



LEAN Ohio
BOOT CAMP

Brainstorming
Day 3: Module 4

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Lean Project Roadmap

Preparation	Level Setting	Current State: Make the Invisible Visible	Improvement Design	Implement and Action	Control and Sustain
Scoping and SIPOC	Team Formation	Brainstorming	Brainstorming and Evaluation	Implementation Plans - Action Registries	Reporting - Celebration
Project Charter	Consensus on Project Charter and SIPOC	Identification of Waste	Lean Principles in Process Design	Poka-Yoke	Project Management
Identify Team	Review Baseline Data	Identification of VA, NVA, NVAN	Clean Sheet Redesign	Visual Management - Dashboard	Change Management
Data Collection Plan (Baseline Data)	Data Analysis	Analysis of Current State	Future State	Project Savings	Monitoring and Follow-up

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How creative is your team?

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Mental blocks to creative thinking & problem solving

-Prejudice



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Prejudice

“So we went to Atari and said, ‘Hey, we’ve got this amazing thing, even built with some of your parts, and what do you think about funding us? Or we’ll give it to you. We just want to do it. Pay our salary, we’ll come work for you.’ And they said, ‘No.’

“So then we went to Hewlett-Packard, and they said, ‘Hey, we don’t need you. You haven’t got through college yet.’”

-Steve Jobs, Founder, Apple Computer Inc.

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Mental blocks to creative thinking & problem solving

-Prejudice
-Functional fixation



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Functional fixation



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Mental blocks to creative thinking & problem solving

- Prejudice
- Functional fixation
- Learned helplessness



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Mental blocks to creative thinking & problem solving

- Prejudice
- Functional fixation
- Learned helplessness
- Psychological blocks



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Psychological blocks

"Computers in the future may weigh no more than 1.5 tons."
-Popular Mechanics, 1949

"There is no reason anyone would want a computer in their home."
- Ken Olson, founder of Digital Equipment Corp, 1977

"If I had thought about it, I wouldn't have done the experiment. The literature was full of examples that said you can't do this."
-Spencer Silver, 3-M, 1968

"[Television] won't be able to hold on to any market it captures after the first six months. People will soon get tired of staring at a plywood box every night."
-Darryl Zanuck, 1946

"There will never be a bigger plane built."
-Boeing, after the first flight of the 247

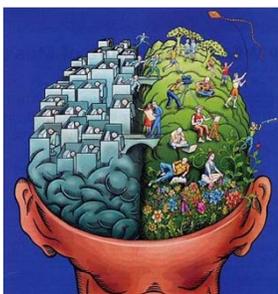
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Mental Blocks: Thank Your Left Brain!

- Analytical
- Logical/Pragmatic
- Narrow Focus
- Brainstorming and creative thinking are right brain functions.

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Left vs Right



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Brainstorming: What is it?

- Brainstorming is used to generate a large number of ideas about a specific problem or topic
- Encourages creative thinking
- Helps avoid the "paralysis of analysis" by not evaluating ideas

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Brainstorming Rule

- Every idea counts
- Postpone judgments until after the brainstorming session is completed
- Create a safe environment to share ideas

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Brainstorming Pre-Work

- A well-defined and clearly stated problem
- A group member assigned to act as recorder and write down all the ideas as they are shared
- The right number of people
- Ground rules for the session

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What is the “right” group size?

- Easy to schedule
- All areas have a representative
- Work can be divided equitably among group members
- Consensus can be reached
- New and creative ideas are generated

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Brainstorming Techniques

- Silent Brainstorming
- Impact Control Matrix
- Nominal Group Technique
- Carousel Brainstorming
- Affinity Diagram



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Silent Brainstorming

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Silent Brainstorming: Definition/Benefits

- Participants write ideas down individually
- Allows everyone to participate without pressure
- Leads to more potential solutions
- Buy-in to solution
- Helps determine feasible solutions

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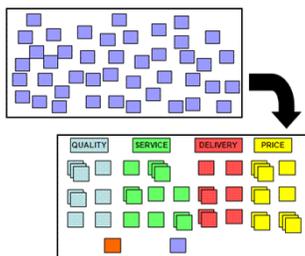
Silent Brainstorming: Procedures

- Participants write ideas individually on Post-it notes or small slips of paper
- Collect the papers and post them for all to see
- Put them in like categories (Affinity Diagram)
- Rank ideas (Impact Control Matrix)

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Affinity Diagram



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Affinity Diagram: Background

- To organize large groups of information into meaningful categories
- Breaks old patterns of thought to reveal new patterns, and generate more creative ways of thinking
- Used to gather, correlate, and relate large quantities of information

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Affinity Diagram: Process

- Place ideas in central location
- Ask or direct the team to come up with a headline to describe each thought
- Arrange the post-it notes or small slips of paper in related groupings
- Complete the groupings

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Affinity Diagram: Process

- Involve the group in clustering the notes into 6-10 related groupings (team will do this silently)
- Be prepared for some "loner" ideas; avoid forcing them into a group
- Some notes may need to be duplicated for different groupings
- Choose a word or phrase that captures the intent of each group and place it at the top as a header card

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Impact Control Matrix

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Impact Control Matrix: Background

- Used for organizing ideas and categorizing them
- Used to determine solutions that are within the group's control and would have the most impact

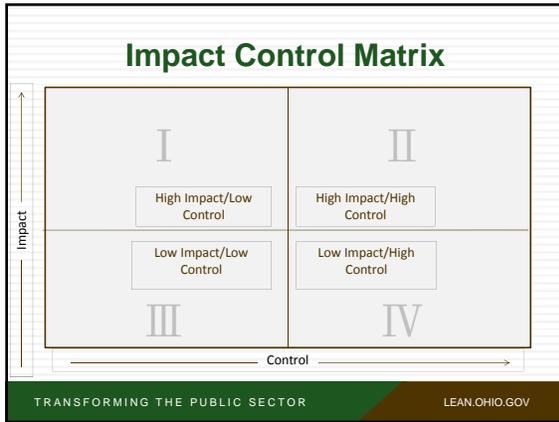
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Impact Control Matrix: Procedure

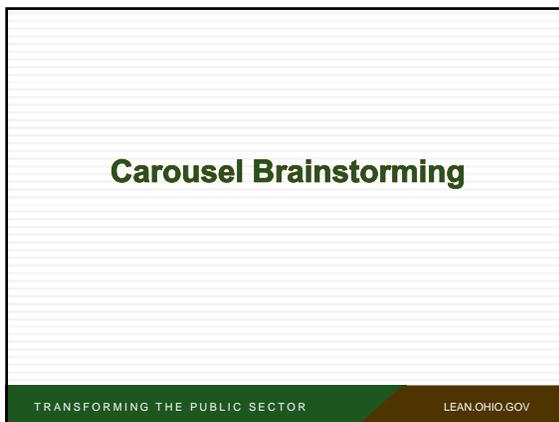
The ideas are placed (by the team) into one of the four quadrants

- High Impact/Low Control-Quadrant I
- High Impact/High Control Quadrant II
- Low Impact/Low Control-Quadrant III
- Low Impact/High Control-Quadrant IV

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Carousel Brainstorming: Definition/Benefits

- Participants will rotate around the classroom in small groups, stopping at various stations for a designated amount of time
- Members will brainstorm with peers while at each station
- Through movement and conversation new ideas will emerge

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Carousel Brainstorming: Procedure

- Generate X number of questions for your topic and write each question on a separate piece of poster board or chart paper (Note: The number of questions should equal the number of groups)
- Post questions sheets around the room
- Divide team into groups of 5 or less
- Direct each group to stand in front of a question station
- Give each group a colored marker for writing their ideas at the question stations (use a different color for each group)

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Carousel Brainstorming: Procedure

- Inform groups that they will have 2-3 minutes to brainstorm and write ideas at each question station
- When time is called, groups will rotate to the next station in clockwise order
- Using a timer, begin the group rotation. Continue until each group reaches their last question station
- Before leaving the final question station, have each group select the top 3 ideas from their station to share with the entire group

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Nominal Group Technique

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Nominal Group Technique

- Can help reduce many ideas to the top issues quickly
- Gives everyone in the team an equal voice and participation
- Useful with vocal teams
- Controversial topics

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Nominal Group Technique

- Phase One:
 - Same as Silent Brainstorming.
- Phase Two:
 - Go over the list and ask for clarifications
 - Number each of the items starting at the top
 - Participants rank Top Five (stickers)
 - Determine top ranked items



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Nominal Group Technique



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Questions on Brainstorming?

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