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.”
Intuition & Experience

Data-Informed

Charismatics

“Quant” Data-Driven

Functional Competency

Analytic Competency
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.
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)
What happened? Reporting

Data Latency

What will happen? What did happen? What is happening? What should we do? What can we offer?

Data Information Knowledge

Analytics

Data Freshness
<table>
<thead>
<tr>
<th>TRADITIONAL</th>
<th>DYNAMIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Decision</td>
<td>Ongoing Decisions</td>
</tr>
<tr>
<td>Independent</td>
<td>Interdependent</td>
</tr>
<tr>
<td>Static</td>
<td>Dynamic</td>
</tr>
<tr>
<td>No-time pressure</td>
<td>Real-time</td>
</tr>
<tr>
<td>Transparent</td>
<td>Opaque</td>
</tr>
<tr>
<td>Linear</td>
<td>Non-Linear</td>
</tr>
<tr>
<td>Simple</td>
<td>Complex</td>
</tr>
</tbody>
</table>
Cognitive Agility

Figure 1. Formative construct of cognitive agility

The 5 As for Analytic Competency
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.

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.

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.

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.

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.

**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.

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**Information Fluency** is the ability to unconsciously and intuitively interpret information in all forms and formats in order to extract the essential knowledge, authenticate it, and perceive its meaning and significance. The data can then be used to complete real-world tasks and solve real-world problems effectively.

The process of Information Fluency is defined by the 5 As.

1. **Ask**
2. **Acquire**
3. **Analyze**
4. **Apply**
5. **Assess**
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

The root of the word “assessment” is from the Latin assidere, which means “to sit beside.”
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?

Now
data@jcu.edu

Soon
Online Request Form
Data Repositories
Training, Training, Training