AGILE NUDGE UNIVERSITY TOOLKIT
What is NUDGE?

Architecting the Social, Physical, and Digital Environment to facilitate certain behaviors WITHOUT forbidding choice.

- Nudge, Thayler and Sunstein, 2008
Definition: Agile science is a **rapidly evolving and adaptive process** for knowledge discovery and acquisition within the dynamic, constantly changing and evolving real-world.

Purpose: Agile science integrates insights from behavioral economics, complexity science, and network science to understand, predict, and steer the behaviors of both an individual human and a social organization.

Outcome: Agile science provides insights to design scalable and effective human-centered strategies, processes, and tools, implement them into routine care and subsequently diffuse them across various social networks.
The Agile Pyramid

Agile conductor

Engaging Brand

Innovator, Storyteller-Nudger, Signal Detector

Agile Cycle and Agile Processes

Agile Innovation
Agile Implementation
Agile Analytics
Agile Diffusion

Agile Science and Agile Mindset

Behavior of an Individual: Behavioral Economics
Behavior of an Organization: Complex Adaptive Systems, Network Science
Waterfall vs. Agile Project Management

**Allocation of time**
- Waterfall: Beginning, Middle, End
- Agile: Beginning, Middle, End

**Sequence of events**
- Waterfall: Plan, Test, Adjust, End

**Distribution of tasks**
- Waterfall: Development, Testing, Adjusting
- Agile: Development, Testing, Adjusting

R.J. Holden 2021
Demand

Plan, Reflect & Adjust 10%

The Agile Cycle

Sprint 90%

Demand
Local complex adaptive **network** of interacting adaptive co-evolving agents with high concentration of signals and resources.

**NODE:**
Semi-autonomous Adaptive Human Agent
Using two integrated Operating Systems (I active in 23.66 hr & II active in 0.33 hr)

**LINK:**
A Conditional Exchange of Information or Energy (Social Interactions) between two Nodes

**Aggregate agent**
Hierarchical **Emergent Agent**

**Semi-permeable Boundary**
Information and energy exchange between the network and its surrounding environment.

**Signal exchange leading to behavioral influence**

The Agile Mindset and its Principles

• Safe Culture
• Feedback
• Sprints of Minimally viable prototypes
AGILE NUDGE IMPLEMENTATION
Planning

1. Identify and confirm demand
2. Identify evidence-based nudges
3. Develop evaluation and termination plans
4. Localize the minimally viable solution (MVS)

Executing

5. Perform Implementation Sprints
6. Monitor implementation performance
7. Monitor system performance
8. Develop minimal standardized operating procedure (MSOP)
AGILE NUDGE INNOVATION
What is Agile Nudge Innovation?

Step 01: Confirm demand for the Nudge
Step 02: Study the behavior deeply
Step 03: Scan for potential nudges
Step 04: Plan for termination for the new Nudge
Step 05: Ideate and select new Nudges
Step 06: Run Nudge sprints
Step 07: Validate the Nudge
Step 08: Package the launch for the Nudge

Adaptation
Iteration
AGILE NUDGE DIFFUSION
NETWORK SCIENCE
Help you understand, predict, and change the behavior of an organization

Nodes: individuals attached to a network, capable of creating, receiving, or transmitting information over a communication channel

Hubs: high-degree nodes, or those that are the most connected in the network.

Cliques: a set or community of local nodes where each node is connected to every other node.

Links: the route by which two nodes are connected.

Bridges: any link that if cut, disconnects the network.
Agile Nudge Diffusion

1. Get to know the Complex Adaptive Network deeply where the evidence-based nudge is targeted for diffusion.

2. Develop agile feedback loops within the Complex Adaptive Network to constantly record and measure the network’s problem and challenges within various communities and hubs.

3. Constantly profile the various messengers within the Complex Adaptive Network at the individual, community, and hub levels by specifying their profile, emotion, audience, and communication channel.

4. Create a minimally viable story of the evidence-based nudge by identifying the minimal standard processes and converting them into the essential components of the story. And effective story will clearly describe the villain (the problem), the hero (the evidence-based nudge), the struggle or drama, and the resolution.

5. Start various experiments and sprints to test the story to identify what works within each community, hub, and the entire network.
THE BOTTOM LINE

AGILE NUDGE DIFFUSION PROCESS

1.0 (Minimally Viable STORY)
The Story Teller
Information

2.0 (Minimally Viable NUDGE)
The Choice Engineer
Behaviors

Malaz Boustani, MD, MPH
Richard M Fairbanks Professor of Aging Research
Center for Health Innovation & Implementation Science
AGILE NUDGE CYCLE TOOL
Confirm Demand  
(A score of 10 plus confirms demand or create nudge demand)

Use this list to know if your project really has demand. Not every problem needs to be solved. If there is no demand, then you must create demand:

- The project comes as a directive from leadership
- The end user want to solve the problem
- You created buy-in formal all stakeholders
- You know how to create demand
- You confirmed that a problem exists
- You used data to confirm the problem
- The data used to was valid
- You can collect valid data
- You understand the stakeholders in the complex adaptive system
- You understand how the problem affects clinicians
- You understand how the problem affects front-line staff
- You have created a document that defines the current and future state
Map the digital, physical, and social environment surrounding people who are targeted for behavioral changes by answering four questions:

1. **Who is the person targeted, what is their current behavior that needs to be changed?**

2. **Who are the people interacting with the targeted person, do they have any current behavior that is contributing to the target person’s current behavior?**

3. **Is there any existing messenger that could be used as a nudge carrier or a nudge?**

4. **Are there any existing digital, physical and social artifacts (or nudges) that are contributing to the current behavior of the targeted person?**
De-Nudge any existing nudges in the current behavior. Remember that nudges can exist at any point in a process. See the table below for an example:
Search the **cognitive bias library** to identify the cognitive bias that might be leveraged to design a **Minimally Viable Nudge** to accomplish the **target** behavior.

Four thinking problems faced by human based on 20 cognitive biases of human:

- Too much information
- Need to act fast
- Not enough meaning
- Faulty Memory
Search the Nudge Library to identify existing Minimally Viable Nudge that are based on the cognitive biases that might be leveraged to design a nudge to accomplish the target behavior.
Select the **type of nudge** (digital, physical, social);

Use the **MINDSPACE** checklist to select the category for designing the **Minimally Viable Nudge** and then;

Check the compatibility of your **Minimally Viable Nudge** with the **EAST** checklist.
The MINDSPACE Checklist

This checklist is a quick way to know if your nudge is effective enough to use in a real-world setting.

Each of the items in the next slide, represents a type of nudge or intervention.

- Score each item 1-5 by checking the appropriate score.
- The higher the nudge score the more effective the nudge.
- Score items based on your own judgment.

If your score is 35 or higher, your nudge is capable of affecting behavioral change.
The MINDSPACE Checklist

**Messenger** We are heavily influenced by who delivers information.

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**Incentives** We are very loss adverse.

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**Norms** We are strongly impacted by our perception of what others are doing.

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**Defaults** We go with the flow and tend not to change preset options given.

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**Salience** We are drawn to information perceived to be novel and relevant.

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**Priming** We are impacted subconsciously by environmental cues.

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**Affect** We go with our gut feelings; our first; Emotional reaction.

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**Commitments** We seek to follow through on our public promises.

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**Ego** We want to feel good about ourselves.

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40-45= Grade A- Good to go!

35-39= Grade B- Proceed, but analyze the key elements that may be weak in MINDSPACE.

30-34= Grade C- Look for ways to improve the score in the areas that are weak in MINDSPACE.

25-29= Grade D- Make significant changes to adjust the MINDSPACE and re-score.

24 or less= Grade F- Make a new plan for the appropriate behavior change.
The EAST checklist is a way to gauge the potential success of your new nudge prior to testing the new nudge in a series of real-world sprints.

The goal is to make your nudge Easy, Attractive, Social and Timely.

- For each of the following four items, please use your own judgment to score your nudge compatibility with each item from 1-5.
- Sum the scores.
- The higher the total score, the more likely your nudge will be successful.

If you score 15 or higher, your nudge has a good probability of making a behavioral change.

The EAST Checklist

**Easy** Make the nudge easy for people to do; preset options; less effort; simple messages

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**Social** Title the nudge to something others are also doing; part of the norm; inspires commitment

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**Attractive** Make the nudge attractive; something people would want to do; entices

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**Timely** Nudge at the most opportune time for receptiveness; immediate costs or benefits

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Define a termination plan for both the selected Minimally Viable Nudge as well as a termination plan to stop working on the targeted behavior.
Run a series of Sprints to test the selected Minimally Viable Nudge.
What is an Agile Sprint?

a. Time and Space (Building Relationships)

b. Weekly Huddle (To review your Scorecard and Plan, Reflect and Adjust sprint)

c. Sprint/ Solving a Problem (Produce a Product. Test Minimum Viable Product)
   - **Team Sprint:** Every team member must present at the same time (Determine who needs to be in the meeting)
   - **Relay Sprint:** Hand-off from one person to another
The content of the slides are based on the following books

- Agile Implementation by Malaz Boustani, Jose Azar, and Craig Solid
- Agile Network by Malaz Boustani, Jose Azar, Richard Holden and Craig Solid
- Change by Damon Centola.
- Nudge by Richard Thaler and Cass Sunstein
- Thinking Fast and Slow by Daniel Kahneman.
- Scaling dynamics by Geoffrey West.
- Deep Learning by John D. Kelleher
- The Social Singularity by Max Borders.
- Signals and Boundaries by John H Holland.
- Infinite Powers by Steven Strogatz.
- The Book of Why by Judea Pearl and Dana Mackenzie.
- Network Science by Albert-László Barabási.
REFERENCES


GRADUATE CERTIFICATE
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Our program in Innovation & Implementation Science will provide you with the following skills to achieve health care transformation:

- Identifying, implementing, and evaluating evidence-based practices
- Developing innovative models of care when evidence-based practices do not exist

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INDIANA UNIVERSITY SCHOOL OF MEDICINE
Center for Health Innovation and Implementation Science
COGNITIVE BIAS CODEX

What Should We Remember?

- We store memories differently based on how they were experienced.
- We notice things already primed in memory or repeated often.
- We simplify probabilities and numbers to make them easier to think about.
- We think we know what other people are thinking.
- We project our current mindset and assumptions onto the past and future.
- We are drawn to details that confirm our own existing beliefs.
- We notice flaws in others but more easily than we notice flaws in ourselves.
- We imagine things and people we're familiar with or fond of as better.
- We simplify probabilities and numbers to make them easier to think about.
- We think we know what other people are thinking.
- We project our current mindset and assumptions onto the past and future.

Too Much Information

- We are drawn to details that confirm our own existing beliefs.
- We notice flaws in others but more easily than we notice flaws in ourselves.
- We imagine things and people we're familiar with or fond of as better.
- We simplify probabilities and numbers to make them easier to think about.
- We think we know what other people are thinking.
- We project our current mindset and assumptions onto the past and future.

Need To Act Fast

- We act, we must be confident we can make an impact and feel what we do is important.
- We simplify probabilities and numbers to make them easier to think about.
- We think we know what other people are thinking.
- We project our current mindset and assumptions onto the past and future.

Not Enough Meaning

- We simplify probabilities and numbers to make them easier to think about.
- We think we know what other people are thinking.
- We project our current mindset and assumptions onto the past and future.

We reduce events and fit them to their key elements.
We favor simple looking options and complete information over complex, ambiguous options.
To avoid mistakes, we aim to preserve autonomy and group status, and avoid irreversible decisions.
To get things done, we tend to complete things we've invested time & energy in.
To stay focused, we favor the immediate, reliable thing in front of us.
We simplify probabilities and numbers to make them easier to think about.
We think we know what other people are thinking.
We project our current mindset and assumptions onto the past and future.
A Guide to CHIIS

INNOVATION FORUMS

Center for Health Innovation & Implementation Science
Guide to Innovation Forums

• Innovation Forums: A service to CHIIS scientists and scholars
  • Minimally Standard Operating Procedure
  • Benefits
  • Examples
• Q & A
Virtual Innovation Forum MSOP

1. Initial meeting with CHIIS to zoom in on your challenge question, identify key stakeholders to invite
2. Facilitator is selected
3. Invitations sent to network / key stakeholders
4. Presentation finalized
5. Conduct Forum:
   • Introductions/Networking (30 min.)
   • Presentation (10 min. max)
   • Clarifying Questions (5 min.)
   • Solution Generation (45 min.)
6. Presenter receives Solution Tracker document
7. Optional: Presenter follows up with engaged participants to discuss specific solutions
8. Optional: CHIIS sends 6-month update to network about successful solutions implemented
INNOVATION FORUM

RULES

This is a time for **solution generation**, not clarifying questions

There are no constraints so **be creative**

**Everyone** will get a turn to provide a solution

Please **do not interrupt** another person

We are looking for **positive** solutions
Benefits for You

• Generate solutions for your challenge
  • DIVERSE perspectives at the table
• Engage key stakeholders
  • Time and space; Buy-in to the problem
• Mobilize a team
  • Project Teams are often formed out of Innovation Forums
• Get to know your challenge deeply
• Accountability for solving a problem
  • 6 month updates
Examples of Past Innovation Forums

❖ Jan Powers PhD, RN, CCNS, NE-BC (Parkview Health)

*How can we standardize a sustainable evidence-based process for oral hygiene at Parkview?*
Examples of Past Innovation Forums

- **Jasmine Gonzalvo PharmD, BCPS, BC-ADM, CDCES** (Purdue CHEqI)
  How should we address health equity to improve health outcomes in Indiana?

- **Alyson Keen MSN, RN, ACNS-BC** (IU Health)
  How do we create a research-friendly environment in healthcare delivery systems?

- **Liesel Delamater MSN, RN, ACNS-MC** (IU Health)
  How do we make simulated education for charge nurses work in practice?

- **Ashley Overley MD** (Eskenazi Health)
  How can we improve the appointment show rate of clients at their 7 day follow-up appointment after in-patient hospital discharge by December 2018? From our review of the literature, we believe that a 10% improvement is a realistic goal.

- **Kerri Lanum MS** (Northern Illinois University)
  How can we get the non-engaged physician’s cooperation and approval for QI initiatives for the practice in a timely manner?

- **Cynthia Reynolds LCSW, LCAC and Lana Dbeibo MD** (IU Health)
  How can we bring internal and external resources to launch ICU STAT?
Q & A

Questions?
Interested in being a Presenter at our monthly Innovation Forums?

- Coaching to prepare your presentation
- Flexible times

If you have questions or would like to present a challenge to the network, please email Andrea Burkhardt at anburkha@iupui.edu.
Thank you for joining us today!

Remember to follow us on social media!

- CHIISIndianapolis
- @TheCHIIS
- Center for Health Innovation and Implementation Science
Innovation Forum Initial Consult Form

Requester Information

Name of Requester: ____________________ Affiliation: ____________________

Background Information

1. What is your challenge that you would like addressed in our Innovation Forum?
   a. Can you please describe your current environment and the specific challenges you face related to this topic?

2. What is the scope of this challenge? Does it affect just one health system, clinic, or patient type?

3. Are there any resources you can refer me to that would enable me to better understand the barriers, stakeholders, and other factors related to this challenge?

4. What do you feel is the objective of this Innovation Forum?

5. What is the title of your challenge in a question format? Example: How can we better communicate and implement quality and safety RIEs?

Challenge Question:

Attendee Information

6. Who are the key individuals who could generate the most relevant and effective solutions to this challenge?
   a. Please identify 20-25 and give name, email, and affiliation OR...
   b. Let us know which roles or organizations you would like us to investigate to find individuals who could contribute to the Forum.

7. After hearing our targeting options (email, hand-delivered, follow up options), which method or combination of methods would you prefer to be used?
   a. If hand-delivered, who on your team would be willing to distribute?

Other Logistical

8. On what date would you like to hold this event? Please provide the name of your assistant so we can find a date that is accommodating for you.

Time/Date Options:

Request Bio/Pic