

Using Kaizen to Improve Academic Programs

A Look into the Pavlis Honors College Pathways Kaizen
By: Briana Tucker
Senior Lean Facilitator



Michigan Technological University
Pavlis Honors College





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A closer look into PHC and the Pathway program

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CONCLUSION

Staying focused and moving forward.



Michigan Technological University
Pavlis Honors College

The Pavlis Honors 01. College

Who are we



Michigan Technological University
Pavlis Honors College

ABOUT PHC

A new take on an old tradition

Home to the Following Programs:

- Honors Pathways Program
- Enterprise Program
- Study Away
- Undergraduate Research
- Husky Innovate
- Global Leadership and Community Engagement
- Innovation, Design, Engagement and Arts Hub



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PATHWAY PROGRAM



LEADERSHIP



COMMUNITY ENGAGEMENT



RESEARCH SCHOLARS



ENHANCE ENTERPRISE



NEW VENTURE



CUSTOM PATHWAY

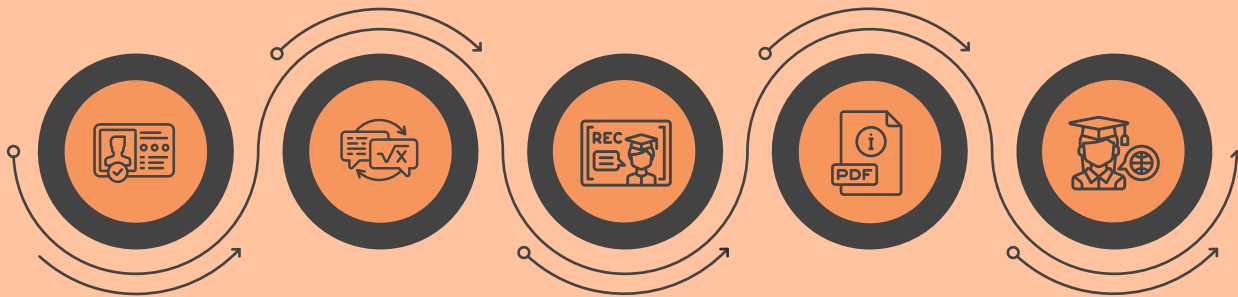
COMMON COMPONENTS

ACADEMIC ENHANCEMENT

Honors Project

Complement Your Pathway

Demonstrate what you've learned



Three one-credit seminars

Dive Deeper

Give back

SEMINAR COURSES

Immersion Experience

Leadership and Mentorship

BE OPEN TO NEW EXPERIENCES

LEARN DEEPLY

Satisfy curiosity, discover passion, and ignite imagination over your lifetime

WELCOME CHALLENGES

Move intentionally outside of your comfort zone, take risks, celebrate success, and learn from failure

EMBRACE AMBIGUITY

Become comfortable with uncertainty and...

BUILD RELATIONSHIPS

COMMUNICATE EMPATHETICALLY

Understand and adapt by listening across differences and contribute your story with respect and humility

ENGAGE IN MENTORSHIP

Accept and value shared guidance and knowledge, and fulfill this need for others

VALUE DIVERSE PERSPECTIVES

Engage with others to exchange perspectives, synthesize ideas, and exhibit compassion

BE AUTHENTIC

KNOW YOURSELF

Build self-awareness through reflection, listening, and experience

BALANCE CONFIDENCE AND HUMILITY

Recognize your strengths and limitations and fulfill your personal need to grow in leadership and followership

ACT WITH PURPOSE

Seize opportunities and pursue goals with purpose, creativity, and integrity.



Pre- Kaizen .02



CORE TEAM AND THE KAIZEN PROFILE



Michigan Tech

Sponsoring Department: Pavlis Honors College

Date : 1/17/2020

Kaizen Profile

Kaizen Number: --

Kaizen Name: --

Current Situation -- Describe the current situation. What is happening?
Attrition rates seem high --> students start HON2150 but don't always graduate. We want to find out reason why.
Currently scaling up wouldn't be easy. We should be able to serve more students without sacrificing customizability and quality. Every student may not be embracing the open-ended project without deadlines. Communication varies from advisor to advisor.
Communication in general could be better. Students have a hard time deciding on/finding the important information for where they are in their Pathways process. There is no system for group communication. There's inconsistent timelines. There are (too) many layers within Pathways. Some students are confused by the academic enhancement. Pavlis Honors College is academic but has low number of courses (may be confusing to some).

(There are many good things too!)

Target State -- In a perfect world, what would this situation be like? The current situation is a problem only when compared to this.

Students finish their Pathway or project by their junior year. Healthy retention rate. When students leave Pavlis they are capable of doing the honors abilities. Student have strong reflection skills. Pavlis is able to scale up easily. Pavlis Honors College is a program student WANT to finish. Pavlis is well understood throughout campus. PHC staff are healthy, balanced, and well. PHC has the staff needed to be great.

Problem Statement --What problem are you trying to solve? In terms of outcomes, what occurs as a result of the gap between current and target?
In Scope -- What the team can do, resources available, time

Students are not completing components and are missing opportunities due to communication gaps, flexibility of the program (lack of deadlines), insufficient support for advising, and misconception regarding expectations (the Why).

Why is it important to solve this problem? How urgent is it? How long has it been a problem? What will or won't happen in the future if the problem continues?

Out of Scope -- What the team is *not* supposed to consider--typically resources. For example, no additional money, software, people, space, etc.

Impact -- Impact is achieved by closing the gap between current and target. Describe what will be different when you achieve your goal. Consider financial, quality, operational delivery, and experience and engagement benefits (see table). What new tasks might your unit take on?

There will be clear communication between PHC and students. There will feel like there's a clear path/plan/road map. Campus would understand PHC-- there would be clear information. People would understand PHC's why and individually people would understand their why. More students would graduate with honors and everyone would under PHC. Things (each process) would be detailed. Canvas would be utilized more often.

Data Collection Plan -- Now how will you measure impact? Describe data that would need to be collected, so you can verify the problem and measure improvement. E.g., % complete & accurate 1st time through, costs avoided, safety/quality improved, space/time saved...

Metric	How To Collect	Who
Graduation Data		Lorelle/Kristi
Enrollment vs. Completion		Lorelle/Kristi

Be prepared to report out on the data collection plan at the Kaizen

University Strategic Goals -- Review the university strategic goals on the reverse and select all that apply

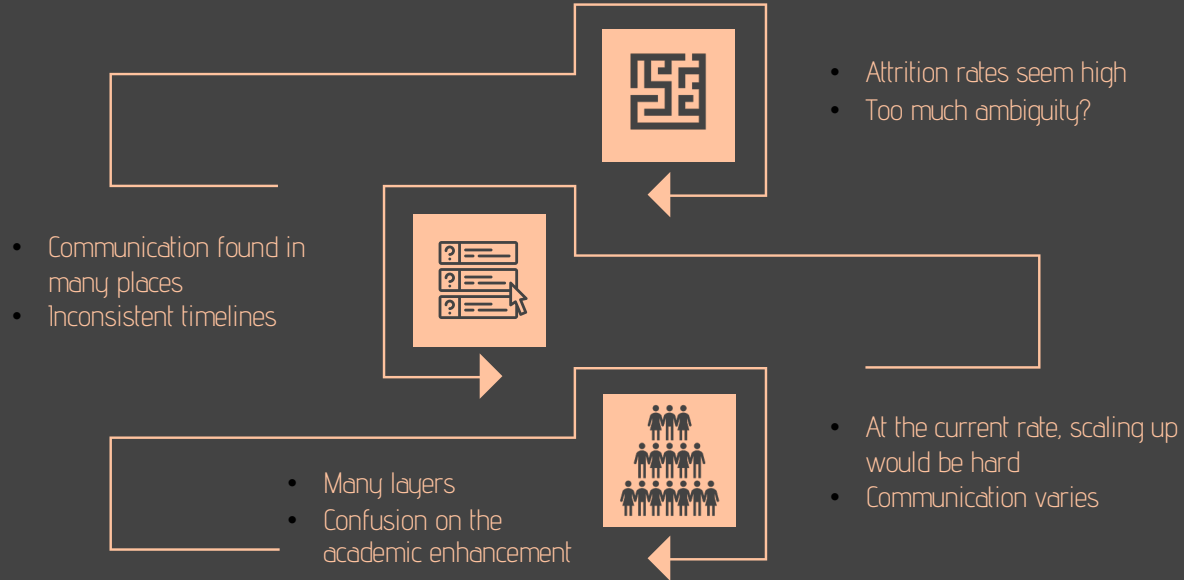
Team Members

Name	VP Area	Department	Team Role	
Lorelle Meadows	VPAA	PHC	Team Leader	
Briana Tucker	VPAA	PHC	Facilitator 1	
April Depaulis	Paige Hackney	VPAA	PHC	Team Member
Chris Morgan	Becky Barnard	VPAA	PHC	Team Member
Darnishia Slade	Rick Berkey	VPAA	PHC	Team Member
Jim Baker	Susan Nielsen	VPAA	PHC	Team Member
Kari Henquient	Vienna Chapin	VPAA	PHC	Team Member
Lisa Casper		VPAA	PHC	Team Member
Laura Fiss		VPAA	PHC	Team Member
Mary Raber		VPAA	PHC	Team Member

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Reference: "Kaizen Blitz Area Profile." Lean Pathways. n.p. n.d. PDF File. 17 Dec. 2014.

CURRENT STATE





FUTURE STATE

Students finish their Pathway or project
by their junior year.

PHC keeps a healthy retention rate.
When students leave Pavlis they can do
the honors abilities.

Students have strong reflection skills.

Pavlis can scale up easily.

Pavlis Honors College is a program
student WANT to finish.

Pavlis is well understood throughout
campus.

PHC staff are healthy, balanced, and well.

PHC has the staff needed to be great.

OUR INTENDED IMPACT

- There will be clear communication between PHC and students.
- It will feel like there's a clear path/plan/road map.
- Campus would understand PHC-- there would be clear information.
- People would understand PHC's why and individually people would understand their why.
- More students would graduate with honors and everyone would understand PHC.
- Things (each process) would be detailed.
- Canvas would be utilized more often.

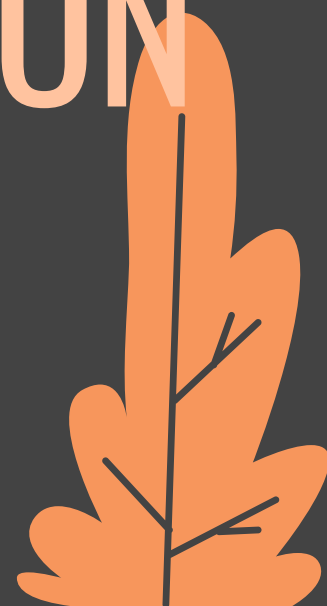


DATA COLLECTION

We looked at Student Status

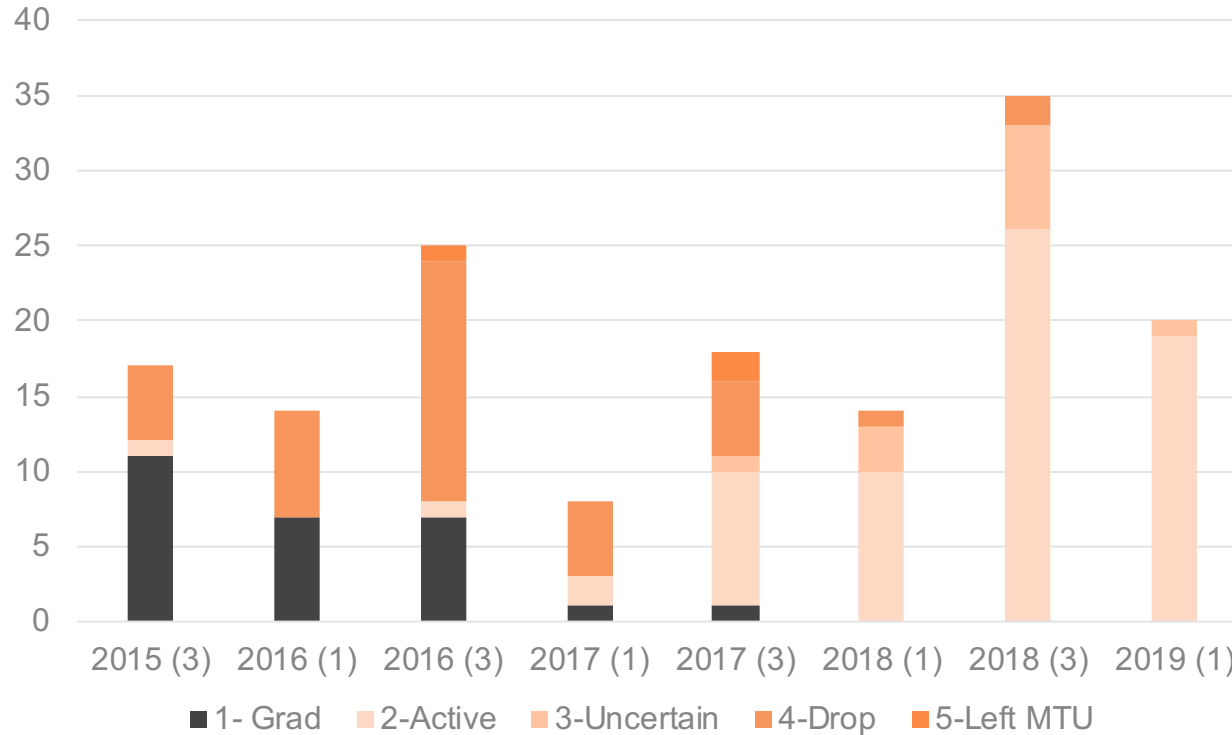


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WHAT WE FOUND:

Student Status





PHC Kaizen 03. Event

What we did.



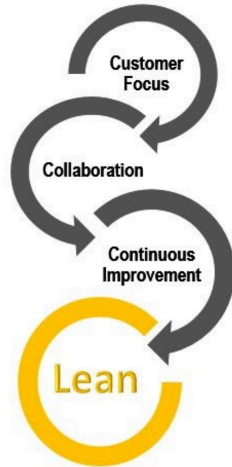
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STARTED WITH THE BASICS

Continuous Improvement at Michigan Tech

January 17, 2020

Bre Tucker
Lean Facilitator
Michigan Technological University



Michigan Tech

Agenda: Pavlis Staff Retreat
January 17, 2019

9-9:30am	Intro to Lean/Kaizen Explanation of the Solution Safe
	5 minute break
9:35-10:15	Current State and Future State Present Kaizen Profile, data, and other relevant information
10:15-11:00	Affinity Diagram
	Break or Ice Breaker
11:15-noon	Fishbone
	Lunch
12:45-1:15	5 Whys
1:15-2:00	Problem Solving Process Quick Point
2pm	Debriefing, Newspaper, and next steps

Kaizen— Intro to Lean

Agenda for the Day




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Pavlis Honors College

Solution Safe & The Parking Lot



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Provided Quick Points for Participants


Michigan Tech
Problem Solving Process Quick Point

In order to implement the right solution, you need to understand the problem. The Problem Solving Process is a scientific approach to problem identification, it's root cause, and a solution.

Identify the Problem

To understand a problem you need to identify the gap between what is happening and what should be happening. To identify the gap, use the techniques below to answer these questions:

- What should be happening?
- What is actually happening?

Techniques:

- Collect responses from a cross-functional team.
- Go to the Gemba to observe what is happening.
- Collect and review data to show "what is actually happening."

As a result, on this exercise you will then develop a precise problem statement utilizing this format: "A is happening, causing X, Y and Z." For example: The text is burnt on the golden brown setting, causing wasted bread and time.

Cause and Effect Analysis

Once you have established your problem statement, you will continue to identify the point of cause, direct causes and the root cause:


- First, establish where and where is the problem first observed? Techniques:
 - Continue to observe at the gemba.
 - Use process mapping tools.
- Next, brainstorm potential direct causes of the problem and continue working to identify the root cause. Techniques:
 - Use the fishbone tool.
 - Eliminate causes with direct knowledge, rapid experimentation, and going to the gemba and observing.
 - Use the 5 Why's technique.

The root cause will be one of these three things:

- Lack of a standard
- Lack of adherence to a standard
- Inadequate system

More Quick Points can be found on the Michigan Tech Continuous Improvement website under "Tools and Templates." www.mtu.edu/cim/templatetools
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PROBLEM SOLVING PROCESS


Michigan Tech
Affinity Diagram Quick Point

Introduction

An Affinity Diagram is a tool used by groups to gather and sort ideas, opinions and issues when brainstorming.

See an example of a completed Affinity Diagram on a Michigan Tech poster below.

Reference


Balance Scorecard Institute. *Handbook for Basic Process Improvement*. 1996. PDF File.

Why Use an Affinity Diagram?

Affinity Diagrams provide structure to and helps initiate action in brainstorming sessions. They also support teams by allowing them to work on a creative level with difficult or emotional issues.


How to Use an Affinity Diagram

- Form a cross-functional team based on the problem or issue being addressed.
- Generate ideas—brainstorm ideas on Post-it using one of these two options:
 - Traditional—team members participate as well by writing responses to the issue or question on Post-it's while announcing it to the group.
 - Silent—each team member is given Post-it's that they can individually record and post responses on to a wall. This method aids in initiating brainstorming on difficult subjects or with newly formed teams.
- Display ideas—Post-it's are attached to a wall.
- As a team, the Post-it's are sorted into related groups, by their affinity.
- Create header cards for each group.
- Complete your diagram by writing the problem or issue at the top.



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AFFINITY DIAGRAM


Michigan Tech
Fishbone Diagram Quick Point

Introduction

The Fishbone Diagram, also known as a Cause and Effect Diagram, is a tool used to assist a team when brainstorming the direct cause of a problem. The greatest benefit of the Fishbone Diagram is it is a team in doing a thorough exploration of the potential causes.

Some Common Headings

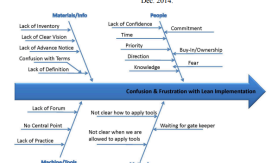
Headings will be unique to each problem.

- Materials/Information—is it accurate? Poor quality? What information is used?
- People—who is involved, skills needed, training, do they understand their role, communication, etc.
- Machine/Equipment—Equipment used, is it properly functioning, what technology is used, is the equipment reliable, etc.
- Process—is it standard? Easy to follow? Are there visuals? Is it followed? Process for revising procedures?
- Measurement—Metrics in place? Are the right things being measured? Easy to understand?
- Work Environment—Too hot, cold, or noisy? Too many interruptions? Ergonomics?

References


"Fishbone diagram." *Wikipedia: The Free Encyclopedia*. Wikimedia Foundation, Inc. 22 July 2004. Web. 16 Dec. 2014.

"The Fundamentals of Cause-and-Effect (aka Fishbone) Diagrams." *GoSigma* n.p. n.d. Web. 16 Dec. 2014.



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FISHBONE


Michigan Tech
Impact/Effort Matrix Quick Point

Introduction

The Impact/Effort Matrix is a tool used to prioritize improvement efforts. The tool can be used during various stages of improvement such as prioritizing a list of improvement projects or prioritizing specific pain points/problems to work on from a process map.

With a cross-functional team, each department should be discussed to collectively place it on the matrix. Here are some topics to consider when determining where items should fall:

Impact Includes:

- How does it affect your customers?
- What level of benefit/value would it have?
- Scalable fit.
- Financial costs and benefits.

Effort Includes:

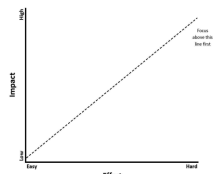
- Resources required.
- Duration to complete.
- Difficulty.
- Complexity.

Once the matrix is complete, the team will have collectively prioritized the ideas/problems. They should then focus their efforts on the items that fall above the dashed line working from left to right. The team should discuss the next steps to begin working on these items/problems.

References

"How to Manage your Lean Projects—Priorities." *All About Lean* n.p. 30 Mar. 2014. Web. 17 Dec. 2014.

Mathieu, James. "The Action Priority Matrix." *Mind Tools Newsletter* n.p. 18 Feb. 2006. Web. 17 Dec. 2014.



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IMPACT/EFFORT

BUILDING AN AFFINITY DIAGRAM

Individual time

to brainstorm their take on the current and future state.

Each person shares

what they wrote about the current and future state.



Break out

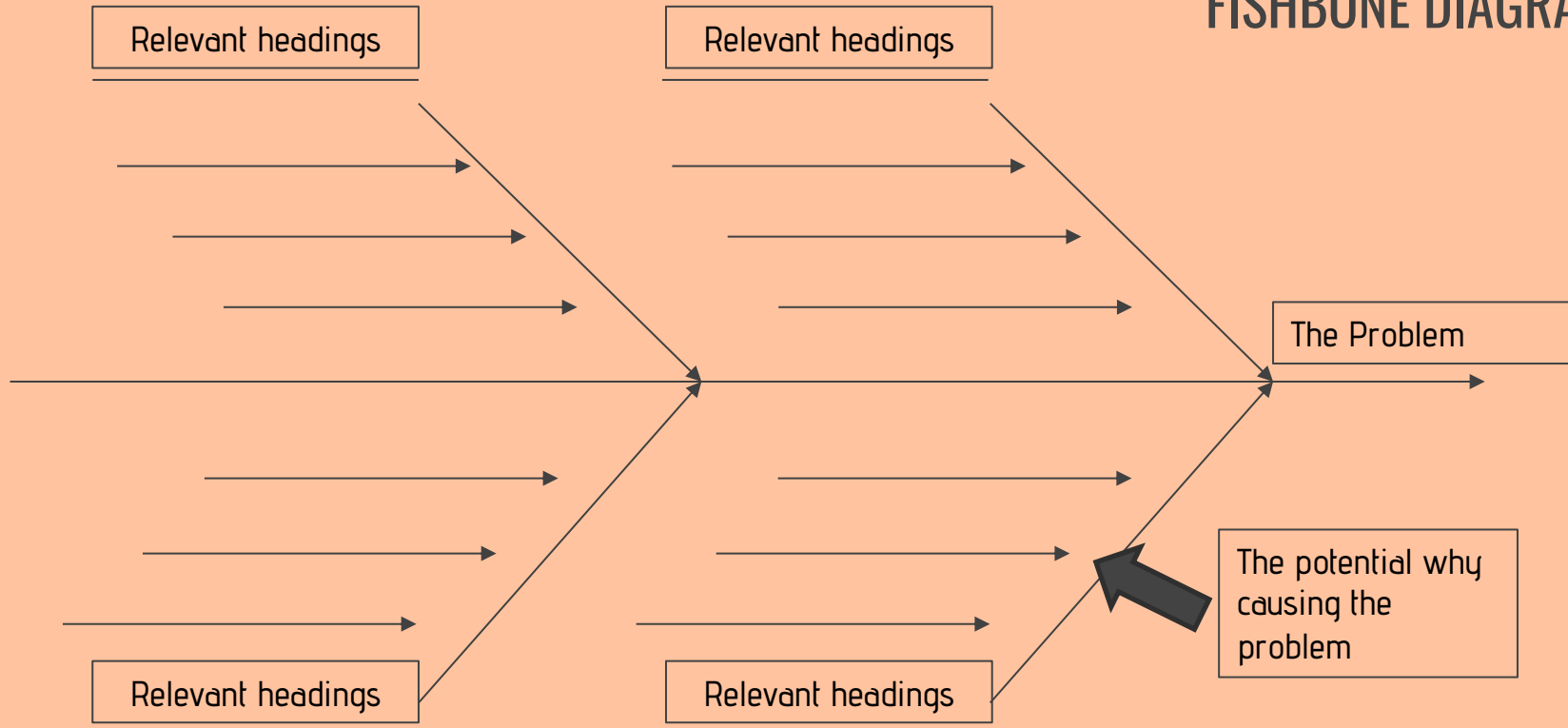
into groups to cluster similar ideas around a common category.

As a group,

decide on what we wanted to focus on by adding a dot to indicate interest/priority.



FISHBONE DIAGRAM



BE FLEXIBLE & SHIFT WHEN THINGS DON'T WORK

Michigan Tech 5 Whys Quick Point

The 5 Whys is a questions-asking method used to determine the root-cause of a problem. Too often we stop and respond to the surface level "symptoms" of a problem. Then, because the root cause of the problem was not addressed, the problem reoccurs. The 5 Whys technique can be used individually or with a team to determine what a problem's root cause is.

The 5 Whys also supports other, more in-depth problem solving techniques such as the Four Step Problem Solving Process.

How to Complete the 5 Whys

1. Once you have your problem identified, ask why that problem is occurring.
2. Continue to question why on each previous answer until the root cause is determined. It should be noted that the 5 why technique may take fewer or more than 5 whys. When you can fix the cause and turn off the problem, that will be your root cause.
3. Test your root cause with rapid experimentation, remove or block the cause and measure the result. Did it turn off the problem? If so, you have identified the root cause.

The root cause of a problem can always be categorized as one of the following:

- Lack of a standard
- Lack of adherence to a standard
- Inadequate system

A Basic Example of the 5 Why Technique

Source: wikipedia.org

Problem: My car will not start.

1. Why? - The battery is dead.
2. Why? - The alternator is not functioning.
3. Why? - The alternator belt has broken.
4. Why? - The alternator belt was well beyond its useful service life and has never been replaced.
5. Why? - I have not been maintaining my car according to the recommended service schedule (lack of adherence to a standard).

References

"Determine the Root Cause: 5 Whys." *i Six Sigma*. n.p. n.d. Web. 15 Dec 2014.
 -5 Whys" *Wikipedia, The Free Encyclopedia*. Wikimedia Foundation, Inc. 22 July 2004. Web. 8 Dec. 2014.

What is your Problem?	
Problem:	
Ask Why	Write Out Cause
Why?	
Why?	
Why?	
Why?	
Why?	

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Michigan Tech Impact/Effort Matrix Quick Point

Introduction

The Impact/Effort Matrix is a tool used to prioritize improvement efforts. The tool can be used during various stages of improvement such as prioritizing a list of improvement projects or prioritizing specific pain points/problems to work on from a process map.

How to Use the Matrix

First, draw the chart large enough to place each improvement idea or problem onto the matrix; a white board or a large flip chart is ideal.

With a cross-functional team, each idea/problem should be discussed to collectively place it on the matrix. Here are some topics to consider when determining where items should fall:

Impact Includes:

- How does it affect your customers?
- What level of benefit/value would it have?
- Strategic fit.
- Financial costs and benefits.

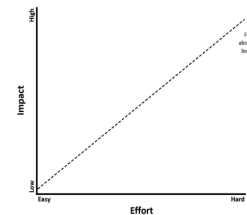
Effort Includes:

- Resources required.
- Duration to complete.
- Difficulty.
- Acceptance.

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References

"How to Manage your Lean Projects—Prioritize." *All About Lean*. n.p. 30 Mar. 2014. Web. 17 Dec. 2014.
 Manktelow, James. "The Action Priority Matrix." *Mind Tools Newsletter*. n.p. 14 Feb. 2006. Web. 17 Dec. 2014.



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DEVELOPING COUNTER MEASURES

Pavlis Honors College Kaizen Newspaper



Michigan Tech

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As a result, on this exercise you will then develop a precise problem statement utilizing this format: "A is happening, causing X, Y and Z." For example: The toast is burnt on the golden brown setting, causing wasted bread and time.

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- Inadequate system

Identify Countermeasures

Once you have confirmed your root cause, it is time to identify a countermeasure—an action that is implemented to prevent the root cause from occurring again. Techniques:

- Brainstorm countermeasures with a cross-functional team.
- Do some rapid experimentation with brainstormed countermeasures.
- Use prioritization tools such as PACE or ICE to identify the best countermeasure(s) from brainstorming activities.

Implement a Countermeasure

Implementation of a countermeasure should be carefully planned and involve communication to all employees who will interact with the changes.

Techniques:

- Use the Kaizen Newspaper to set up a timeline, assigning responsibility for each task needed to effectively implement the countermeasure(s).
- Hold weekly meetings until all Kaizen Newspaper items are complete.
- Make a plan to evaluate results.

Evaluate and Standardize

Follow a set plan to monitor results. Techniques:

- Collect data to ensure the changes made are working and to identify areas for adjustment.
- Go to the gemba to observe changes in action.
- Make adjustments as needed.
- Update standardized work instructions and provide training as needed.

References

McMahon, Tim. "The Six-Step Problem Solving Process." *A Lean Journey Blog*. 15 May 2012. Web. 15 Dec. 2014.

Miller, John. "TBP: Toyota Business Practice." *gemba panta rei*. 22 Feb. 2009. Web. 8 Dec. 2014.

"Root Cause Analysis: Tracing a Problem to its Origins." *Mind Tools*. Mind Tools Ltd. n.d. Web. 16 Dec. 2014.

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PROBLEM SOLVING PROCESS

Item No	Problem	Countermeasure/Action Item	Person Responsible	Due Date	% Complete		Date Complete
	Project Completion	Re-Envision HON3150	Laura CC	5/15/20	25%	50%	
					75%	100%	
	Project Completion	Create a Project Marketplace	Paige Vienna, Kari, Becky	9/1/20	25%	50%	
					75%	100%	
	Project Completion	Revise the Project Standard (including Reflection & Story Telling Protocol)	Lorelle CC	2/28/20	25%	50%	
					75%	100%	
	Project Completion	Design a Showcase Event (Project Expo)	Kristi Laura, April	4/24/20	25%	50%	
					75%	100%	
	Project Completion	Design Modules for HON3150	Laura CC	8/15/20	25%	50%	
					75%	100%	
	Project Completion	Transition Plan for students that have already competed HON3150	Kari Lorelle, Mary, Jim	2/28/20	25%	50%	
					75%	100%	
	Academic Enhancement	Revise Standard for Academic Enhancement	Mary CC	2/28/20	25%	50%	
					75%	100%	
	Advising	Use Monday Huddle to share student component stories	Lorelle	Immediate	25%	50%	
					75%	100%	
	Advising	Compile examples of student components (especially projects)	Becky Advisors	9/1/20	25%	50%	
					75%	100%	
	Advising	Create Honors Advising 101 for new faculty/staff (including mentoring concept)	Dar Chris, Kristi, Lisa, Bre	8/15/20	25%	50%	
					75%	100%	
	Advising	Standardize location for key Pavlis Information	Vienna Paige, Becky, Kristi, Lorelle, April	9/1/20	25%	50%	
					75%	100%	
	Advising	Bring advising questions/concerns to Monday Huddle	Lorelle	Immediate	25%	50%	
					75%	100%	
	Advising	Determine value of Pathways - necessary?	Lorelle The TEAM!!	3/31/20	25%	50%	
					75%	100%	
	Advising	Create Semester Meeting for all advisors to touch base (best practices, challenges, needs)	April	1/31/20	25%	50%	
					75%	100%	
	Communication	Bring student email items to Monday Huddle for distribution	Lorelle	Immediate	25%	50%	
					75%	100%	
					25%	50%	



Concluding Thoughts .04

And this is the subtitle that makes it
comprehensible

FINAL THOUGHTS

Be Flexible

Get a good grasp of the current state and future before heading into the Kaizen, but allow the larger group to contribute their thoughts during the event.

Use many tools, but remember the most important tool is PDCA... you don't have to get too fancy to make improvements

Make a Newspaper to make sure improvements stay on track and visible

TAKE PICTURES!



Note: assign an individual to take pictures and to later share with the group.



THANKS!

Does anyone have any questions?

bctucker@mtu.edu
www.mtu.edu/honors/



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CREDITS

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- ◀ Big image slide photo created by Freepik.com



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