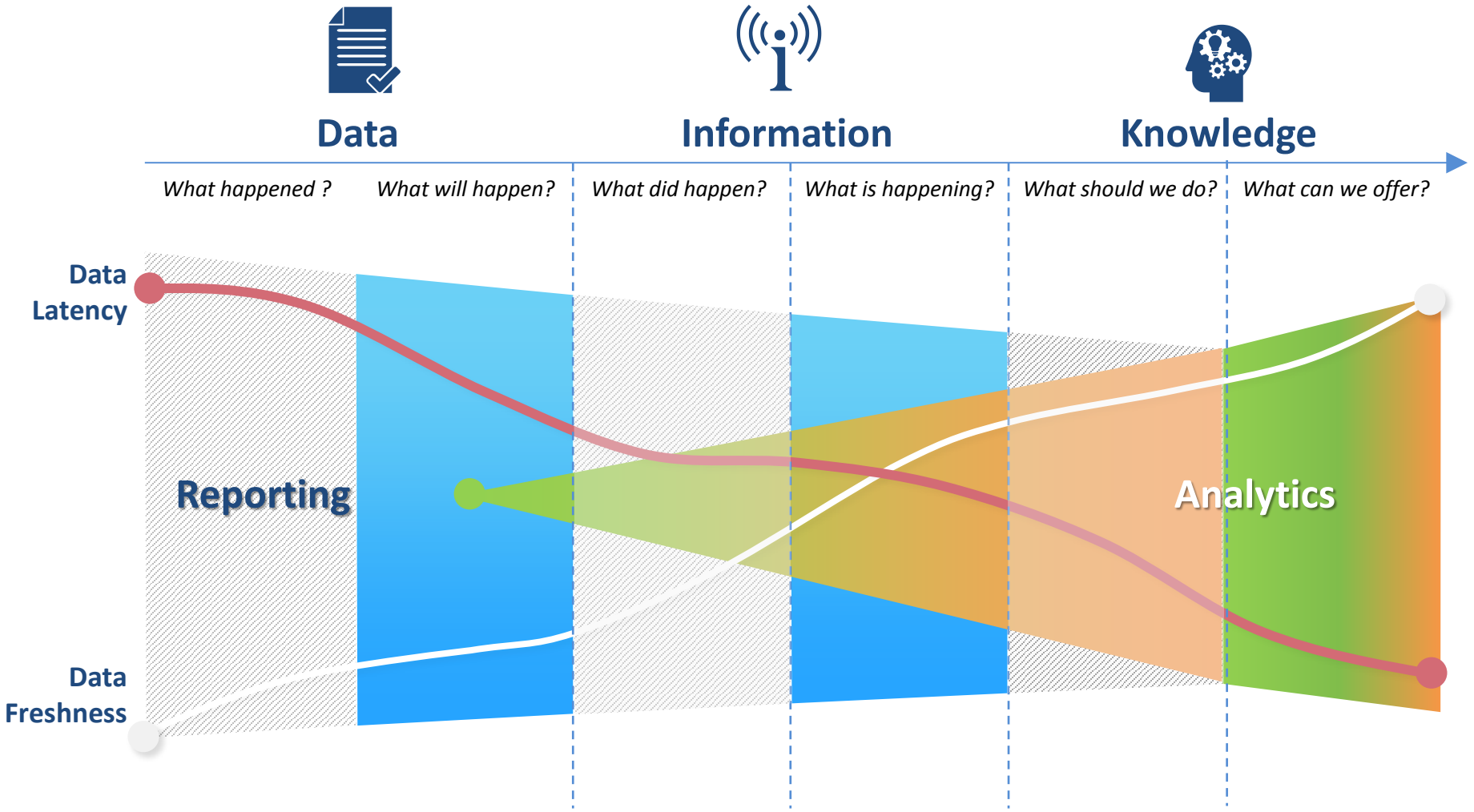
Information
Sensemaking
Data


Context
Consumers
Experience
Wisdom
Producers
Knowledge
Information
Data
Context
Understanding

What is data analytics?

Analytics is not a singular action. It is a **process** that begins with a strategic question, moves on to gathering and analyzing the appropriate data “with an eye toward prediction and insight”, displaying the findings in ways which the audience will find compelling and actionable, and finally creating a feedback loop to address the original question and possibly create new ones.

Bichsel (2012)


Data
Information
Knowledge
What happened ?
What will happen?
What did happen?
What is happening?
What should we do?
What can we offer?
Data Latency
Data Freshness
Reporting
Analytics

TRADITIONAL	DYNAMIC
Single Decision	Ongoing Decisions
Independent	Interdependent
Static	Dynamic
No-time pressure	Real-time
Transparent	Opaque
Linear	Non-Linear
Simple	Complex

Cognitive Agility

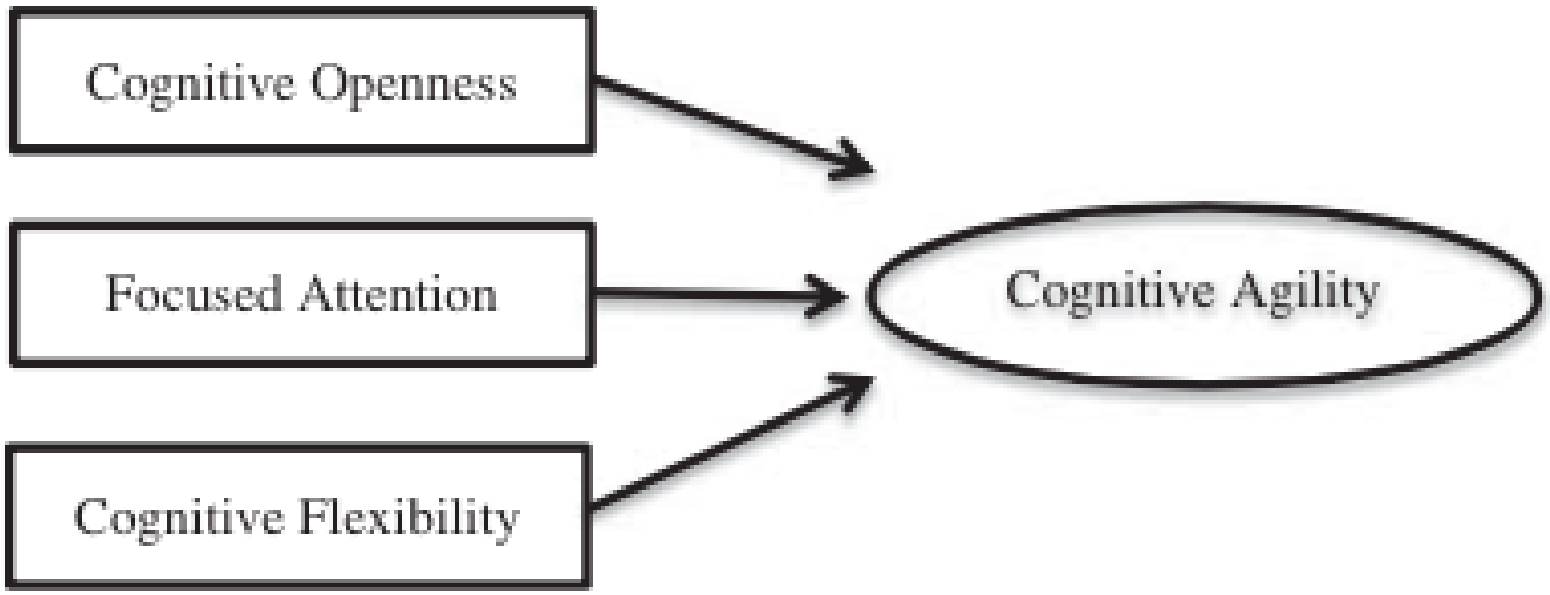


FIGURE 1. FORMATIVE CONSTRUCT OF COGNITIVE AGILITY

Good, D. (2014). Predicting real-time adaptive performance in a dynamic decision-making context. *Journal of Management & Organization*, *20*(06), 715–732. doi:10.1017/jmo.2014.54

The 5 As for Analytic Competency

The 5 As

Ask

This involves compiling a list of critical questions about what knowledge or data is being sought. The key here is to ask good questions, because that's how you get good answers.

Acquire

Accessing information isn't as easy as it used to be. This stage involves accessing and collecting informational materials from the most appropriate digital and non-digital sources.

Analyze

With all the raw data collected we must now authenticate, organize, and arrange it all. This stage also involves ascertaining whether information is true or not, and distinguishing the good from the bad.

Apply

Once data is collected and verified, and a solution is finally created, the knowledge must then be practically applied within the context of the original purpose for the information quest.

Assess

This involves open and lively discussions about how the problem-solving journey could have been made more efficient, and how the solution created could be applied to challenges of a similar nature.

global digital citizen foundation

ASK

- Understand the problem and its context
- Permission to swirl
- Ask: What is the goal of the question or ideal “future state”?

How many freshmen do we have on campus?

- **How many?**
  - Actual number, FTE?
- **Freshmen**
  - By start term, by credit hours?
- **Do We Have**
  - Who is asking?
- **On Campus**
  - Total? ***Living*** on Campus? ***Literally*** on campus?
- Bonus: WHY are you asking?

ACQUIRE

- Where does the right information reside?
- Scan for secondary data sets
- Separate potential knowledge from noise
- Gather from everywhere
- Clean up the data, but do not obsess about “clean” data

- Stay mindful: Are new questions emerging?

ANALYZE

- Exploratory Analysis turns to Explanatory Analysis
- Organize and triangulate
- Work independently AND collaboratively
- Assess the currency and validity of the data
- Rapid iteration
  - Different visual displays and context

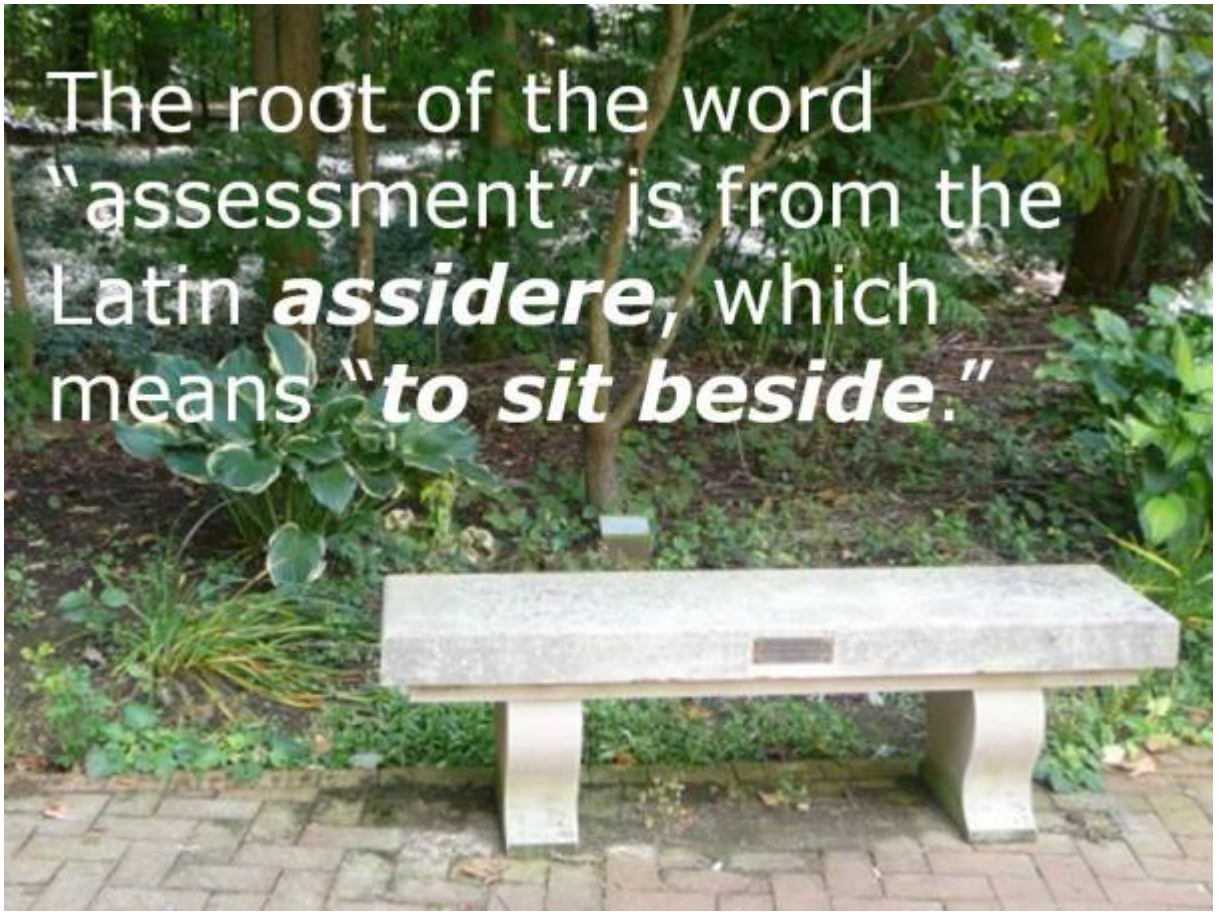
Be sure you can answer “So What?”

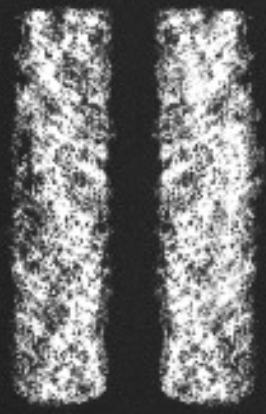
APPLY

- Turn data into personal and shared knowledge
- Who else needs to know?
- Ad hoc or recurring
- Can this new data set or presentation have other applications?

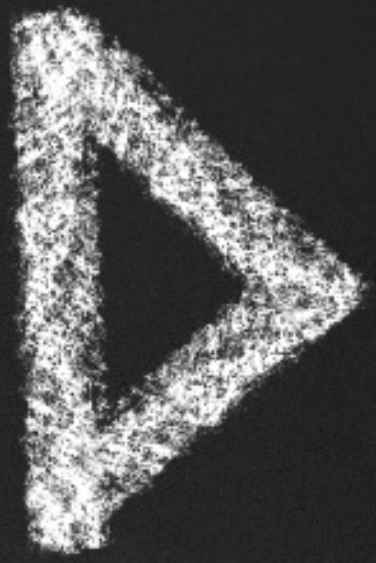
ASSESS

- How did it go?
- Debrief the process
- Pros and cons
- Document it





PAUSE



PLAY

Our Systems Environment

DATA STORAGE & MAINTENANCE

ORACLE (not BANNER), Slate CRM, PeopleAdmin, Canvas, SpaceFinder, Lenel, and More! External Data Sources

DATA TRANSFER

Hyland OnBase, PL/SQL, MS QUERY, MS ACCESS, Argos, WebServices

DATA TO INFORMATION

Excel, Argos, BannerWeb, SPSS, SAS

DATA TO DECISIONS

Tableau

Barriers to Acquiring Data

- Lack of access to good tools
- Lack of awareness of what data and where data exist
- Inability to access data
- Only aggregated data is available
- Currency of data
- Request process for accessing data
- Fear of misinterpretation/misuse
- Confidentiality and privacy concerns
- Limited resources (e.g. staff time)

Implications

- Big Brother & Profiling
- A Mindful of the Balance of Mission *and* Metrics
- Information Sharing
- Obligation (Expectation) to Act
- Aligning Resources
- Marginalization of Big Data – Who does big data leave behind?

- Campbell, J. P., DeBlois, P. B., & Oblinger, D. G. (2007). Academic analytics: A new tool for a new era. *Educause Review*, *42*(4), 40.
- Lerman, J. (2013). Big data and its exclusions. *Stanford Law Review Online*,*66*.

Now

data@jcu.edu

Soon

Online Request Form

Data Repositories

Training, Training, Training