



Under the Hood

Improvement Science from a Coach's Perspective



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HRD-1834601, Green Bank Observatory; HRD-1834575, Fairmont State University; HRD-1834586, Higher Education Policy Commission; HRD-1834595, High Rocks Educational Corporation; HRD-1834569, West Virginia University.

Aim and Rationale

Our shared aim. Double STEM graduation among First2 students.

Why is retention a big deal?

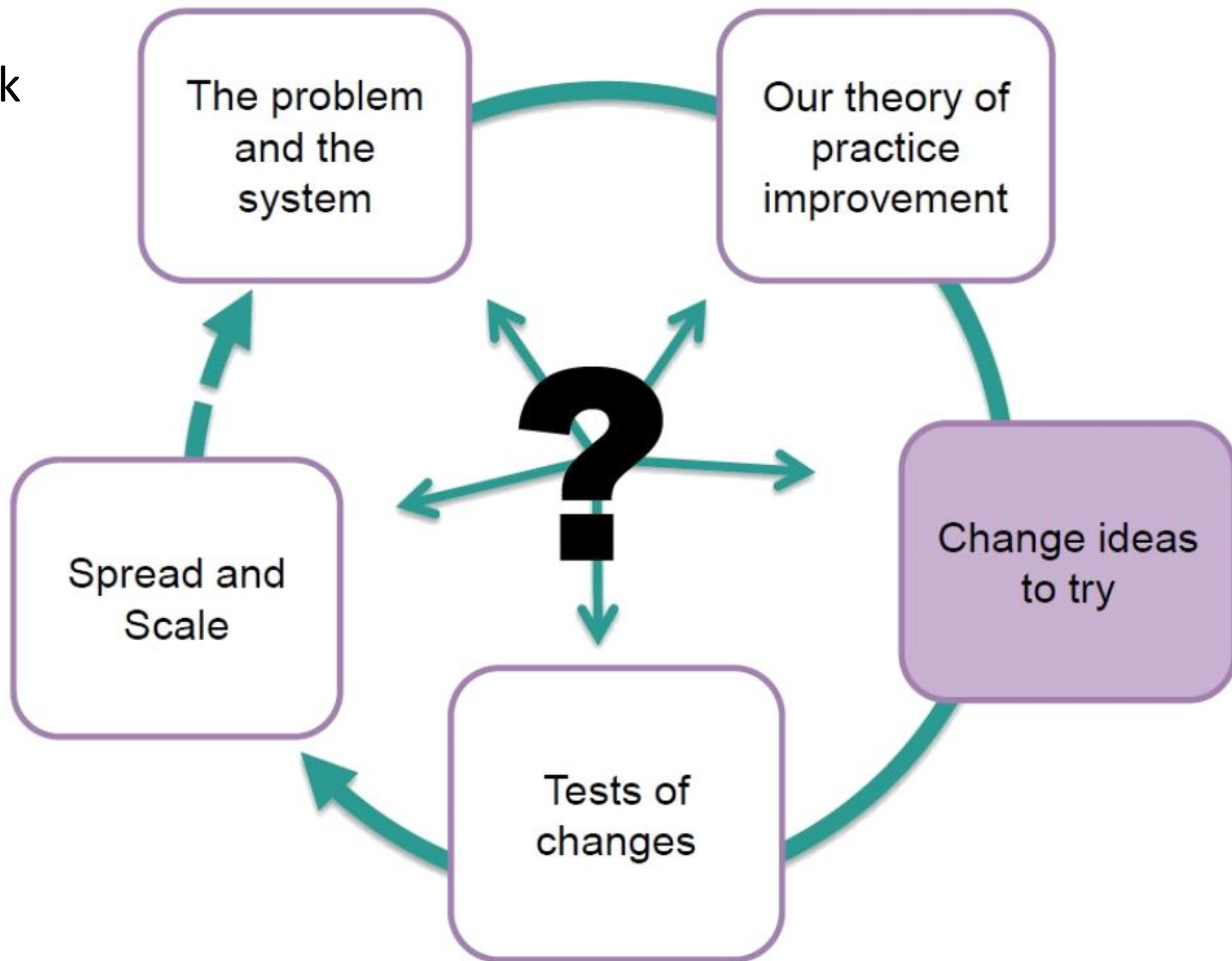
- Cost effective for HEI
- Reduces brain-drain
- Builds WV economy
- [Increases STEM workforce diversity. Diversity increases STEM innovation](#)

Who are First2 students?

ALL "High-leverage" rural, first-generation, underrepresented minorities, Pell Grant eligible- not just our student leaders! (scholars and directors)



First2 Network
is a learning
community



FIRST2 PRIMARY DRIVERS

5/2022

AIM

Over the next 10 years, double the graduation rate (from 30% to 60%) of the students in West Virginia who enter college with a declared STEM major who complete a STEM degree within 4 years.

STEM students succeed academically.

STEM students are meaningfully connected with faculty, staff, and peers in ways that promote belonging (fit), wellness, resilience, and financial stability.

STEM students feel connected to STEM research, understand STEM career options and feel competent enough to pursue them.

STEM students engage in leadership experiences that identify systemic issues impeding students' success in STEM, and co-create new solutions to these issues.



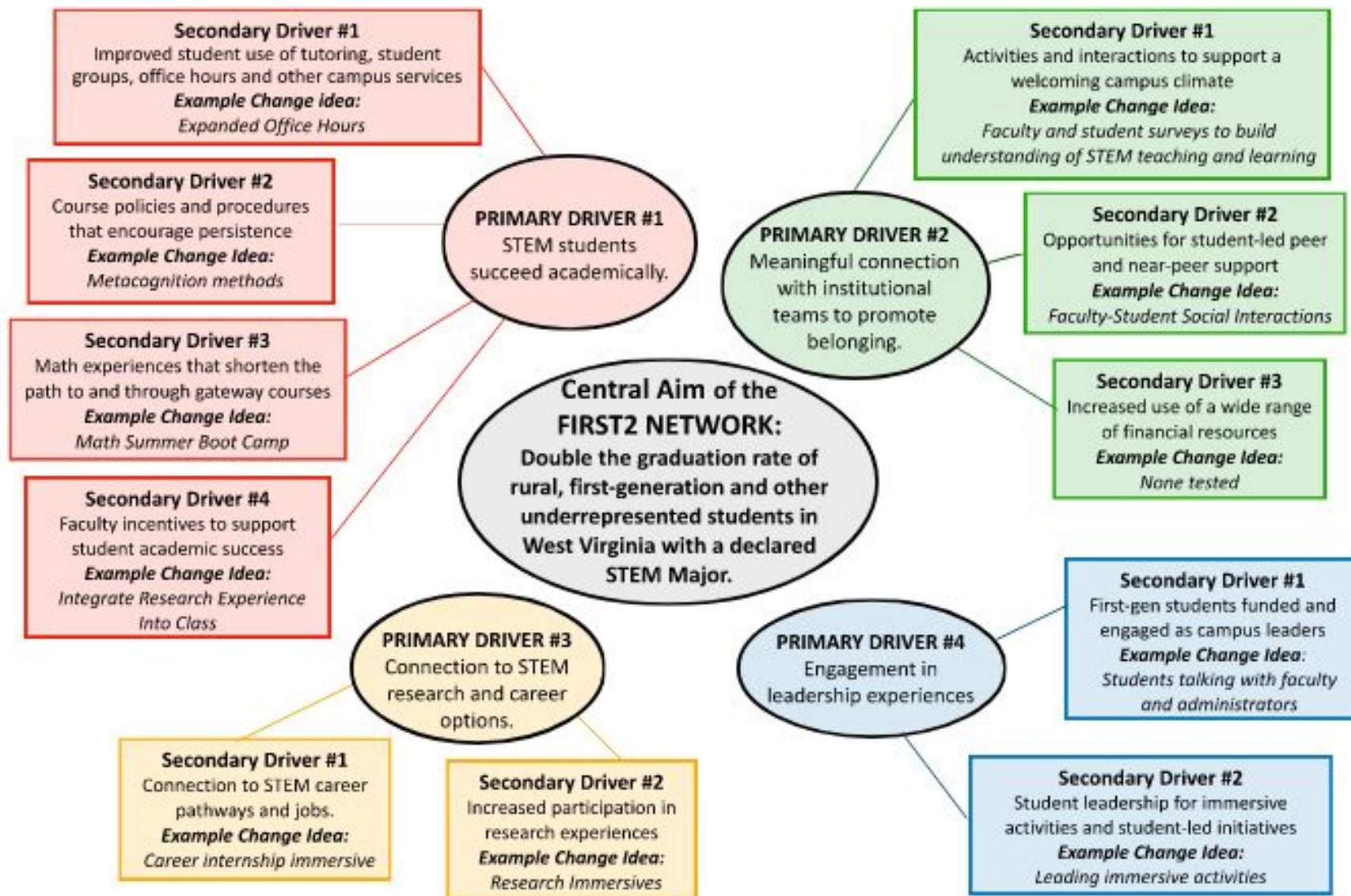
FIRST2 DRIVER DIAGRAM: a look at how First2 Network plans to achieve its central aim.

To view the full details of the First2 Driver Diagram, go to [HYPERLINK "http://first2network.org"](http://first2network.org) and click on PDSA resources.

How the Diagram is organized: 4 Primary Drivers are actions First2 believes are needed to achieve the central aim.

Secondary Drivers are actions that support achievement of each Primary Driver.

Change Ideas are tested to see whether they can help promote the stated goals.

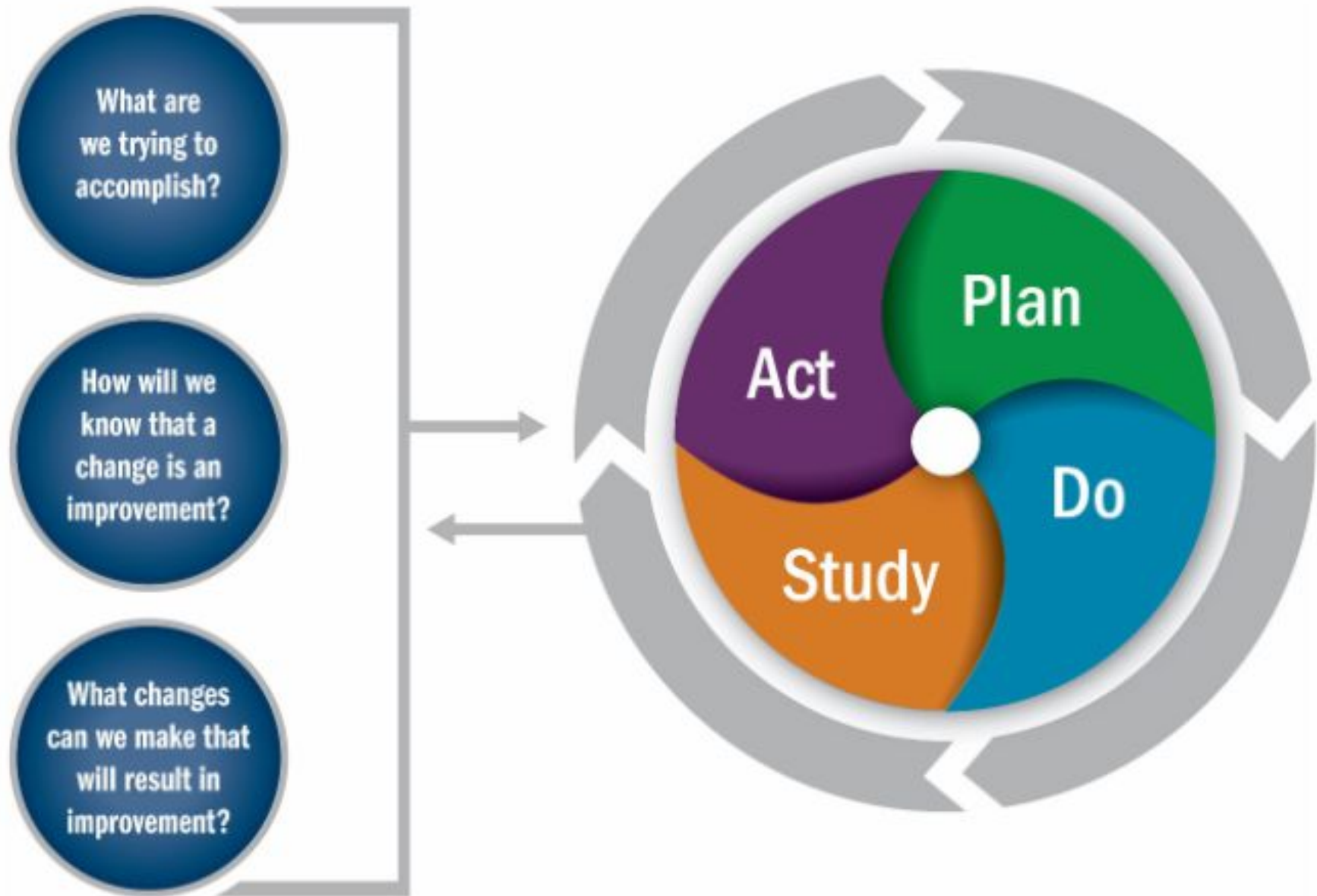


What we are looking for:

1. Does the change idea align with First2 Drivers?
2. Do learning questions include process and outcome measures?
3. Do learning questions include at least one of the six required outcome measures?
4. Do predictions match learning questions?
5. Are common metrics used where possible? Surveys and other metrics
6. Is the PDSA designed to be repeated for continuous improvement
7. Scaling opportunities?-- who do you “study with”?



PDSA Cycle



Outcomes:

Primary Outcome Measures

Outcome 1: Persistence

Outcome 2: Course completion rate

Outcome 3: Course pass rate and/or grades

Outcome 4: Belongingness*

Outcome 5: Grit*

Outcome 6: Self-efficacy*

Process Measures:

Attendance, survey completion rate

See: https://docs.google.com/spreadsheets/d/1SG8H7S6AryR91sGH6t2BsUHH_Prvtvdka_fsWUyeRo/edit?usp=sharing



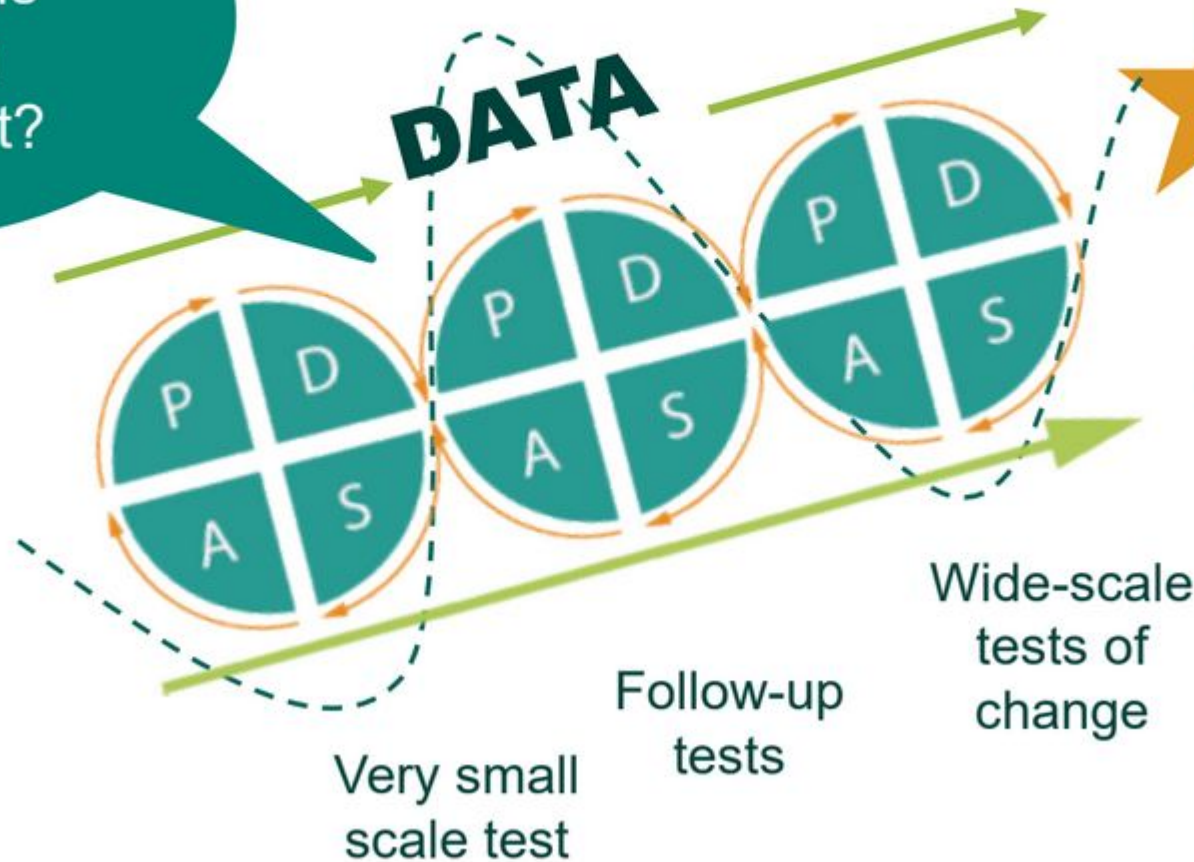
Building Evidence for a Change

How will we know
this change is
actually an
improvement?



**Initial
hunches
and ideas**

DATA



**Quality with
reliability at
scale**

**Implementation
of changes**

