



Proposing the Next ADVANCE for Women Faculty

Tailoring Data-driven Programs
for Career Achievement and Success

iClicker Registration & Test

- What is the goal of the National Science Foundation ADVANCE initiative?
 - a) to develop systemic approaches to increase the representation and advancement of women in academic STEM careers
 - b) to develop innovative and sustainable ways to promote gender equity in the STEM academic workforce
 - c) to contribute to the development of a more diverse science and engineering workforce
 - d) All of the above

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Progress during first ADVANCE grant: Headcount of Male and Female Faculty 2009-2012

Year	Coll of Eng		Coll of S&A		Sch of Biz		SFRES		Sch of Tech		MTU Total	
	F	M	F	M	F	M	F	M	F	M	F	M
2012-13	21	113	59	91	8	16	4	17	2	15	94	254
2011-12	21	115	58	94	8	16	5	18	1	16	93	259
2010-11	21	115	55	93	7	13	5	18	1	12	88	251
2009-10	16	106	55	91	8	13	4	18	2	14	85	242

Institutional Analysis MTU Fact Book

- Went from 26% women to 27% women in 4 years
 - STEM data on next slide
- Male to female ratio far from 1:1

STEM Fields Only: Male and Female Tenure/Tenure-Track Faculty by Rank 2013

Fall 2013	Coll of Eng		Coll of S&A (STEM)		SFRES		Sch of Tech		STEM Total		%F
	F	M	F	M	F	M	F	M	F	M	
Assistant Professor	11	28	10	16	1	5	2	8	24	57	30%
Associate Professor	8	43	7	21	0	5	0	9	15	78	16%
Full Professor	4	46	7	27	1	6	0	0	12	79	13%

http://www.admin.mtu.edu/ia/faculty/Faculty_Department_Rank_Gender_2013.pdf

- Male to female ratio remains unbalanced
- Attrition and plateauing of women faculty

Kaizen Series

Date	Topic
September 24 ✓	#1: Career Path Mapping
October 29 ✓	#2: Pre-tenure career progress, obstacles and possible programs
December 2 ✓	#3: Post-tenure career progress, obstacles and possible programs
February 5	#4: Recruitment, hiring, and retention
March 5	#5: Obtaining & crunching the data
Fall 2015	#6: Creating a shared responsibility system for managing interventions
<i>Jan 2016</i>	<i>Submit proposal</i>
	After grant funding: Kaizens on implementation

Introduction to Basic Lean Concepts

- **Lean-** Critical thinking resulting in continuous improvement
- **Kaizen-** a Japanese term that means “improvement” or “change for the better”
- **Kaizen Event-** A structured, team-based, problem solving activity that engages a team in identifying waste and the root cause of a problem, followed by identifying and implementing countermeasures to stop the problem

Continuous Improvement website: <http://www.mtu.edu/improvement/>



Kaizen 2 and 3 Report Out

Kaizen 2: Pre-tenure Cartographers

(Oct. 29, 2014)

Kaizen 3: Post-tenure Cartographers

(Dec. 2, 2014)

Kaizen 2 Team Members

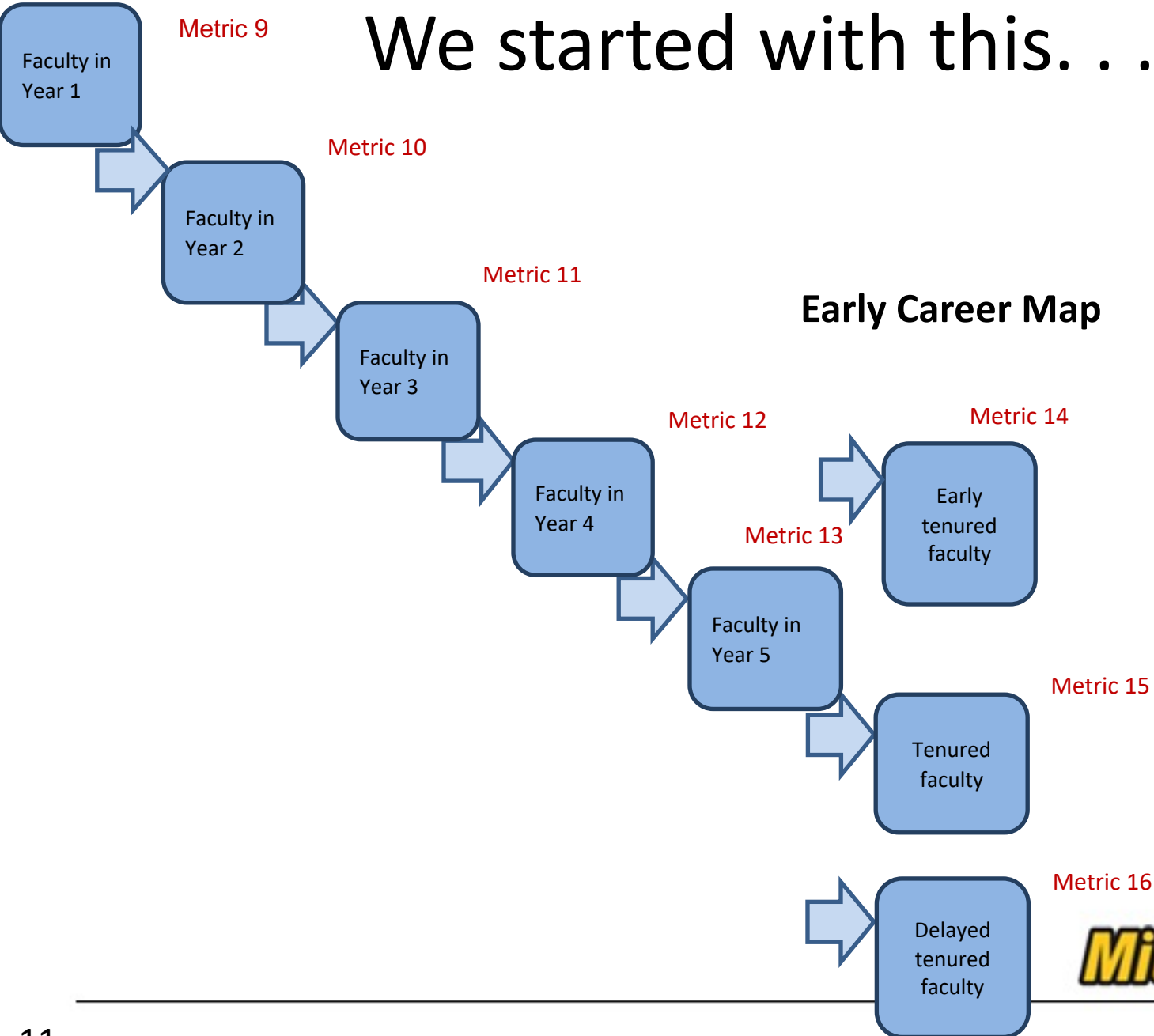
- Date: October 29
- Focus: Career progress, Pre-tenure obstacles and possible programs
- Team Members:
 - Adrienne Minerick, Sonia Goltz, Team Leaders
 - Jill Hodges, Team Member
 - David Reed, Champion
 - Laura Brown, Lucia Gauchia, Customer/Outside Eyes
 - Jason Carter, Terry Sharik, Customer/Outside Eyes
 - Theresa Coleman-Kaiser, Facilitator
 - Ruth Archer, Observer

Problem Statement

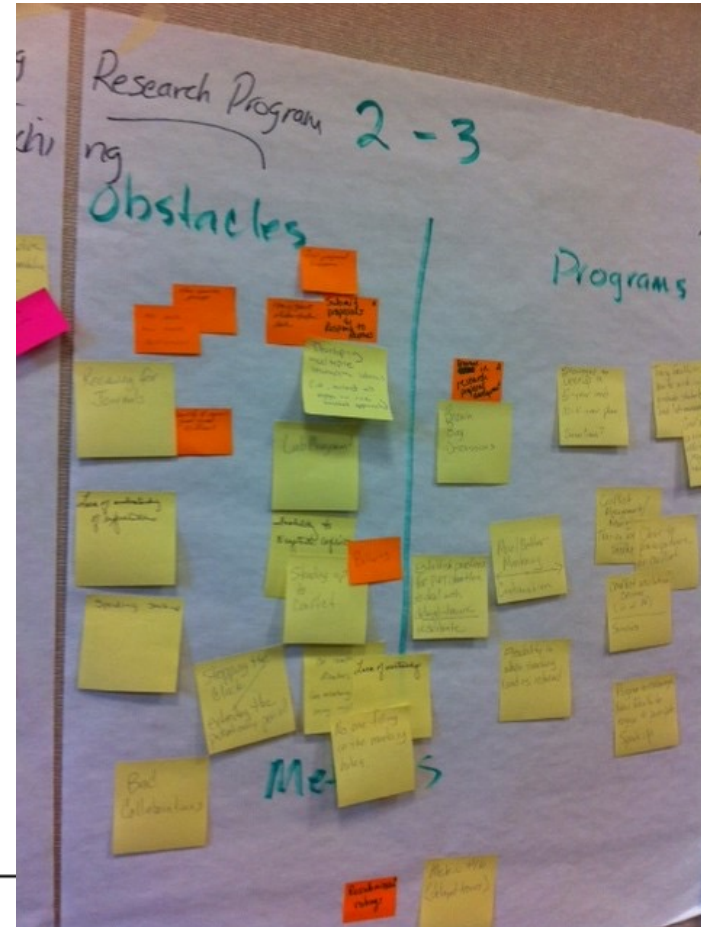
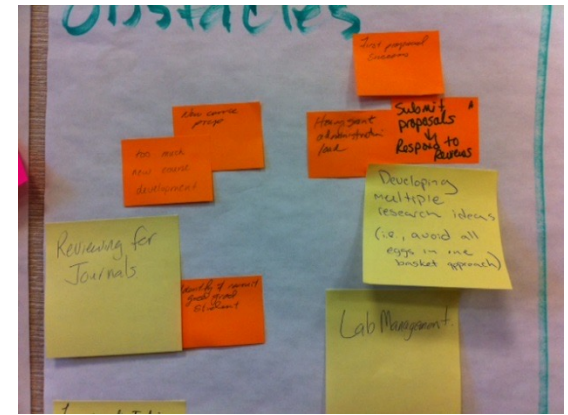
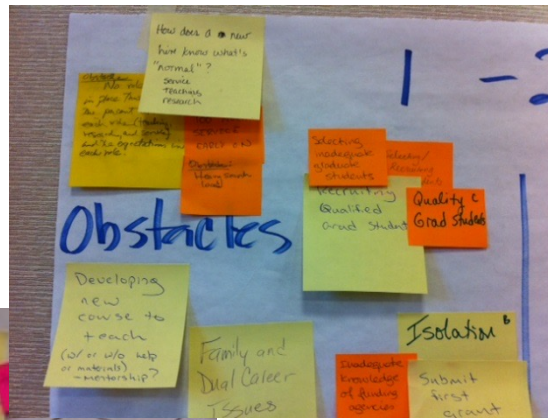
Kaizen 2:

We need an explicitly delineated map of successful progression of **newer faculty** with an emphasis on research intensive expectations and retention of those faculty once successful.

We started with this. . .



And did this



Teaching and Research obstacles years 1-3

Years	Teaching	Research
1-2	<ul style="list-style-type: none"> • Attracting graduate students who take advantage • Establishing credibility in the classroom • Developing new courses • No grad elective course in your area • Lack of sharing of student evaluations with department head/deans (to get help) • Teaching in new institution/country 	<ul style="list-style-type: none"> • A poor start-up package was negotiated • Not using start-up funds early on • Don't know research funding process: that can ask for more than 1 REF grant; that should be meeting with Pete and Jodi; funding agency idiosyncrasies • Dean and P&T not on the same page • Establishing research collaborators • Submission of first grant proposal
2-3	<ul style="list-style-type: none"> • Too much new course development 	<ul style="list-style-type: none"> • Spending start-up appropriately • Recruiting a good graduate student • Submitting grant proposals and responding to reviews • Lack of multiple research ideas/streams (all eggs in one basket) • Lab management issues • Managing bad research collaborations

Teaching and Research obstacles years 3-6

Years	Teaching	Research
3-4	<ul style="list-style-type: none"> • Teaching assignment issues continue (e.g., never taught the same class twice) • Teaching load starts increasing in year 3 	<ul style="list-style-type: none"> • Tricks of publication process; hitting submit (letting go) • Childcare issues at conferences • Grant proposal submission and rejection
4-5		<ul style="list-style-type: none"> • Grant administration issues (grants are getting accepted) • Hard to learn new methodologies when you are the only one in an area
5-6		<ul style="list-style-type: none"> • Research professors unable to move into tenure track positions (research productivity, dual-career issues, etc.)

Additional obstacles

Years	Service	Other
1-2	<ul style="list-style-type: none"> • Heavy service load including faculty searches 	<ul style="list-style-type: none"> • Missing orientation (e.g., international faculty) • A lack of clear expectations (e.g. proportion spent on teaching vs. research) • Isolation • Dual career issues • Child care roadblocks • Finding mentors you can trust • Following bad advice
2-3	<ul style="list-style-type: none"> • Reviewing for journals (how? Too much/too little) 	<ul style="list-style-type: none"> • Getting caught up in conflict or bullying in the department • Lack of mentorship • Stigma associated with stopping the clock or extending the probationary period
3-4		<ul style="list-style-type: none"> • Poor external networks, to obtain awards, external reviewers
4-5	<ul style="list-style-type: none"> • Doing minimal on committees, not leading • Participation in funding panels as a reviewer • Poor focus of service (not meaningful or doesn't build professional credentials) 	<ul style="list-style-type: none"> • Change in leadership that might affect expectations, progress
5-6		<ul style="list-style-type: none"> • Nerves, stress, anxiety • Misinformation , poor communication

Possible programs: Research and Grants

Programs	Brief Description	Obstacles Targeted
Brown Bag discussions for research proposals	Schedule brown bag discussions when faculty are in the proposal phase to obtain feedback (could be interdisciplinary)	
Intervention if a certain percentage of unsuccessful proposals	Track percentage of successful proposals and intervene if low	Grant proposal rejections
Regular Bi-weekly meetings	Regular Lunch and Learns on Research topics (not just papers, but also available grants, research methods, etc.)	Isolation, need for mentoring
Have senior faculty help with grants administration	Ask senior faculty to help with grants administration and provide incentives for this	Too much time spent by junior faculty on grant administration
Continue the new faculty rapid fire campus wide research presentations	Restart the campus wide rapid fire research presentations by new faculty and maybe by all faculty	Isolation, few collaborators
Provide examples of successful proposals	For the career grant and other programs, provide samples of successful proposals	Not familiar with structure of grant funding

Other Possible Program Targets

- Feedback, coaching, mentoring
- Career development
- Work and family
- Faculty training
- Programs for chairs
- Programs for P&T committees

Problem Statement

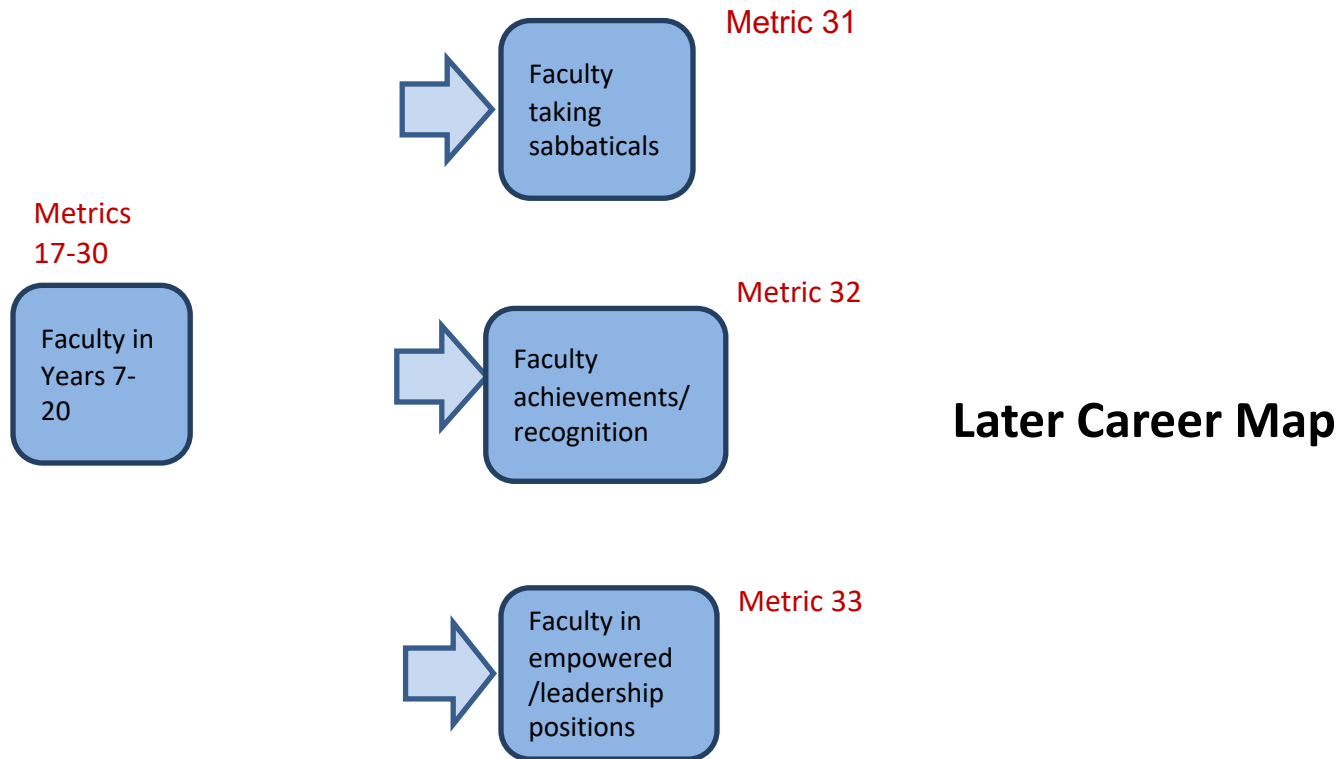
Kaizen 3:

We need an explicitly delineated map of successful **progression beyond tenure** with an emphasis on continued career development and expectations for professional and university contributions.

Kaizen 3 Team Members

- Date: December 2
- Focus: Career progress, Post-tenure obstacles and possible programs
- Team Members:
 - Adrienne Minerick, Patty Sotirin, Team Leaders
 - Jill Hodges, Team Member
 - Wayne Pennington, Champion
 - Shari Stokero, Tess Ahlborn, Customer/Outside Eyes
 - Ron Strickland, Customer/Outside Eyes
 - Theresa Coleman-Kaiser, Facilitator
 - Sally Heidtke, Chris Anderson, Ruth Archer, Observers

We started with This . . .



Later Career Map

And did this

The image shows several pages of handwritten notes on sticky paper, organized into tables with columns for Obstacle, Program, and Metric. The notes discuss various challenges in academia and industry, along with proposed programs and metrics to address them.

Page 1 (Top Left):

Obstacle	Program	Metric
Unclear Expectations and Timeline	Identify Some (50%) Typical routes List conditions, expectations, implications Follow up information Track by College + Dept.	M up + down vs. M up + down vs. over go = 0
No Mentors (No Fall in Dept. or School)	Mentoring / Mentor Training Champions & Sponsors Define responsibilities, titles & communication What, else other than "Fall" is acceptable Recognized alternate paths (Teaching excellence?) (Departmental teaching fills)	
Valuing of Teaching Faculty - "Terminal Associate"	Workshops / Lunches Faculty Lounge Forum & Informal	
Unclear how to develop your path		
Dept. Culture	Identify role model departments	
Personal Factors		
Institutional Lack of Transparency (Vague-ness)		
No P&T Training - Training		

Page 2 (Top Middle):

Obstacle	Program	Metric
Lack of Assessment of different focus areas. (Communication)		
Post-tenure Review	Post-tenure Review Feedback Loops (dept. reviews) Productivity Analysis (Formula + subjective)	
Lack of Transparency in Productivity	Digital Measures Training & Reporting	
No Sponsors / Fear for women & minorities	Request for women & minorities	
Don't know if ready	Request for readiness Clear Feedback	

Page 3 (Top Right):

Obstacle	Program	Metric
Hired in as Associate from industry (nature of interest)		
Few members after tenure (8)	Repeate Value of External References	
People Leave Michigan Tech	Improve existing include mention of "best" person Don't make coming six months mark's later	
Valuing people while there vs. people feeling devalued	Transparency in merit raise process. Explicit Award System Region. Go to face conversation Non-tenure track support program - some internal flexibility - send-back flexibility - internal reporting incentives	more frequent with action

Page 4 (Bottom Left):

Obstacle	Program	Metric
Add'l Funding	Current submittal program - explain - length - when submit vs. set a timeline	# of submittals
Dept Pressures	Figure out why more people aren't taking submittals	
Continuing Research Grad Students	Accountability for executing your plan - Report	
Compensation	Rearrange teaching so submittal is not needed	
Dual Career	Central Funding	
Family Situation	Alternative to current program that provides options...	
Travel expectation	Low cost re: nomination	
Mis-information	make submittal reports public/published to help Faculty	
Setting up industry opportunity		
Don't know to ask		

Page 5 (Bottom Middle):

Obstacle	Program	Metric
Nominations are hard	Release time for nominating people for awards.	# of Follows # of Awards
Take time	Mechanism to Celebrate our Success	Distinguished Lecturers Embraced Chairs
Don't know about other discipline's awards	Lowest-level recognition	
Appropriate Sponsorship (not just department)	Institutional level support for identifying & writing nominations.	
How to self-initiate for a nomination	Know who is looking for distinguished lecturers and nominate	
Few Distinguished Lecturers	Peer to Peer	
Reluctancy to "put yourself out there"	Encouragement from all sorts of directions multiple channels Explicitly state the benefits of being a distinguished lecturer Make more an heard chair	

Page 6 (Bottom Right):

Obstacle	Program	Metric
No funding for peer monitoring	Training & Awards - \$ for lunch - free coffee	
Bottleneck over funding stream drying up	Create a list of student member interests Transfer/borrow interests + applications to other disciplines. Recreate opportunities. Develop new fields.	
Slight uncertainty	Submittal phase with this expands with Faculty Lounge, Communication	

Obstacles for Associate Professors

Kaizen 3

- Expectations/communications
 - **Nebulous and inconsistent communication (similar to pre-tenure)**
 - Disciplinary differences and variability in productivity measures
- Reward structure
 - Few incentives to work for promotion
 - Feeling de-valued
 - Administrative promotions viewed as burdensome
 - Service commitments not rewarded
- Lack of career options
 - No tradition of promotion to full in some areas
 - Few career options other than full
 - Dead-end administrative assignments
 - Fail to plan for loss of funding sources
- Lack of career advocates
 - No sponsors (critical for women)
 - Delayed sabbaticals or failure to apply
 - Lack of nominations for awards and positions
 - Little reward for peer mentoring

Obstacles at the Full Professor Level

- Need to leave MTU to attain leadership positions
- Not enough professional leadership development
- Lack of nominations for awards and positions
- No MTU scholarships for senior faculty research
- Service demands can become burdensome
- Feeling de-valued

Possible Programs: Expanding Leadership

Programs	Brief Description	Obstacles Targeted
Aspirational Training	Prepare people for leadership opportunities. More strategic development of leaders.	Have to leave to find leadership positions.
Create an Advisory Group for Chairs and Deans	Create advisory role or council of senior faculty with organizational knowledge to create pool for administrative positions.	People feel devalued; resolving “next in line” issues
Leadership Institute	Have biweekly workshops and meetings.	Have to leave to find leadership positions
Expand university and departmental leadership positions	Make promotion and appointment practices transparent and best practices visible ; Value leadership in teaching and service.	Have to leave to find leadership positions; for example, the Dean’s Council is currently all male.
Distinguished Teaching Fellow	Create a 3-year appointment that would include leadership roles on campus in areas of pedagogy and teaching innovations	Few institutional options for those who do not want to go up for full

Other Possible Program Targets

- Build faculty community
- Develop mentoring and advocacy programs
- Revise reward structure and transparency
- Collect data on reasons for attrition
- Improve communications about promotion to full
- Create more career track options
- Encourage sabbaticals, accountability
- Create more recognition programs, distinguished positions

Summary and Additional Resources

- Kaizens 2 & 3 helped us understand the obstacles to successful career progression
 - provided possible programming ideas
 - along with metrics for assessing improvements
- More information on the ADVANCE Institutional Transformation grant proposal planning process is available at: www.mtu.edu/ADVANCE
 - Please also provide your comments at the above site



We need your input

- 1) iClicker Questions
- 2) Prioritization Worksheet

Q2: Prioritization of Audience

- What should be the primary emphasis on intervention programs selected to include in the proposal?
 - a) Programs for female/underrepresented minority faculty
 - b) Programs for administrators
 - c) Programs for male advocates
 - d) Programs for everyone

Q3: Prioritization of Audience (part 2)

- What should be the secondary emphasis on intervention programs selected to include in the proposal?
 - a) Programs for female/underrepresented minority faculty
 - b) Programs for administrators
 - c) Programs for male advocates
 - d) Programs for everyone

Q4: Prioritization of Level

- What should be the primary emphasis on faculty level for intervention programs for retention?
 - a) Programs for untenured faculty
 - b) Programs for tenured associate professors
 - c) Programs for tenured full professors
 - d) Programs for aspiring administrators
 - e) **Programs for non-tenure, research, instructors, etc.

Q5: Prioritization of Level (part 2)

- What should be the secondary emphasis on faculty level for intervention programs for retention?
 - a) Programs for untenured faculty
 - b) Programs for tenured associate professors
 - c) Programs for aspiring administrators
 - d) **Programs for non-tenure, research, instructors, etc.

Q6: Prioritization of Subject

- What should be the primary subject emphasis be for intervention programs?
 - a) Research progress
 - b) Teaching
 - c) Service

Q7: Prioritization of Subject (part 2)

- What should be the secondary subject emphasis be for intervention programs?
 - a) Research progress
 - b) Teaching
 - c) Service

Q8: Prioritization of Subject

- What should be the primary subject emphasis be for intervention programs?
 - a) Mentoring/Sponsors
 - b) Visibility/marketing
 - c) Skills development (leadership, etc.)
 - d) Work-Life

Q9: Prioritization of Subject (part 2)

- What should be the secondary subject emphasis be for intervention programs?
 - a) Mentoring/Sponsors
 - b) Visibility/marketing
 - c) Skills development (leadership, etc.)
 - d) Work-Life

Q10: Categorization

- Please categorize your gender identity
 - a) Male
 - b) Female

Q11: Categorization

- Please categorize your job classification
 - a) Tenure/tenure-track faculty
 - b) Instructor/research faculty/professor of practice, etc.
 - c) Administrator
 - d) Staff

Please complete the paper worksheet

- Rate the programs listed as:
 - H = Highly important
 - M = Medium importance
 - L = Less urgent/impactful

To avoid rating compression, please aim for

$\frac{1}{3}$ H, $\frac{1}{3}$ M, and $\frac{1}{3}$ L

- If comfortable, also assess implementation ease
 - E = Easy to implement
 - D = Difficult to implement



Your input and feedback is
always wanted.

Details of Kaizen results will be posted on the
ADVANCE Website.

www.mtu.edu/ADVANCE