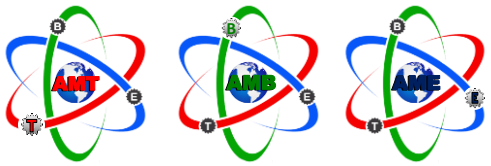
Thoughts for the Future of People at Work SYMPOSIUM

- The technical workforce crisis *will get worse*. Current/traditional solutions don't work.
- What are you doing to acquire and develop workforce that is significantly different?
- What are you doing at scale?
- Closing the Numbers gap (not enough workers) will is not sufficient alone to succeed.

FEDERATION FOR ADVANCED MANUFACTURING EDUCATION

Something New Under the Sun
The FAME Career Pathway

The World's First (we think) Education Pathway Designed with Lean Principles and Practices



Dennis Dio Parker
Developer of the FAME and the FAME Career Pathway

FAME-Global-Founder@protonmail.com
859.749.7553
502.889.6356

So, What's New?

From a Lean Perspective

- We believe that The FAME Career Pathway is the first education career pathway developed using Lean principles and practices.

- Introduces two new major methods for staffing operations:
  - Hiring workers in a structured pull-system pathway to meet operational staffing needs on time, in the amount needed, with the right skills.
  - Building a Lean workforce by hiring workers who have been Lean-trained as part of their fundamental education

- Introduces the concept of *Competitive Talent Development* as an intentional business tool.

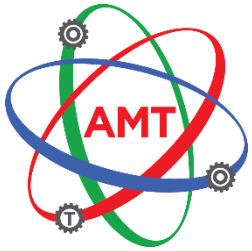
What's NOT New?

From a Lean Perspective

Toyota, the originator of "Lean" thinking and methodology through the practice of TPS, is still:

- ❖ Breaking new ground
- ❖ Finding new ways to push the practice of TPS/Lean forward
- ❖ Creating new models that impact areas not yet explored by TPS/Lean work.

The Solution



FAMe

FEDERATION FOR ADVANCED MANUFACTURING EDUCATION

Federation for Advanced Manufacturing Education

A collaborative of employers that work together with each other and with colleges and universities to develop global-best talent.

FEDERATION FOR ADVANCED MANUFACTURING EDUCATION

Talent Pipeline

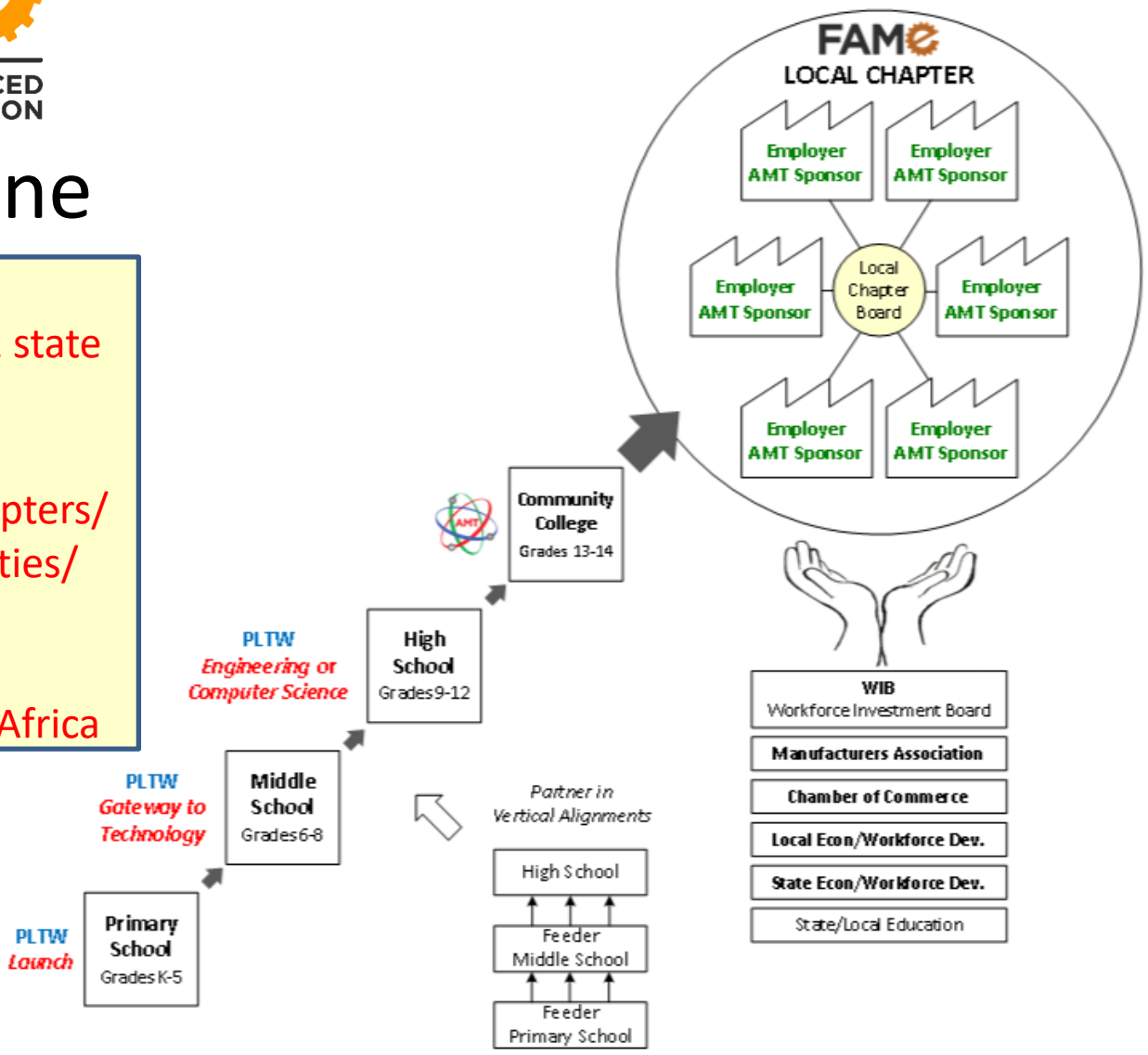
2010

1 employer/1 college/1 state

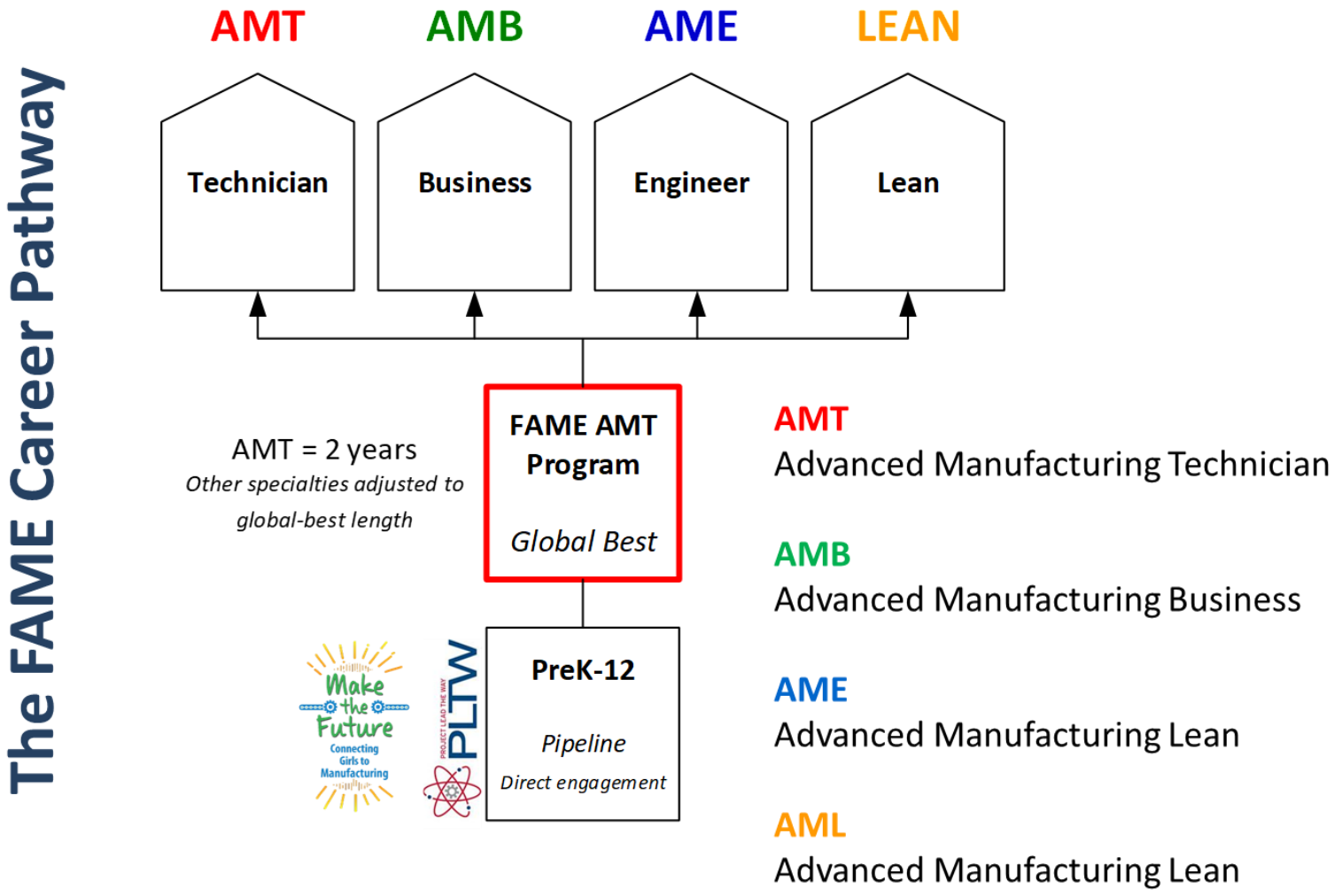
TODAY

400+ employers/46 chapters/
48 colleges & universities/
16 states

Starting in Europe and Africa

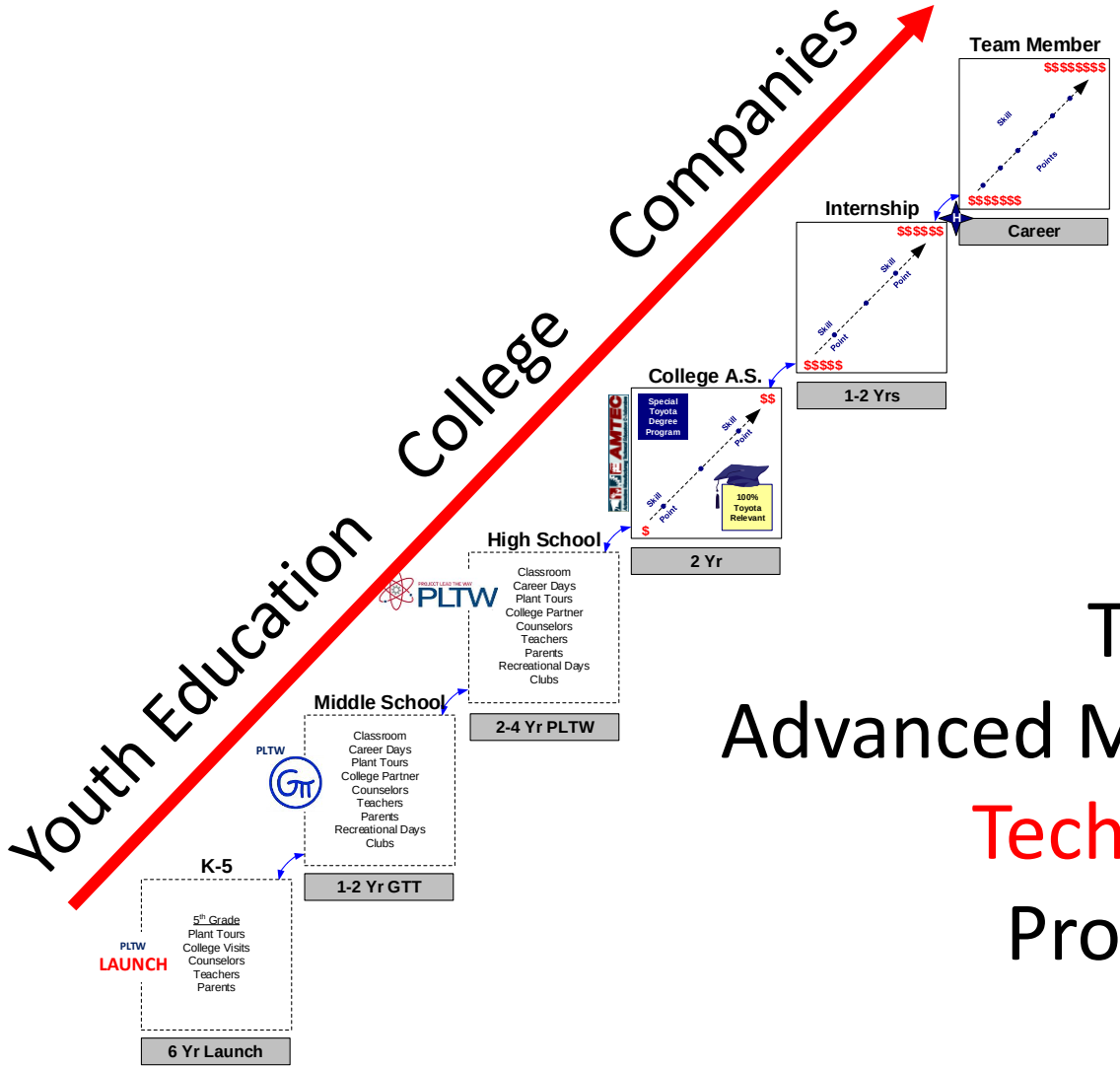


Simplified


The FAME Career Pathway
AMT
AMB
AME
LEAN
Technician
Business
Engineer
Lean
AMT = 2 years
Other specialties adjusted to global-best length
FAME AMT Program
Global Best
Make the Future
Connecting Girls to Manufacturing
PLTW
PreK-12
Pipeline
Direct engagement
AMT
Advanced Manufacturing Technician
AMB
Advanced Manufacturing Business
AME
Advanced Manufacturing Lean
AML
Advanced Manufacturing Lean

The FAME Career Pathway

Connect into One Continuous Flow System



The
Advanced Manufacturing
Technician
Program

In the Beginning There Was

- Continuous Improvement
- Problem Solving

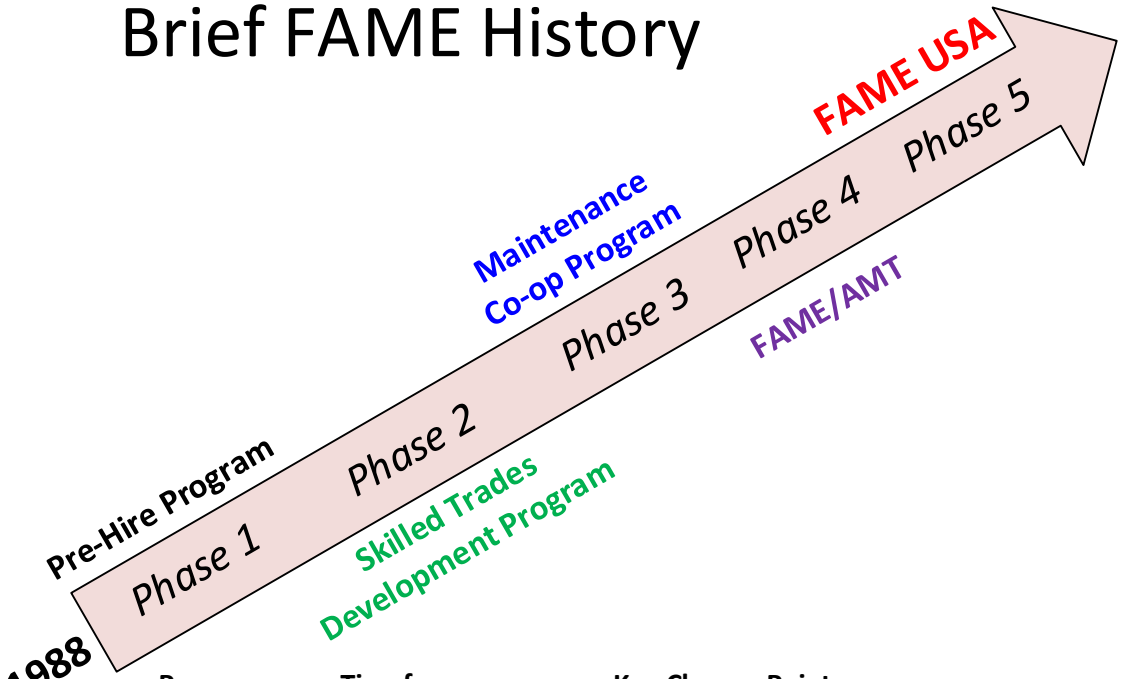
TPS/LEAN

It started with Problem Solving in 1988.
Then it was Improved.
And Problem Solved again.
And improved again.
And Problem Solved again.
And Improved gain.
… and it continues still!

TPS/LEAN

Continuous Improvement

Brief FAME History



Skilled talent:
- Not multiskilled
- Not passing selection

Program	Timeframe	Key Change Points
Pre-Hire	1988-1990	Initial program
STDP	1990-2003	Classroom → Work/Study
Maint Co-op	2003-2006	Internal students → External students
AMT	2006-2009 Planning	
FAME/AMT	2010-2019 Active	Career pathway, Lean Mfg., Prof Behaviors
FAME USA	2019-Present	Toyota → The Manufacturing Institute

On a Higher Level:
The Workforce Problem

TPS/LEAN

TPS/LEAN

What's the Problem?

- Not enough manufacturing workers.
  - 2011 Deloitte study estimates that U.S. manufacturing is short **500,000** workers.
  - The gap is expected to increase to **2.4 million!**

- New technicians are not work ready.
  - Technical education scope is limited to single skill disciplines vs. multiskilled.
  - Development for workplace practices is essentially non-existent.
    (e.g., safety practice, visual workplace organization, lean practices, problem solving)
  - Work values/professional behavior development is low and inconsistent.
    (e.g., attendance, initiative, diligence, teamwork, communication)
  - The lack of "soft skills" is the newest threat to U.S. worker capability.

    This is a competitive disadvantage in the global market.

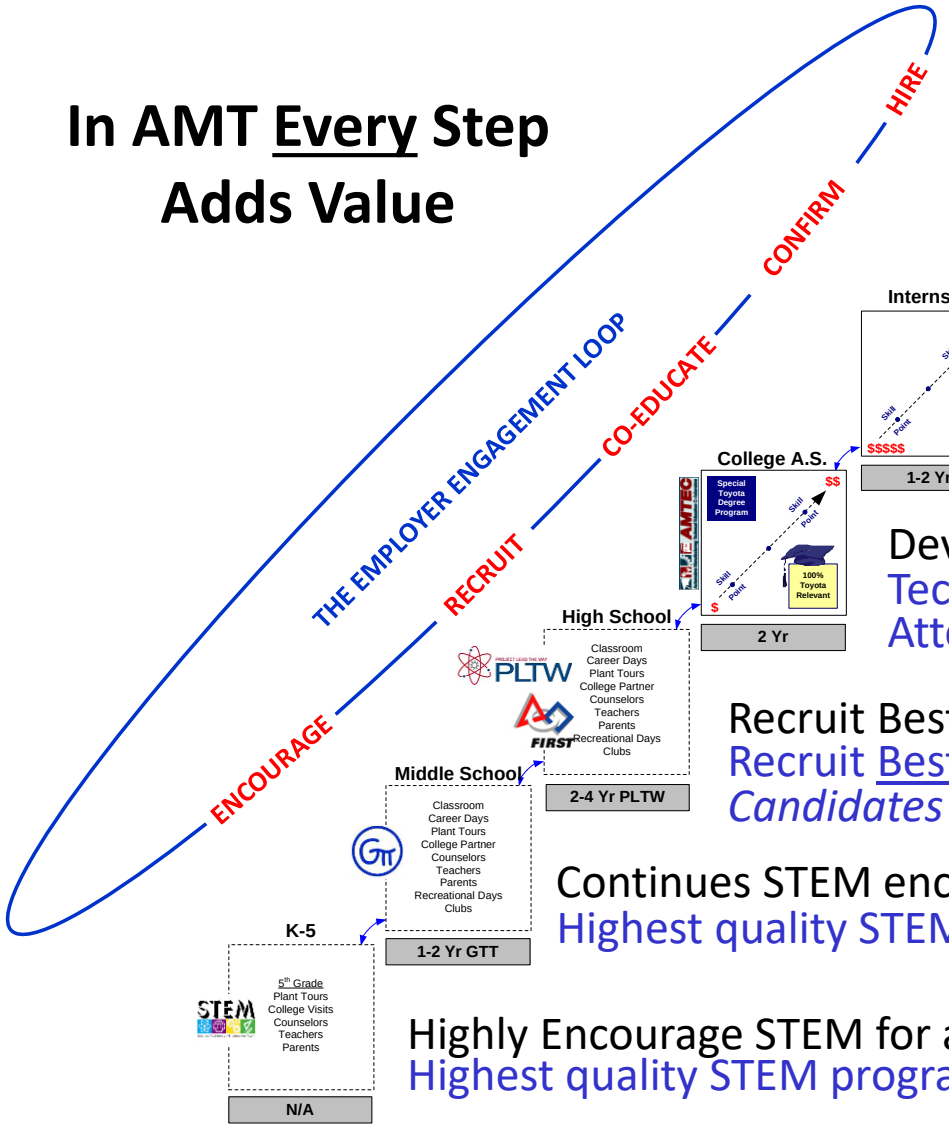
- Aging technical workforce.
  - Current workforce age distribution is significantly unbalanced.
  - Older, experienced, highly capable workers are retiring in increasing numbers.

TPS/LEAN

Every Process *Adds Value (Black)*

Built in Quality at the Process (Blue)

In AMT <u>Every</u> Step Adds Value



Continuous Career Development
Meet employment standards

Demonstrate Competence/Work Readiness
Pass all employer hiring gates

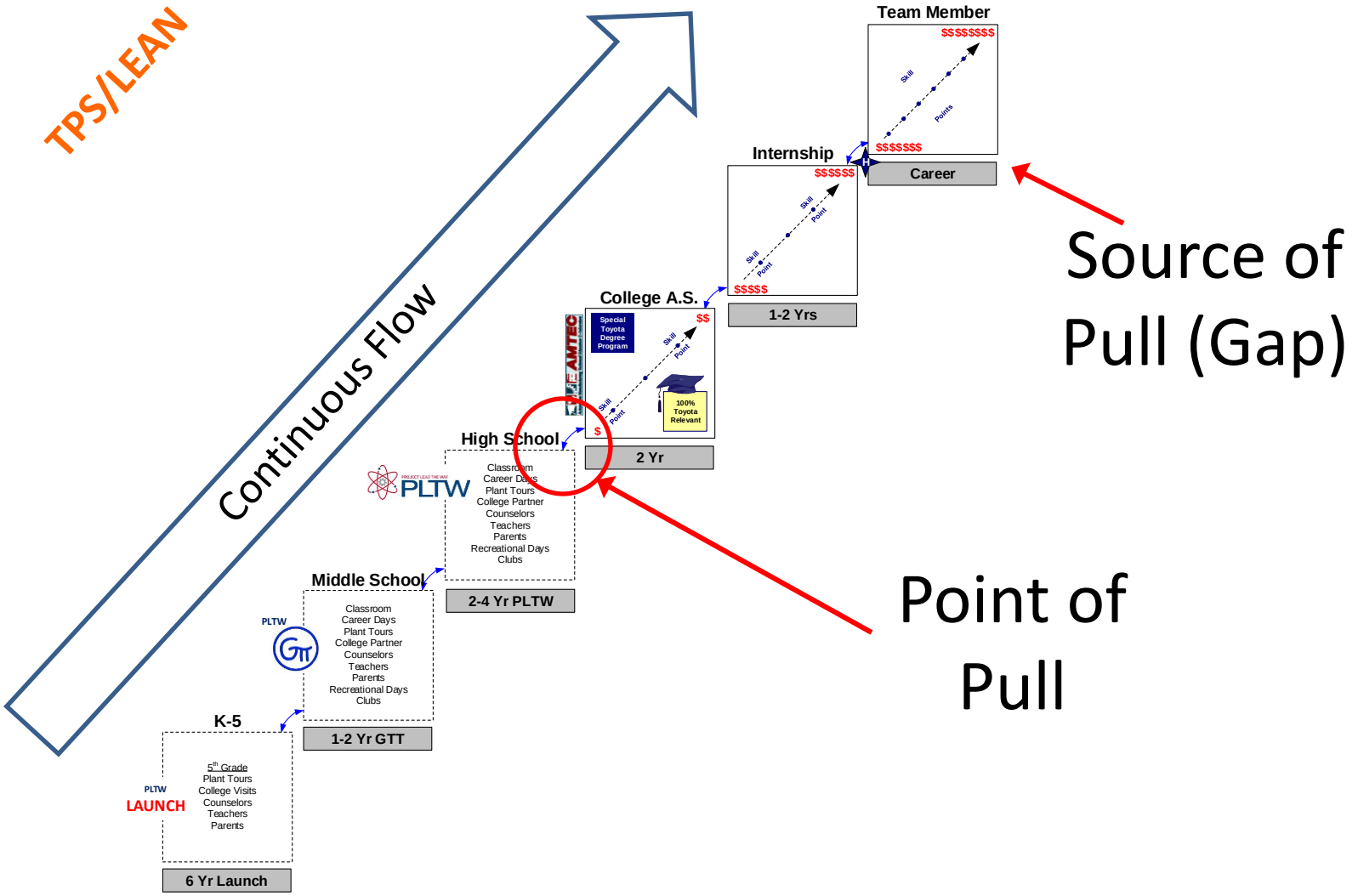
Develops Global-Best Entry-Level Technician
Technology/Professional Behaviors/Lean
Attendance/all courses ≥ 'C'/pass 1st time/

Recruit Best Talent from High School
Recruit <u>Best</u> Talent from High School
Candidates <u>require no college remediation</u> (top 1/3)

Continues STEM encouragement - Introduces career awareness
Highest quality STEM Program

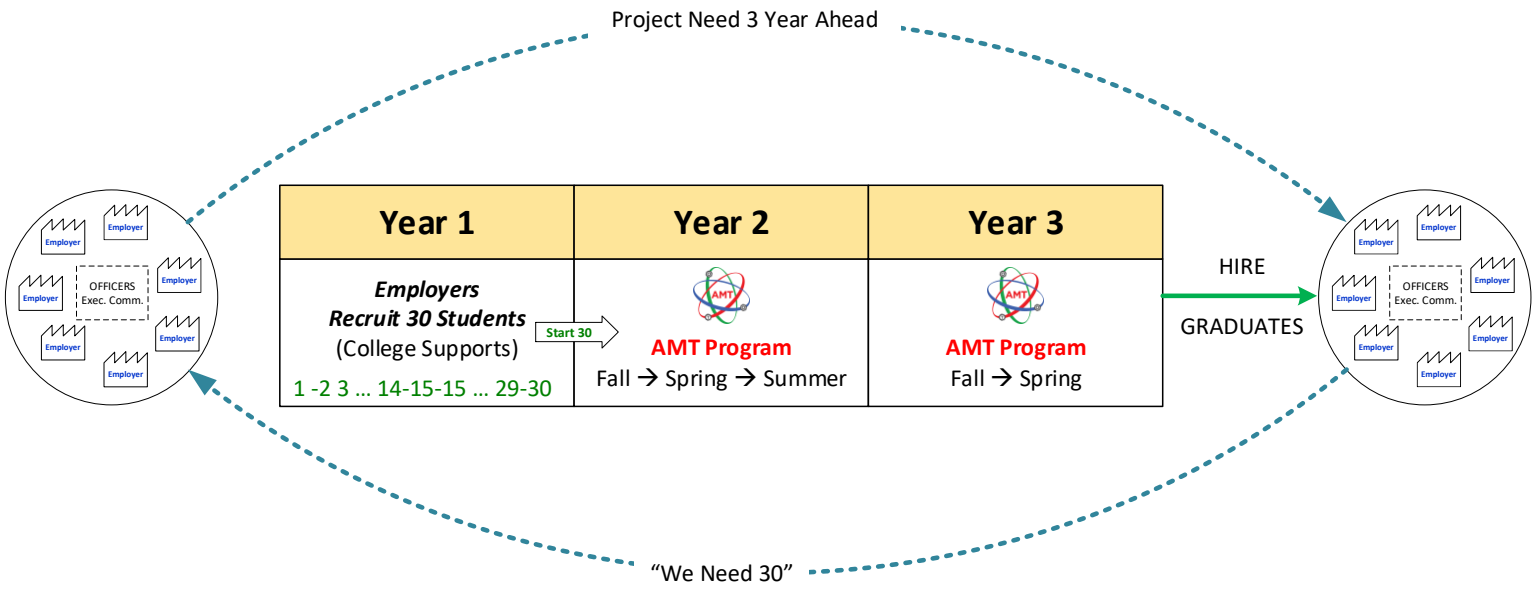
Highly Encourage STEM for all - Especially boosts females/minorities
Highest quality STEM program (PLTW)

CONTINUOUS FLOW PULL SYSTEM PIPELINE



TPS/LEAN

Workforce Pull System



Account for attrition by sponsoring extra students – each company determines own number

TPS/LEAN

Define "Ideal Condition" Set the Standard

NEXT GENERATION
Skilled Team Member

Personally Ready
6 Professional Behaviors
Attendance/Initiative/Diligence/Interpersonal Skills/Teamwork/Communication

Competitively Ready
5 Manufacturing Core Capabilities
Safety Culture/Workplace Organization/Lean Manufacturing/Problem Solving/Macine Reliability

Totally Multiskilled
Electrical / Fluid Power / Mechanics / Fabricator

Strong Math Capability
Upper 1/3 Nationally

Strong Reading Capability
Minimum 12th Grade Equivalent

Fast Technical Learner
Can learn, apply, improve, learn again quickly

Uses & Learns with Digital Media
Digital media is the preferred method

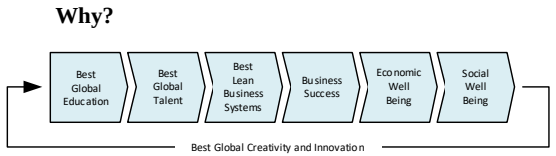
Strong Problem Solver
Can fully explain problem solving and methods, including troubleshooting sub-process

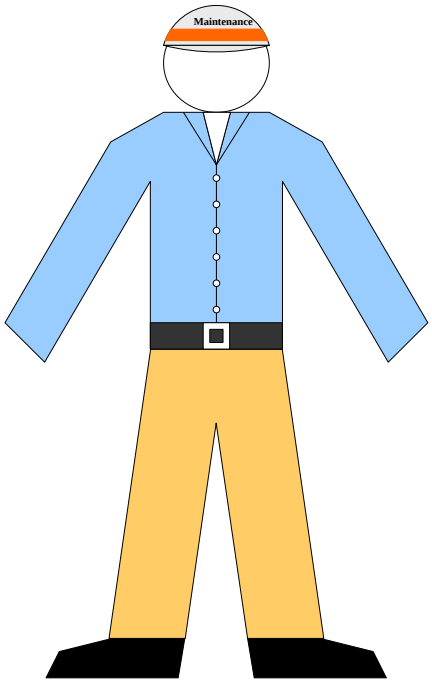
Effective Verbal & Written Communicator
Group & 1-on-1, develops high quality written material

Effective Interpersonal Skills
A conflict resolver

Natural Teamworker
Prefers working as part of a team

Qualified for the Next Level
Has Associate Degree / All required company training complete



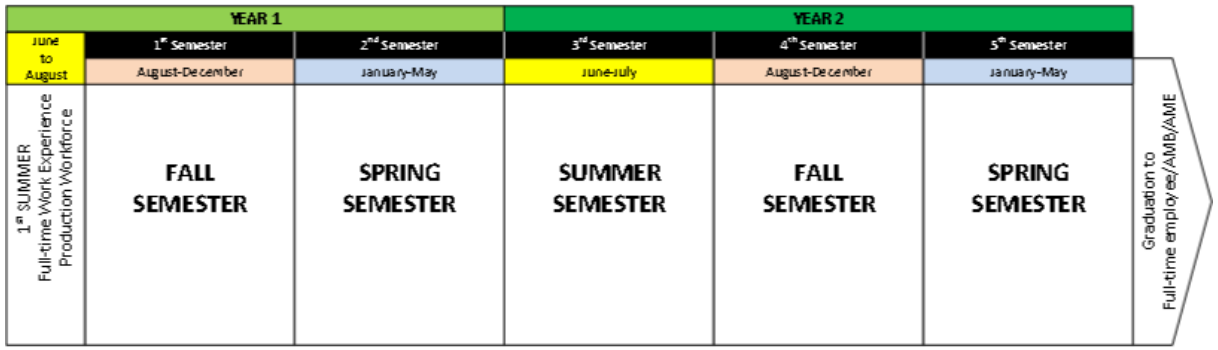


TARGET: 100% of Maintenance Force

AMT Program: Eliminate Muda

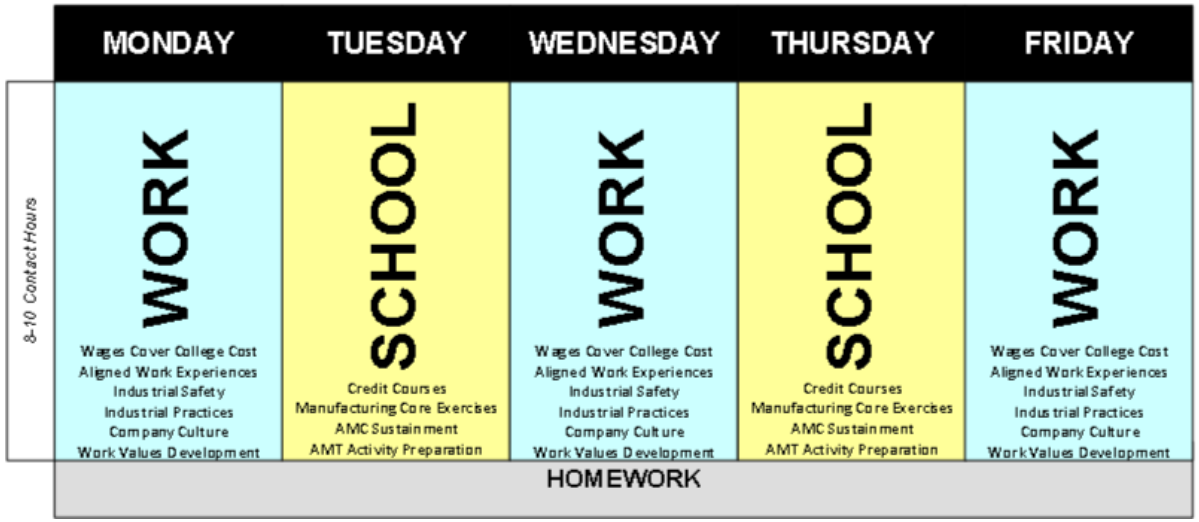
8 hrs per day/5 day per week/5 straight semesters

Program Schedule



TPS/LEAN

Example Weekly Schedule



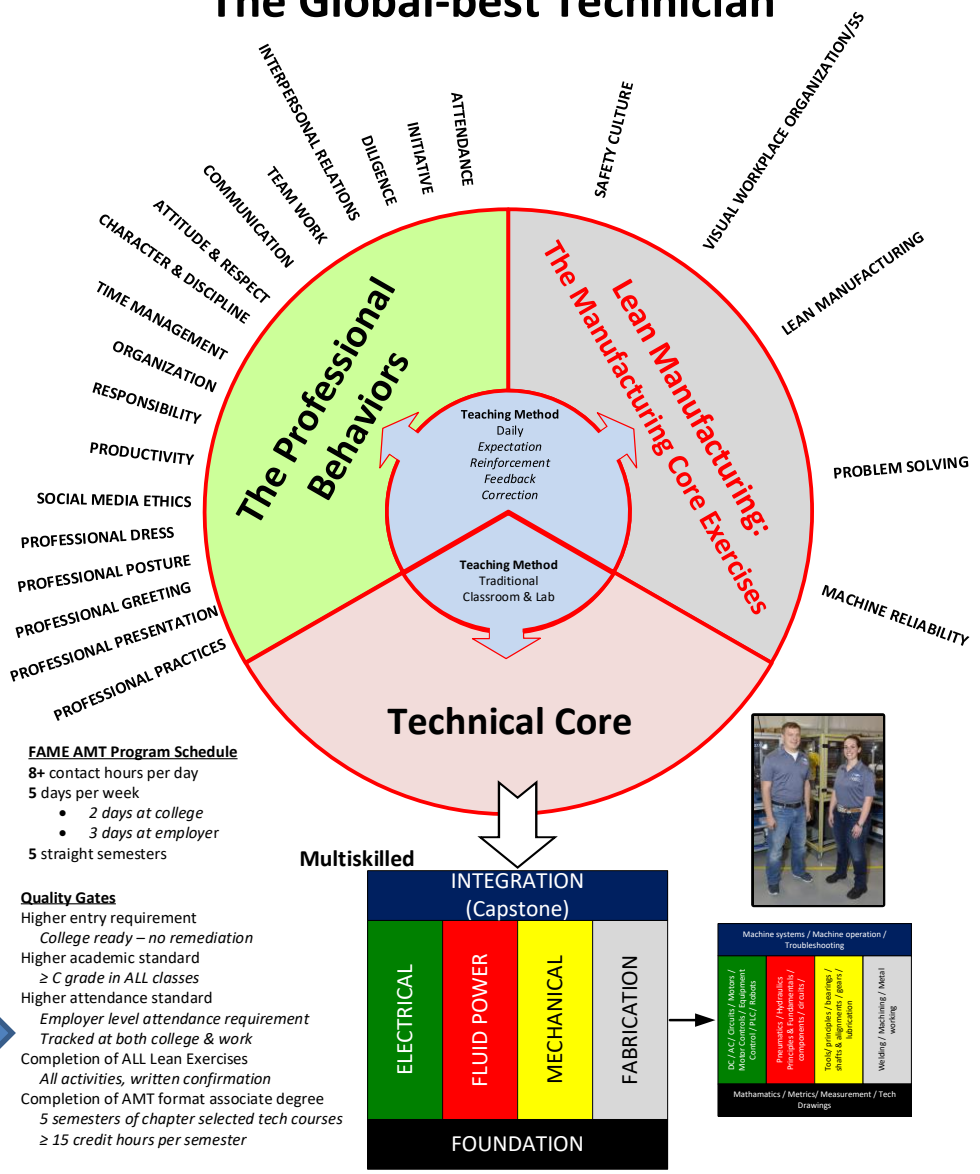
TPS/LEAN

Developing World Class *People*

Not Just Teaching Technology

Employers Choose Every Course
Eliminate Muda (non-value added)

FAME College Partner Program to Develop The Global-best Technician



FAME AMT Program Schedule
8+ contact hours per day
5 days per week
- *2 days at college*
- *3 days at employer*

5 straight semesters

Quality Gates
Higher entry requirement
College ready – no remediation
Higher academic standard
≥ C grade in ALL classes
Higher attendance standard
Employer level attendance requirement
Tracked at both college & work
Completion of ALL Lean Exercises
All activities, written confirmation
Completion of AMT format associate degree
5 semesters of chapter selected tech courses
≥ 15 credit hours per semester

TPS/LEAN

FAMEUSA

MANUFACTURING Institute

AMT Program *Professional Behaviors* Overview

The AMT Professional Behaviors are a direct response to the emerging "soft skills" crisis in the American workforce, including new graduates into the workforce; the lack of any effective, systemic activity to develop these skills in those who will enter the workforce; and to the recognition that soft skills are a crucially important contributor to maximum business success.

THE AMT PROFESSIONAL BEHAVIORS CONSIST OF 3 MAJOR BEHAVIOR SETS

The *Six Professional Behaviors*

The 7 Essential Behaviors

The 5 Professional Practices

The *Six Flagship Behaviors*

Attendance
Being a contributing asset on time every day

Initiative
Starting your work yourself

Diligence
Completing your work with high quality

Interpersonal Relationships
Being a conflict resolver, not a conflict causer

Teamwork
Achieving more by working effectively with others

Communication
Achieving through speaking and writing.

The 7 Essential Behaviors

Attitude & Respect
Professional readiness with respect for all

Discipline & Character
Staying on task & total integrity

Responsibility
Personal ownership to make things happen

Organization
Structure & logic to maximize efficiency

Time Management
Best use to achieve the most important outcomes

Productivity
Maximizing results for time & resources invested

Social Media Ethics
100% appropriate, value-added use

The 5 Professional Practices

Professional Dress
Appearance that inspires pride & expectation

Professional Posture
Appearance that inspires competence

Professional Greeting
Introductions that convey professionalism

Professional Presentation
Communication that influences decisions

Professional Actions
Key daily actions that strengthen professionalism

Other AMT Activities Which Contribute to "Soft Skills"

The Competitive Practices

MCE-1 Safety Culture

Examples

Daily Safety Discussions
e.g.: Responsibility, Communication
Safety Board Management
e.g.: Interpersonal Relations, Teamwork
Safety Improvement Projects
e.g.: Initiative, Diligence
Safety Commitment Ceremony
e.g.: Professional Practices

MCE-2 Visual Workplace Organization

Examples

Step 1: Sift
e.g.: Productivity, Diligence
Step 2: Sort
e.g.: Organization, Time Mgt.
Step 3: Sweep & Wash
e.g.: Initiative, Diligence
Step 4: Spic & Span
e.g.: Discipline, Organization
Step 5: Sustain
e.g.: Responsibility, Teamwork

MCE-3 Lean Manufacturing

Examples

Jidoka Principles & Practices
e.g.: Initiative, Diligence
Just-in-Time Principles & Practices
e.g.: Productivity, Time Mgt.
House of TPS-M
e.g.: Organization, Productivity
7 Mudas
e.g.: Time Mgt., Productivity
Kaizen Exercise
e.g.: Initiative, Diligence

MCE-4 Problem Solving

Though in AMT "Problem Solving" is part of MCE training, it is often classed as a core soft skill.

Problem Clarification
e.g.: Organization, critical thinking
Problem Breakdown
e.g.: Organization, analytical thinking
Root Cause Analysis
e.g.: Organization, critical thinking
Countermeasures
e.g.: critical thinking, Productivity
Foundation Principles
e.g.: Discipline, Communication

MCE-5 Machine Reliability

Examples

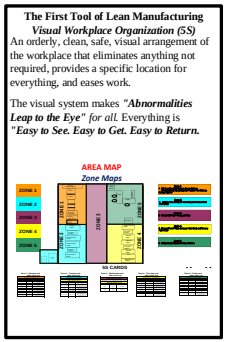
Key Questions
e.g.: Problem solving, Diligence
Reliability Process
e.g.: Organization, Teamwork
Failure Mode Effects Analysis
e.g.: analytical thinking, Organization
Decision Diagram
e.g.: Productivity, critical thinking
Report Out
e.g.: Problem solving, Communication

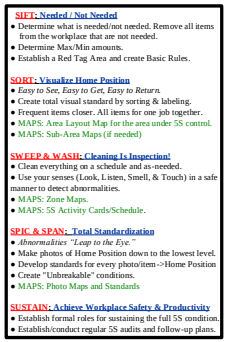
TPS/LEAN

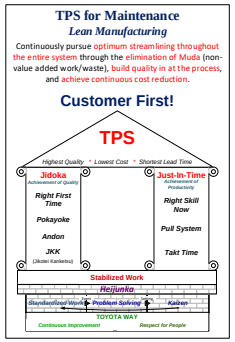
Lean Manufacturing

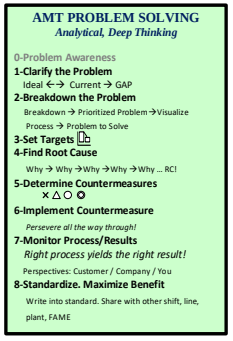
5 Lean Manufacturing Practices

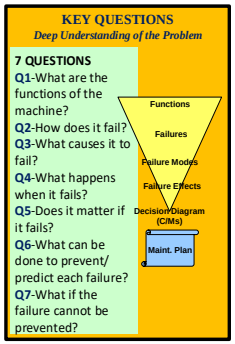
MCE-1: Safety Culture – *Value for Safety/Respect for People*
MCE-2: Visual Workplace Organizaton/5S– *Daily Business Impact*
MCE-3: Lean Manufacturing Principles & Practices– *Strengthen Business Processes*
MCE-4: Problem Solving– *Continuous Improvement/Quality*
MCE-5: Machine Reliability– *Productivity/Heijunka*

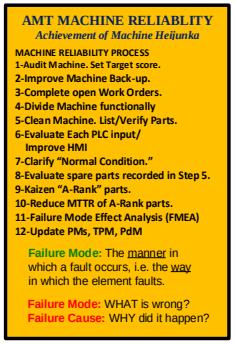


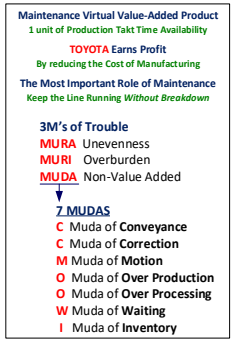












Line of Sight

How the floor level activity is connected to the top business results of the company is identified, integrated into the system, and aligned so that it connects from top-to-bottom-to-top in both directions.

KPIs can be applied at all levels to understand both success at the level and to connect results – good or bad – between levels for more effective problem solivng.

FAME FEDERATION FOR ADVANCED MANUFACTURING EDUCATION

GLOBAL BEST Entry Level Skilled Technician

Development Target

Global-best, Entry Level Technician

Personally Ready
Demonstrates the FAME Professional Behaviors
Attendance/Initiative/Diligence/Interpersonal Relations/Teamwork/Communication/Attitude & Respect/Character & Discipline/Time Management/Responsibility/Organization/Productivity/Social Media Ethics/Professional Dress/ Professional Posture/Professional Greeting/Professional Presentation/AMT Practices

Technically Ready
Applies Total Multiskills:
Electricity/Fluid Power/Mechanics/Fabrication/Automation/Programming/Robotics

Competitively Ready
Practices 5 Lean Activities
Safety Culture / Visual Workplace Organization (5S) / TPS-Lean Manufacturing / Problem Solving / Machine Reliability

Strong Math Capability
Upper 1/3 *Nationally*

Strong Reading Capability
Minimum 12th Grade Equivalent

Fast Technical Learner
Learns -> Applies -> Improves -> Learns again quickly -> Repeat

Effective Digital Media Learner
Digital media is the preferred learning method

Strong Problem Solver
Uses 8-step problem solving, structured troubleshooting

Effective Written & Verbal Communicator
Effective at group and 1-on-1 verbal communication
Develops high quality written material

Effective Interpersonal Skills
A conflict resolver, not a conflict causer

Natural Teamworker
Prefers working as part of a team

Qualified for the Next Education Level
Has Associate Degree + All required employer required training

Strategic Target

For the FAME employer: a *Talent Competitive Advantage* that produces a *Business Competitive Advantage* through a workforce with the most work-ready entry level technicians in the world.

Operational Target

At the FAME employer:
100% of Technician workforce, achieved through year-over-year pull-system staffing activity.

Ultimate Goal

TPS/LEAN

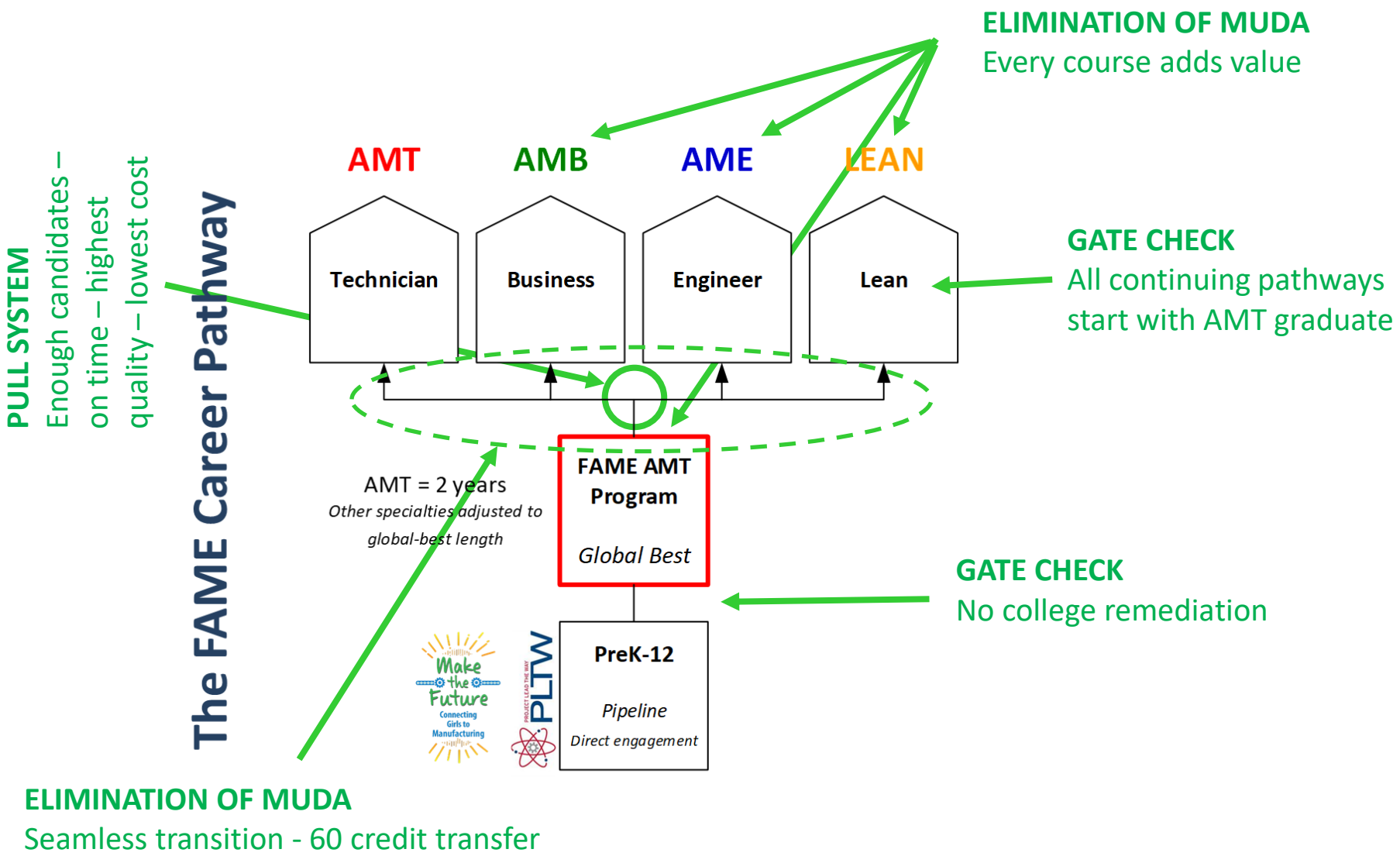
Problem Solving Example

19 years old.
First problem activity ever.
Development of the *thinking* process.

Impromptu Presentation of an AMT Student Problem Solving Project

https://youtu.be/ZWRFOii95qk

Lean System Examples



TPS/LEAN

Standardization

- Standardization allows:
  - Other standardized programs to be added to the base program (e.g., AMB Pathway)
  - Easier and effective metrics for management
  - Duplication to multiple locations
  - Easier training to support all programs
  - Sustainment of improvements!

Diversity – Make the Future!

https://napequity.org/makethefuturefame/

NAPE

FAME
FEDERATION FOR ADVANCED MANUFACTURING EDUCATION

Watch this video!

https://youtu.be/4BpKYOmEc5A

TPS/LEAN

The Ideal Pathway – Achieved!

The FAME Career Pathway

Elementary School

Middle School

High School

Associate Degree

Bachelors & Masters

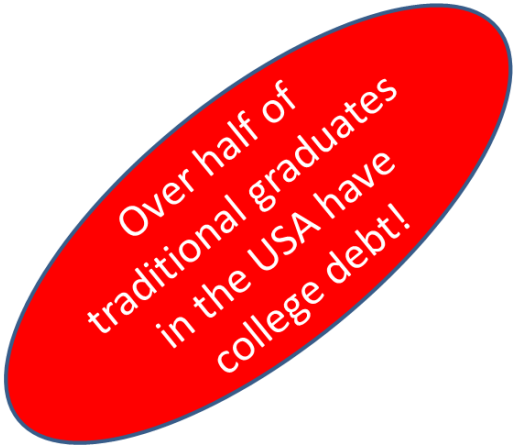
Harrison Co. School District

Bluegrass Comm. & Tech. College

Northwood University

The likely first in the nation grade-over-grade PreK-to-Masters career pathway in the U.S.

- All students are from the Harrison County, Ky. school district.
- Representative teachers at each level, and a sponsoring employer are included.
- Goal: Enlarge the scope of PreK-to-Masters pathways in the Bluegrass Chapter
- Create PreK-to-Masters career pathways in other regions and states.



Results

College Debt

Almost All AMT Students Graduate

Without College Debt

Attract the Best Candidates

No Barriers to Continued Education

(Remember that all education in the FAME Career Pathway Benefits the Employer as well as the student)

USA community college average 5-20%

Results

American community colleges count "On time" as completing a 2 year program in 3 years

GRADUATION RATE

Full-time/On-time

≈ 85%

In 2 years

FAME counts "on time" as a 2-year program completed in 2 years.

Community College Norm

5%-20%

2-year program completed in 3-years

College graduates on average take 3-6 months to get a job

Results

IMMEDIATE HIRE RATE

By the original sponsoring employer

≈ 85%

Good for the employer

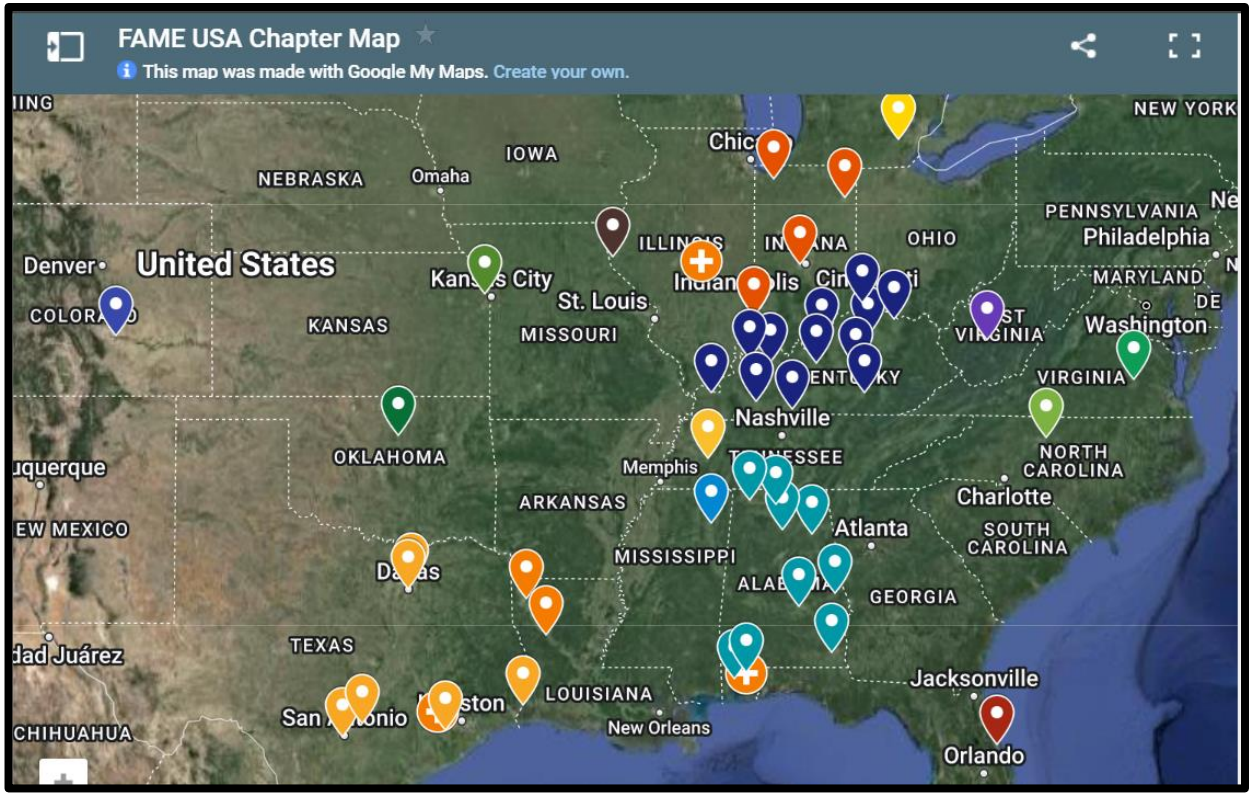
Good for the student

Results

12

Awards
& Recognitions

FAME USA Locations



- ✓ *FAME has received in-person study visits by:* Germany, Mexico, Canada, Japan, United Kingdom, Ireland, Paraguay, Senegal, Peru, Uganda, Portugal, South Africa, Ecuador, Chile.

- ✓ *FAME has had active inquiries from:* India, Indonesia, Brazil, Ecuador

- ✓ **Ireland and South Africa are starting the first international chapters**

Highlight Summary

- Global-best, Entry-level technicians/engineers/business
- Comprehensive soft skill development.
- Highly proactive diversity program.
- Builds Lean development into fundamental learning.
- Tool to build a Lean workforce.
- Strengthens Lean culture development.
- Leadership program.
- Pull system to provide a workforce with the needed skills, on time.
- Introduces the concept of intentionally managed *competitive talent*.

FAME GOES NATIONAL

- Due to FAME's exceptional success and growth:
  - The Manufacturing Institute and TOYOTA have entered a partnership to transition FAME to MI.
  - MI will scale the program to the nation.
  - National announcement on September 10, 2019
  - What is the difference?
    - *Stronger support, more resources, long-term sustainability.*

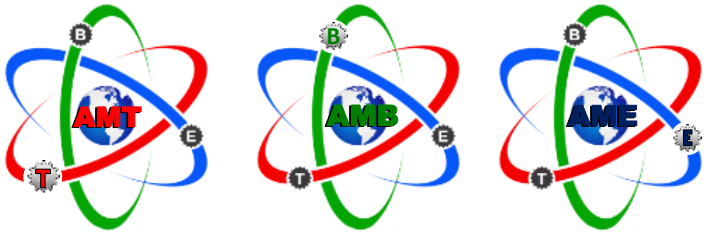
https://youtu.be/7_Ap_E4YIAY

See It In Action

KYFAME-Northern Kentucky Chapter

See/hear the perspective of a FAME chapter, including employers, AMT students, the College Partner, economic/workforce development.
https://youtu.be/2OMasmuTjO8

FAME
FEDERATION FOR ADVANCED MANUFACTURING EDUCATION



Q & A

www.fame-usa.com

Join me on LinkedIn: https://www.linkedin.com/in/dennis-dio-parker-6849578/