

HELLO!

Troy Abfalter

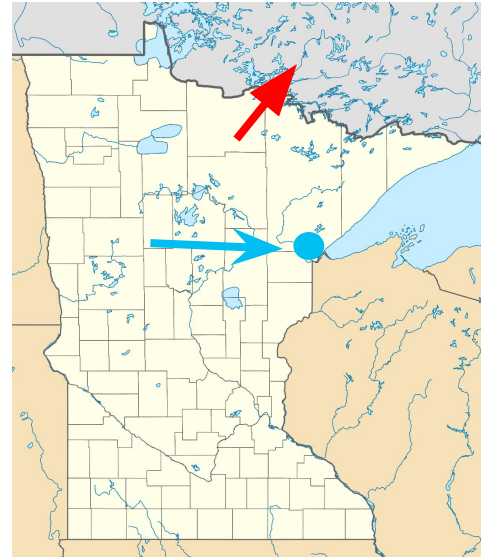
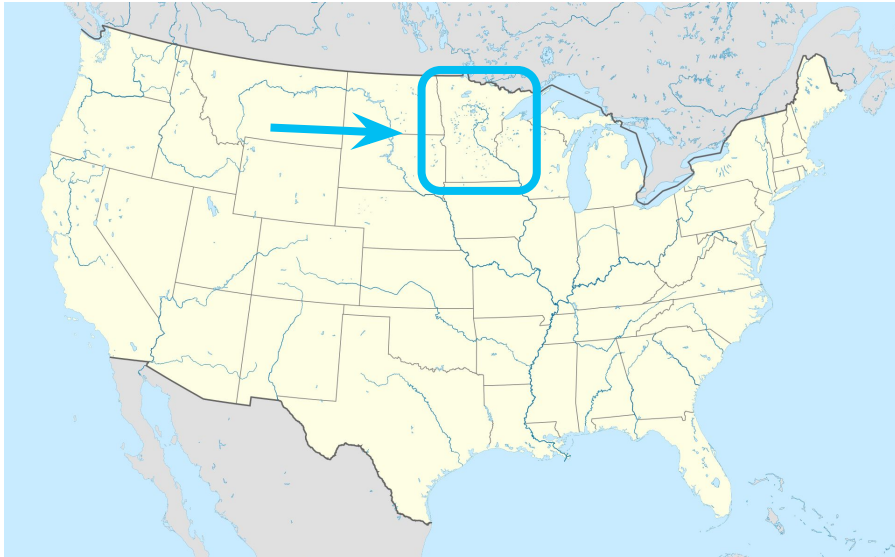
McNair Director

The College of St. Scholastica

Duluth, MN



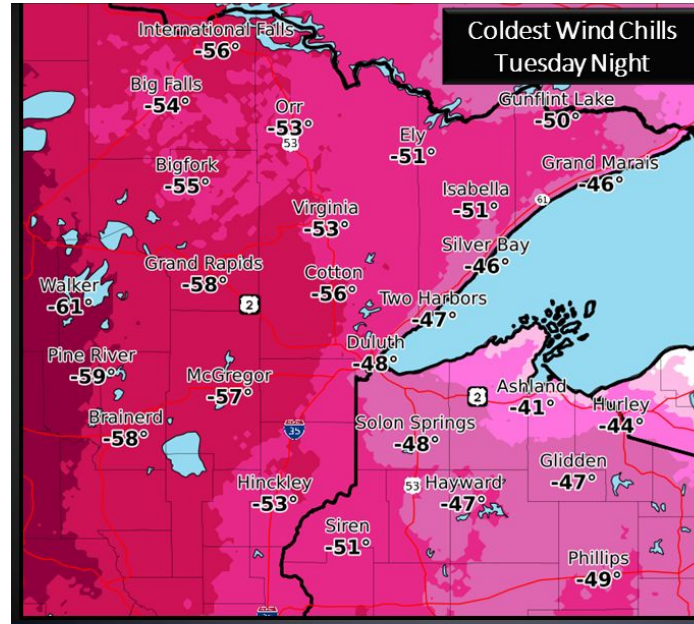
Duluth, Minnesota, USA



The College of St. Scholastica



The College of St. Scholastica



Snow tapers off today from west to east.

Dangerously cold Arctic air arrives tonight.

Prolonged period of extreme wind chills tonight through Thursday morning.

Temperatures -10 to -20 °F Tuesday afternoon

Tuesday night lows -20 to -35 °F

The College of St. Scholastica

Private Liberal Arts College in Catholic Benedictine Tradition

Biomedical and Health Science Focus - Professional Doctoral Preparation

Undergraduate Enrollment 2,500 - Graduate Enrollment 1,500

17% Students of Color - 25% Pell Eligible - 40% First Generation

Five Long-Standing TRIO Programs - McNair established in 1995

Less Time, Better Results

A Systems Approach to Evidence-Based Program Improvement



1.

The Problem

Sounds great, but who has time to do all of this?

“

It is imperative that your application includes a strong evaluation plan...driven by the performance indicators for the McNair Program.

DOE, FY 2017 Application for Grants, p. 4

“

*The evaluation plan should determine the success of the project in—
(i) Making progress toward achieving its objectives (formative); and
(ii) Achieving its objectives at the end of the project period (summative);
and provide for a description of other project outcomes.*

DOE, FY 2017 Application for Grants, p. 45

“

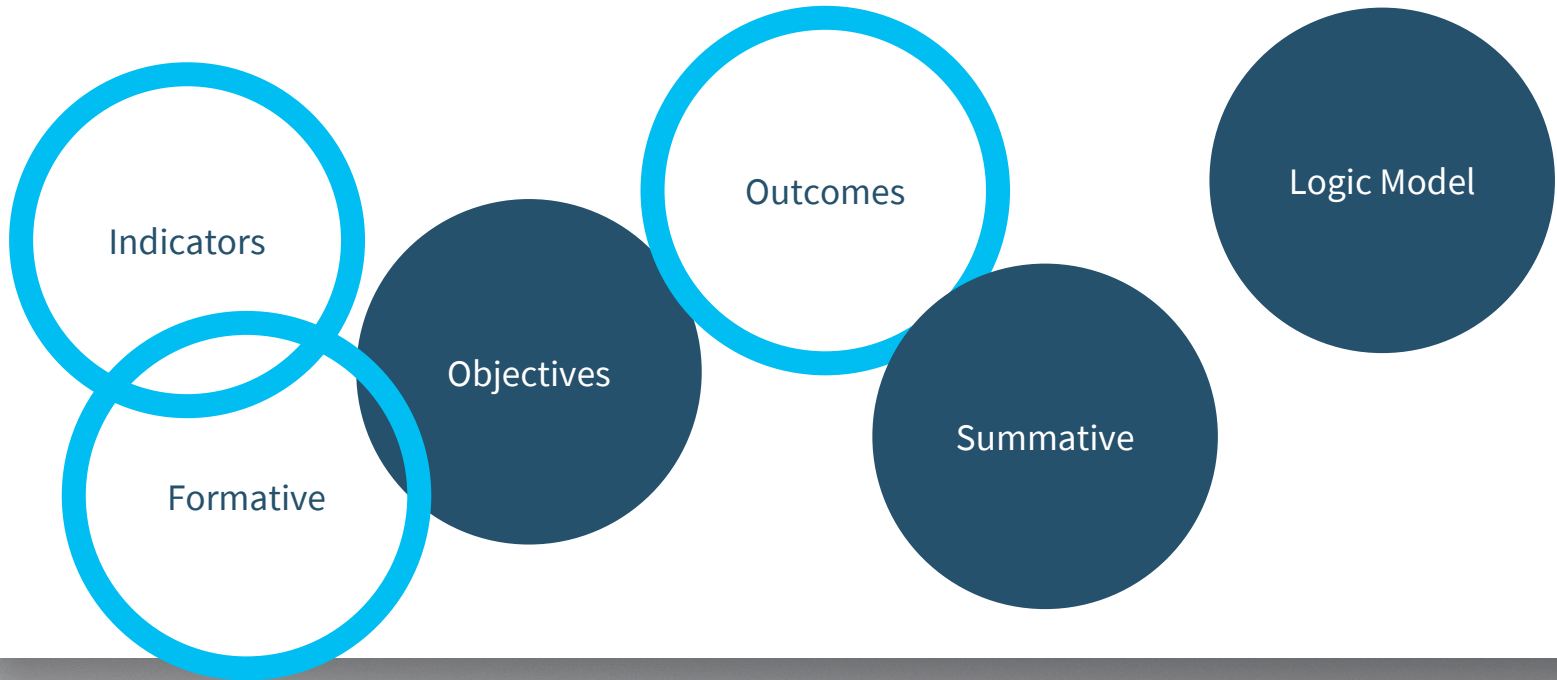
In addition, consistent with the Department's increasing emphasis on promoting evidence-based practices...the Secretary will evaluate applications on the extent to which the components and anticipated outcomes of the proposed project are supported by a logic model.

DOE, FY 2017 Application for Grants, p. 19

“

A logic model...[is] a well-specified conceptual framework that identifies key components of the proposed process, product, strategy, or practice and describes the relationships among the key components and outcomes, theoretically and operationally.

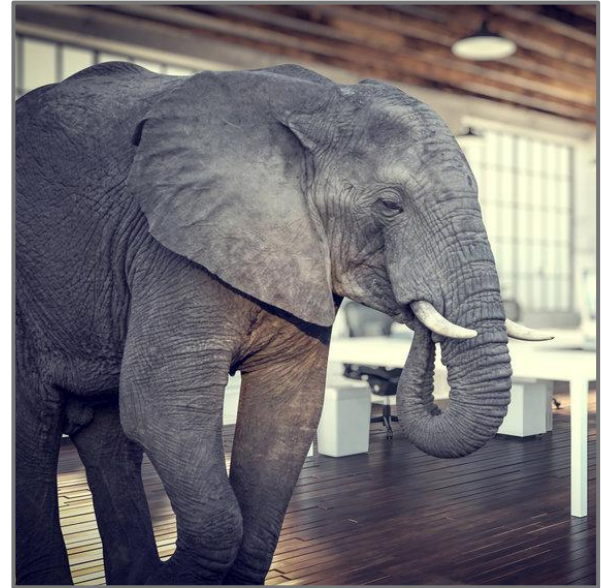
Somehow these are all related...



What about the...

13

Annual Performance Report

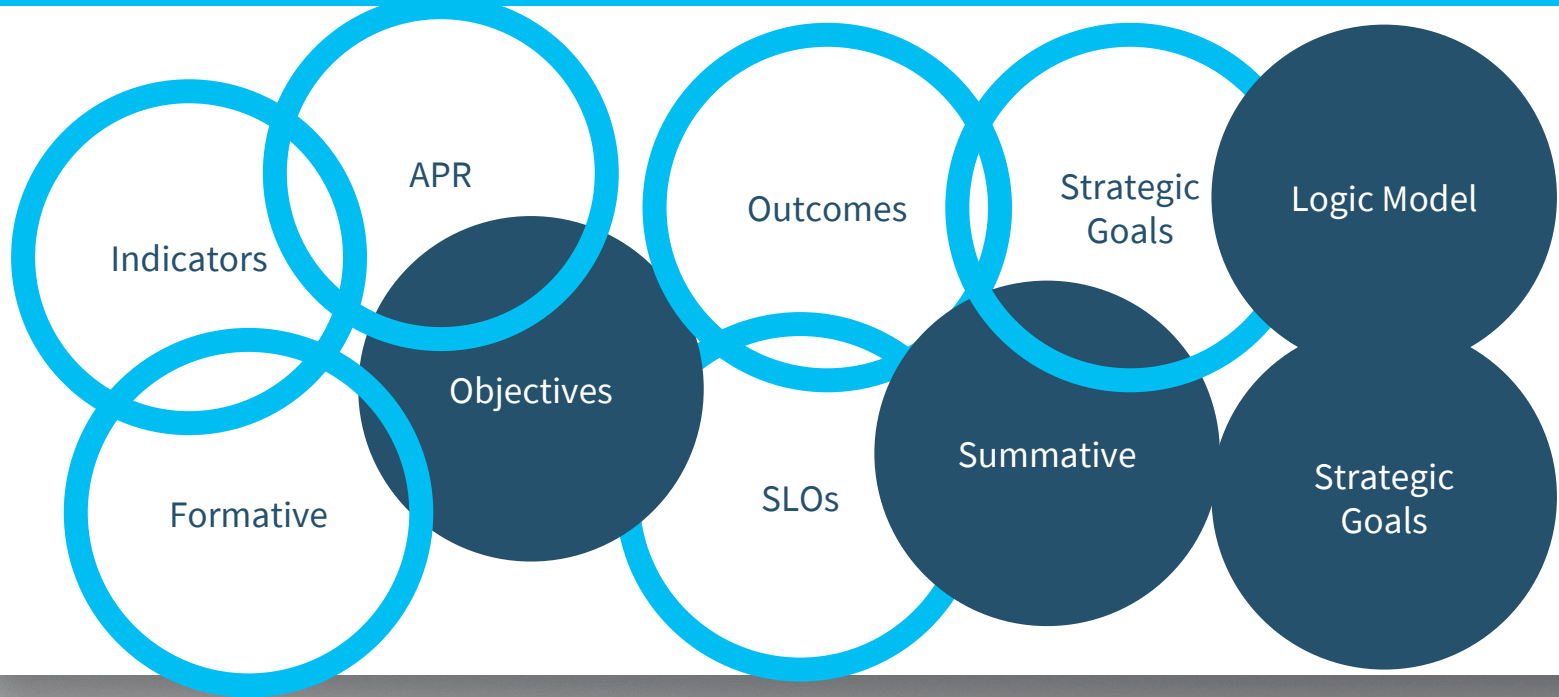


And other institutional requirements...

Student Learning Outcomes
Annual Reports
Strategic Goals



Somehow these are all related...



The Problem

McNair programs need to meet **myriad requirements** around evaluation, assessment, and reporting that are **similar yet different**.

A **jumble** of intersecting yet disparate processes may result, which creates **inefficiencies** and confounds the noble intentions of evidence-based program improvement.

The Problem

**myriad requirements, similar yet
different, create a jumble of
inefficiencies**

The Problem



2.

The Solution

Elegance through a systems approach



elegance

$$\begin{aligned}
 \vec{B} &= \mu_0 \frac{NI}{2} \quad v = \frac{nh}{2\pi r m_e} \quad \phi_E = \frac{E_c}{\phi_0} = k \frac{\phi}{r^2} \quad \phi = |\phi_A - \phi_B| = \frac{n_1 n_2}{(n_2 + n_1)^2} \quad R_m = \frac{C}{T} k = \pm \sqrt{\frac{2m}{\hbar^2}} (E - V_0) \\
 K &= \rho^2 \frac{e}{2m} m_0 = \frac{M_m}{N_A} = \frac{M_r \cdot 10^{-3}}{N_A} \quad m = N \cdot m_0 = \frac{\phi}{v_e} \frac{M_m}{N_A} \quad E = \frac{E_c}{a} \int_{-a/L}^{+a/L} \sin(\omega t + \phi) dy \\
 \lambda &= \frac{h}{\sqrt{2eUm_e}} \quad R = \rho \frac{L}{S} \quad E = mc^2 \quad \frac{\sin \alpha}{\sin \beta} = \frac{v_1}{v_2} = \frac{w_2}{w_1} \quad v = \frac{1}{\sqrt{\epsilon \cdot \mu}} = \frac{c}{\sqrt{\epsilon_r \mu_r}} \\
 f_0 &= \frac{1}{2\pi} \sqrt{\frac{g}{L}} \quad \psi(x) = \sqrt{2/L} \sin \frac{n\pi x}{L} \quad E = \frac{1}{2} \hbar \sqrt{k/m} \quad \beta = \frac{\Delta I_c}{\Delta I_B} \phi_e = \frac{\Delta E}{\Delta t} \frac{w_1}{x} + \frac{w_2}{x'} = \frac{w_2 - w_1}{v} \\
 \oint \vec{B} d\vec{\ell} &= \mu_0 \iint_S \vec{J} d\vec{S} \quad \vec{S} = \frac{1}{\mu_0} (\vec{E} \times \vec{B}) \quad E_k = \frac{\hbar^2}{8mL^2} \quad \oint \vec{J} d\vec{S} = Q^* \\
 C(S) &= \sqrt{\frac{3kT}{m_0}} = \sqrt{\frac{3kTN_A}{M_m}} = \sqrt{\frac{3R_m T}{M_r \cdot 10^{-3}}} \quad E = \hbar k^2 \quad 1 \text{ pc} = \frac{1 \text{ AU}}{r} \quad S = \frac{U}{I} \quad \psi_2 = U_e I t \quad F_v = \int \frac{F_h}{R} \\
 \lambda &= \frac{\ln 2}{T} \quad F_h = Shp g \quad f_0 = \frac{1}{2\pi \sqrt{LC}} \quad \sigma = \frac{\phi}{S_T} \quad M = Fd \cos \alpha
 \end{aligned}$$



When you first start off trying to solve a problem, the first solutions you come up with are very complex, and most people stop there. But if you keep going, and live with the problem and peel more layers of the onion off, you can often times arrive at some very elegant and simple solutions.

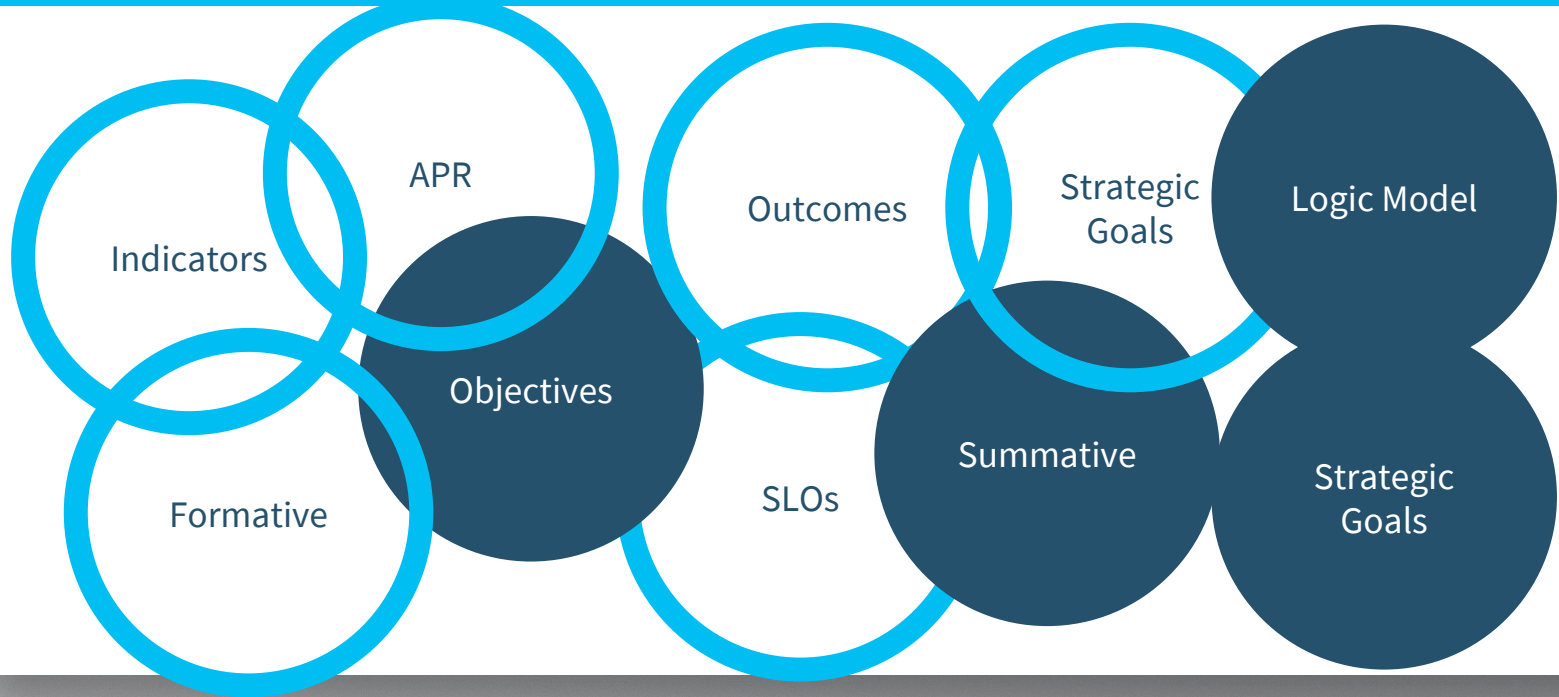
— *Steve Jobs* —

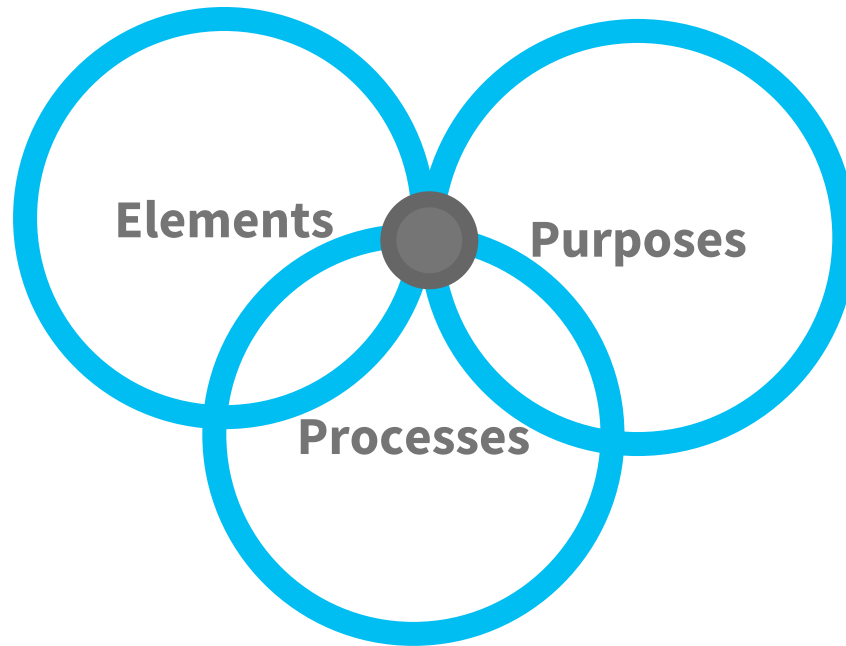
AZ QUOTES

The background of the image is a complex network of glowing blue lines, resembling a neural network or a web of connections. The lines are thin and intricate, with some thicker, more prominent branches. A central point where several lines converge is highlighted with a bright, glowing blue light, creating a focal point. The overall color scheme is a deep blue with varying intensities of light blue and white highlights from the glowing elements.

systems approach

Somehow these are all related...





**How can you simplify
and align?**

3.

Build Your System

The Nuts and Bolts

Build Your System

The View from my Office



PLANIGLOBII TERRESTRIS

Mappa Univerſalis.

Utrumq; Hemifphærium Orientæ & Occidentale repræſentans
ex IV. mappis generalibus Hæſſianis compoſita et adjectis
ceteris hemifphæriis designata a G. M. Lœwſio
Secundenabus Romanianis Nördibus A. MDCCXXXVI

Fig. I. dictur Hemifphærium polare æſtivum. Fig. II. Hemifphærium polare
aſtæticum. Fig. III. Hemifphærium Sphæra obliqua pro horizon Nördberg.
Fig. IV. mapſam oppoſitam ſphæra cum dogmatibus Nördbergiſtis.

MAPPE MONDE

qui repréſente les deux Hemifphères, ſavoir
celui de l'Orient et celui de l'Occident, avec des
quatre Cartes générales de ſeu. M. le Profefſeur Hæſſius
compoſées par M. G. M. Lœwſio et publiées par les Nördiers de
Nürnberg l'An 1746.

Fig. I. Hemifphère polaire æſtival. Fig. II. Hemifphère polaire Antæctique. Fig. III.
Hemifphère de la Sphère oblique pour l'Horizon de Nördberg. Fig. IV. Les Amphi-
théâtres de Nördberg.

landscape map



drawing board



An aerial night photograph of a large-scale construction project. In the foreground, a multi-lane curved road shows light trails from moving vehicles. The construction site is illuminated by numerous bright work lights. Several large tower cranes are positioned around the site, with one particularly prominent crane on the right side. The central focus is a large, curved concrete structure under construction, featuring multiple levels of scaffolding and reinforcement. To the left, another building's framework is visible. In the background, the city skyline is visible under a dark blue night sky, with a distinctive pink-lit tower standing out. The word "structure" is overlaid in white text in the upper-middle part of the image.

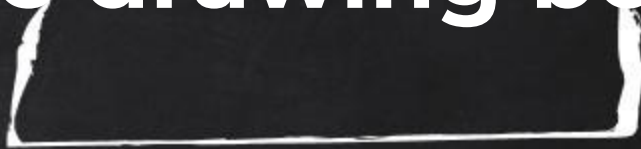
structure

test drive

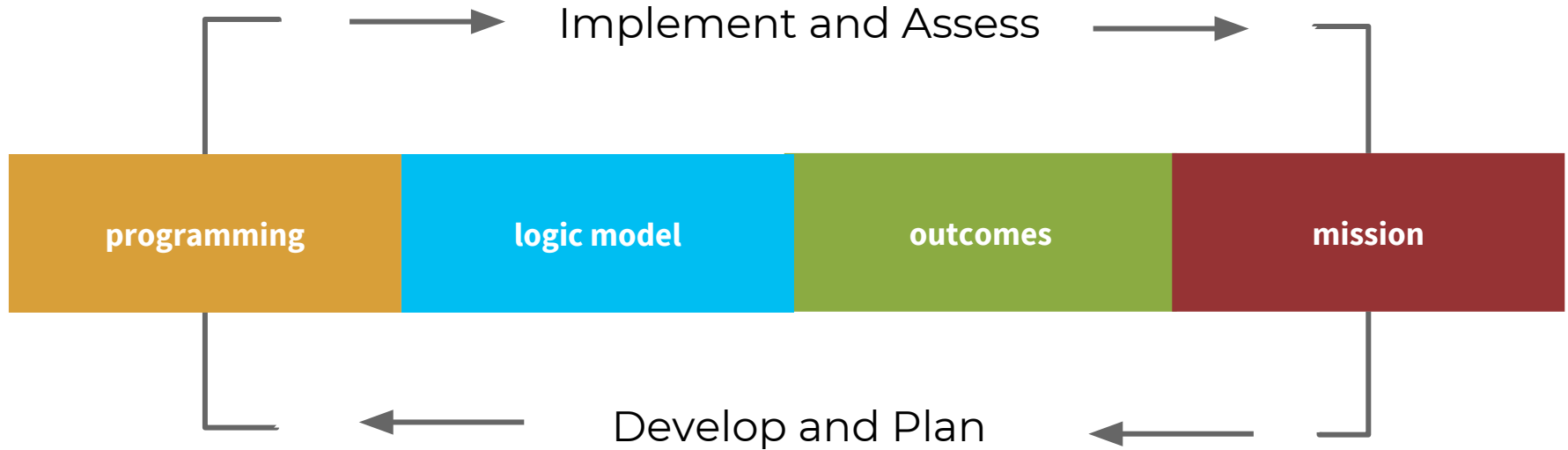




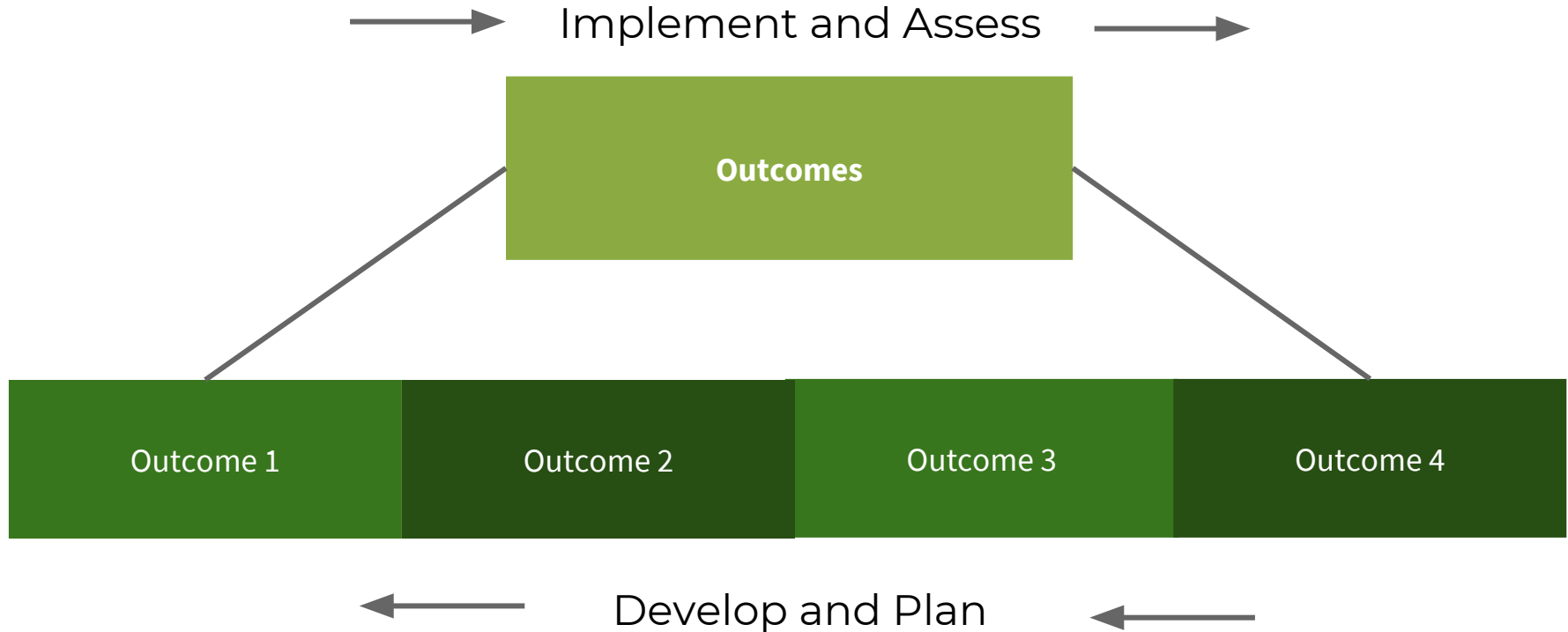
back to the drawing board



The McNair System



The Outcomes Sub-System



The Outcome Sub-System

| Outcome 1 | Outcome 2 | Outcome 3 | Outcome 4 |
|--|--|--|--|
| three to five relevant data points (APR objectives, outcomes assessment, strategic goals, et cetera) | three to five relevant data points (APR objectives, outcomes assessment, strategic goals, et cetera) | three to five relevant data points (APR objectives, outcomes assessment, strategic goals, et cetera) | three to five relevant data points (APR objectives, outcomes assessment, strategic goals, et cetera) |

The Outcome Sub-System

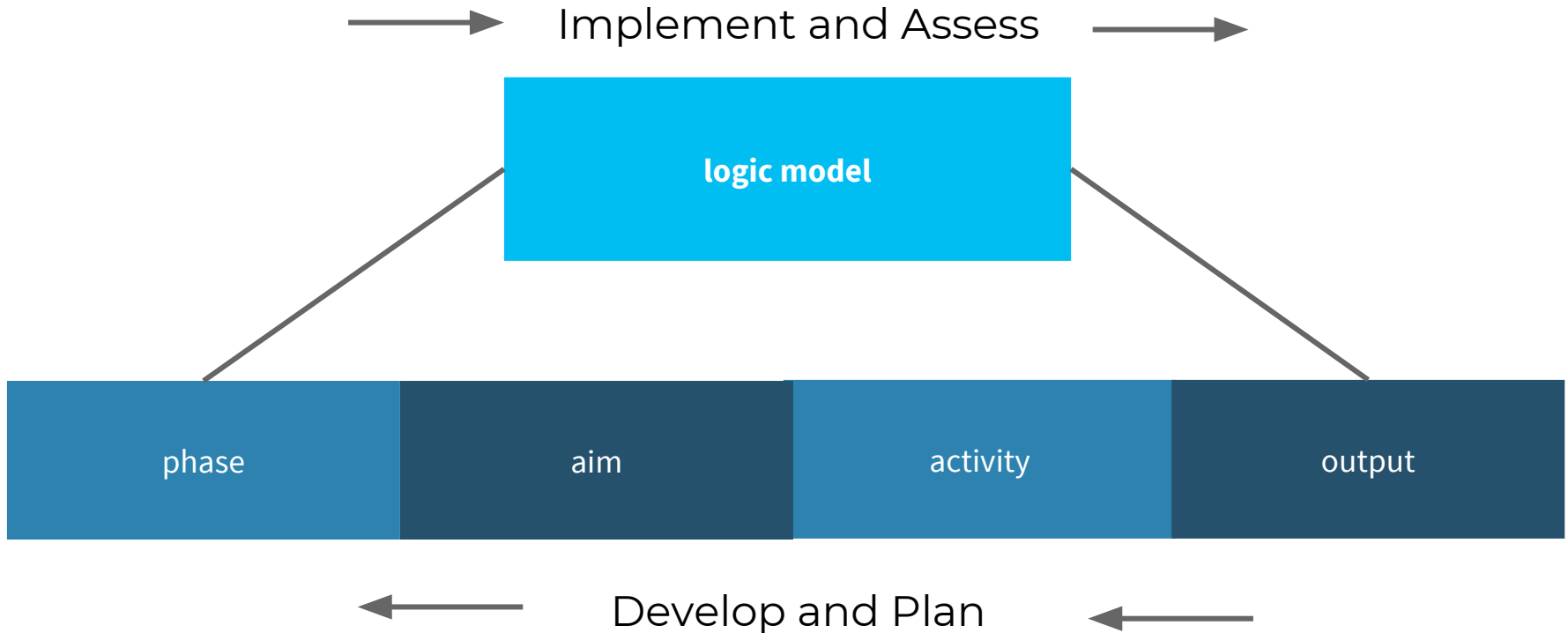
Outcome

Students will progressively develop knowledge and skills required to successfully complete a graduate degree.

Data

- McNair Logic Model Dashboard
- Graduate school enrollment (DOE Objective)
- Graduate school persistence (DOE Objective)
- Graduate school completion (DOE Objective)
- McNair New Student Assessment/Graduating Student Assessment
- McNair Graduating Student Survey

The Logic Model Sub-System



The Logic Model Sub-System

| phase | aim | activity | output |
|--|------------------------------------|------------------------------|-----------------------------------|
| scaffolded timeline of student development | specific sub-goal related to phase | specific task related to aim | measurable completion of activity |

CSS McNair Student Success Plan

CSS McNair Logic Model Dashboard

*open access to McNair professionals to view, copy, use, and/or adapt

Let's review some concepts

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The Problem



Disparate evaluation and assessment elements, processes and purposes create redundancies and inefficiencies.

The Solution



Elegant systems thinking simplifies and aligns elements, processes, and purposes.

Build Your System



Map, draw, structure and test drive your system. Operationalize with procedures and tools, such as an outcomes assessment plan and logic model dashboard.

access this presentation at bit.ly/Troymppi