

From the Classroom to the Workplace 2: Problem-solving and Decision-making



Dr. Marilyn Barger

Dr. Marilyn Barger is the Executive Director the Florida Advanced Technological Education Center (FLATE), previously funded by the National Science Foundation for 16 years and now is part of the FloridaMakes Network and supported in part by the Florida Department of Education. She holds bachelor's degrees in chemistry and Civil/Environmental Engineering as well as Ph.D. in Civil/Environmental Engineering.



She has a licensed patent for specialize synthetic membranes and is a registered professional engineer in Florida. For over 15 years, Dr. Barger was the principle investigator and executive director of a National Science Foundation (NSF) Center of Excellence for Manufacturing Education in Florida where she developed and delivered innovative and award-winning K20 engineering, technology and CTE curriculum, promoted manufacturing education, provided exemplary professional development, and developed strong partnerships between college programs and industry. She will continue and expand these initiatives in her current role and the Director of FLATE.

Mrs. Linda Simmons

A graduate of the University of South Florida and the ABA Stonier Graduate School of Banking, Linda entered the banking industry and served for fifteen years in positions of increasing responsibility with two prominent commercial banking institutions and gained broad business experience as a banker. Linda joined R.R. Simmons in 1988 and was promoted to President and CEO in 1996 with responsibility for management and leadership of all company operations of R.R. Simmons-related entities.



With a strong belief in giving back to the community through a variety of professional, civic and philanthropic endeavors, Linda currently serves on the Board of Directors of the Community Foundation of Tampa Bay, University of South Florida Foundation (Past Chair), USF Stavros Center and is a member of the USF Iron Bulls, USF Alumni Association (former board member), USF Women in Leadership & Philanthropy (founding member & past Chair), International Women's Forum, the Tampa Bay Chapter of CREW among others. Linda was the first female Chairman of the board of both the Brandon Chamber of Commerce and the Mid-Florida Chapter of the Associated General Contractors, she is a past board member of Grow Financial Credit Union and a past Chair of the Board of United Way Tampa Bay.

Business in the New World of Work



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“Top 10” 21st Century Skills

1. Self-Awareness
2. Adaptability
3. Communication
4. Collaboration
5. Analysis/Solution Mindset
6. Digital Fluency
7. Empathy
8. Entrepreneurial Mindset
9. Resilience
10. Social/Diversity Awareness



- Skills 1-5 are considered foundational skills for youth, based on Brookings Institute research
- Skills 6-10 build upon that skills foundation



New World of Work



What not to do . . .





Situation Appraisal

PURPOSE

Address Complex Issues



Decision Analysis

PURPOSE

Make Data-Driven Decisions



Problem Analysis

PURPOSE

Find Root Cause



Potential Problem Analysis

PURPOSE

Prevent Future Problems



1. See the Issues

2. Clarify the Issues



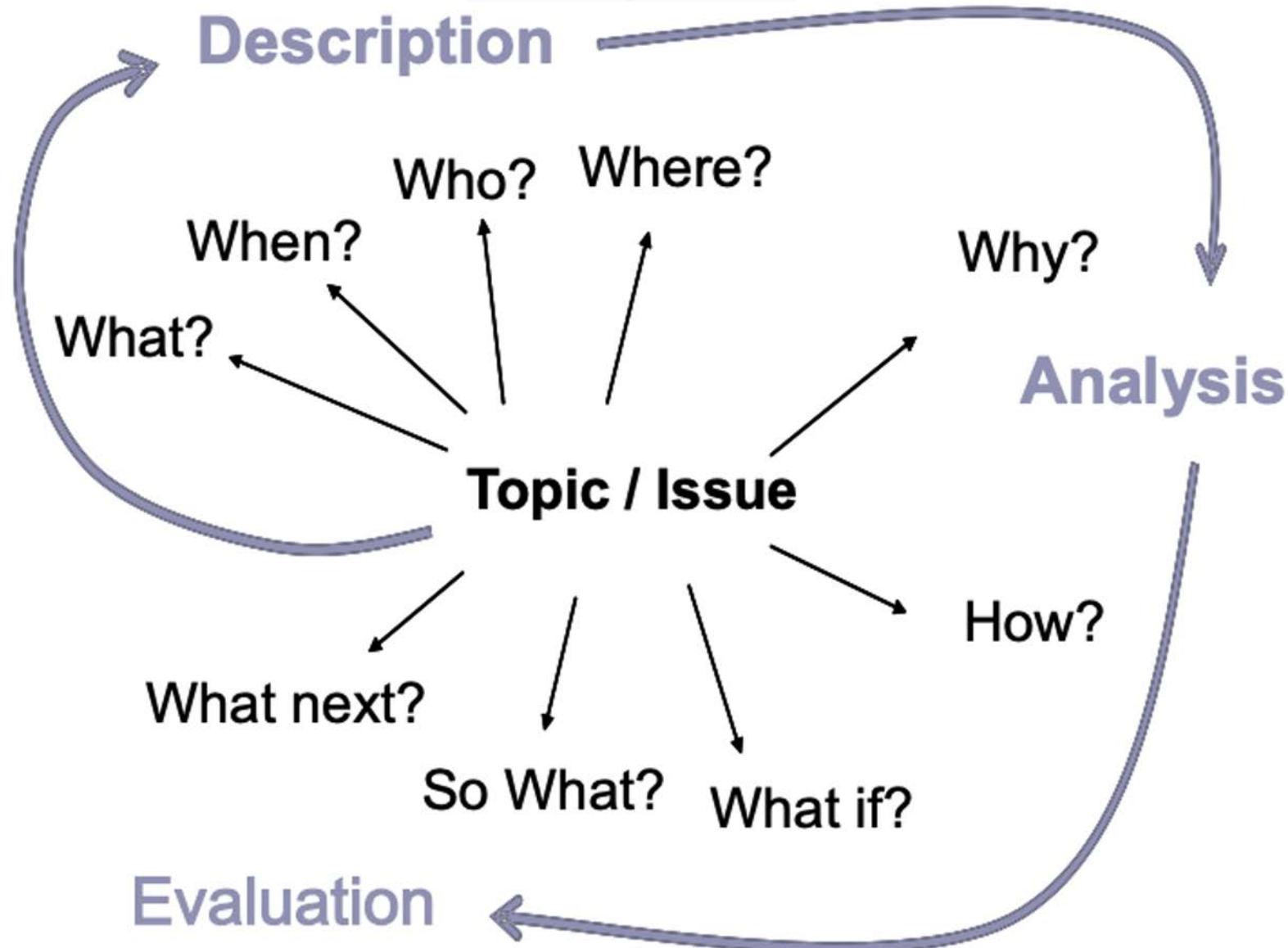
Situation Appraisal

PURPOSE

Address Complex Issues

3. Assess Priorities

4. Name Next Steps



Strategy: PACED

Purpose (Problem): Find alternative to toxic inks

Alternatives: Research some alternative choices

Criteria: Choose criteria to rank alternatives

Evaluation: Which alternative best fits criteria

Decision: I choose _____ because



Decision Analysis

PURPOSE

Make Data-Driven Decisions

	Criteria		
Alternatives			



Problem Analysis

PURPOSE

Find Root Cause



A robotic bird of prey sits on a floating platform equipped with a strobe light, loudspeaker, and a propane cannon, at a Syncrude oil sands site. Such contraptions are aimed at deterring migratory birds from landing in tailings ponds, where they are poisoned in large numbers.

PHOTOGRAPH BY IAN WILLMS

1. State the Problem

We need to be sure that we are focused on the same problem – and it is the right one to be working on – this is not always clear-cut when problems abound.

2. Organize Relevant Information

This step not only helps us separate relevant from irrelevant data – it helps us organize data in a framework so we can make sense of it.

3. Look for Possible Causes

Often there are many possible causes. Some jump right out at us – others require us to think creatively, investigate, talk with experts and use the data we have gathered.

4. Vet Possible Causes

We use data to rigorously test the viability of possible causes. This helps avoid arguing or wasting time and resources on theories that don't explain all the facts.

5. Ensure We've Found True Cause

Before implementing changes that cost time and resources, we make sure we have identified true cause.

Strategy: 5 Whys



5 Whys

5 Whys is a question-based technique used to find the root cause of a problem. This technique helps entrepreneurs apply a critical thinking and problem solving mindset. In the process, you ask the question "Why" five times to dig deeper into the actual cause of a problem and reach a solution. The answer to each Why question helps you frame the next Why.

Alice runs an online laundry service in her town. She offers pickup, cleaning, and delivery of clothes for her online orders. Lately, she has noticed a drop in the number of customers and decides to find out the reason for this decline. On analyzing the customer feedback, Alice realizes that the drop in customers is mainly due to the late delivery of clothes.

Help Alice use the 5 Whys technique to reach the root cause of the problem and find an appropriate solution.



Strategy: 5 Whys



1. Predict What Could Go Wrong
2. List Likely Causes



Potential Problem Analysis

PURPOSE

Prevent Future Problems

3. Agree on Preventive Actions
4. Note Contingent Actions

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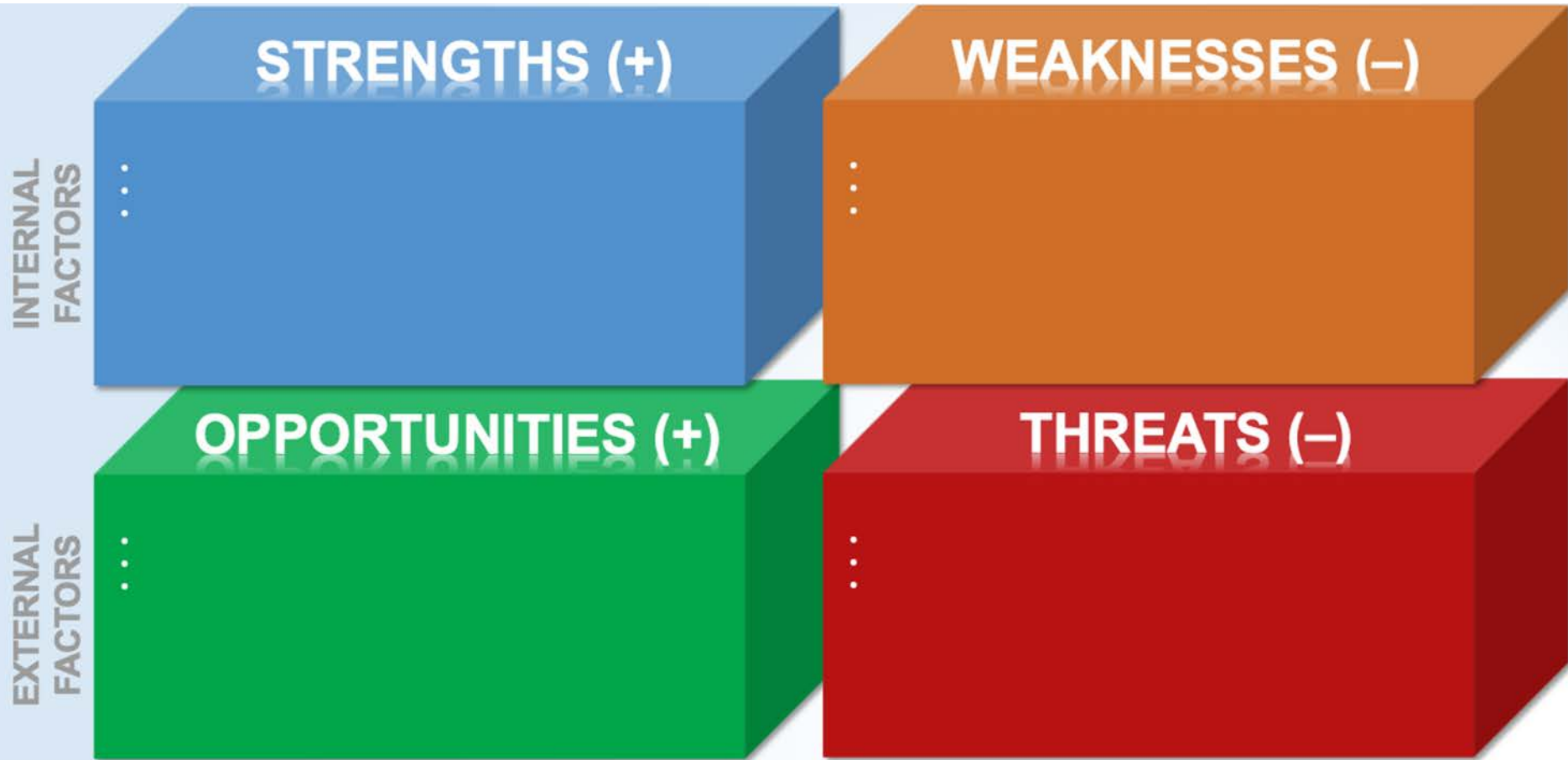
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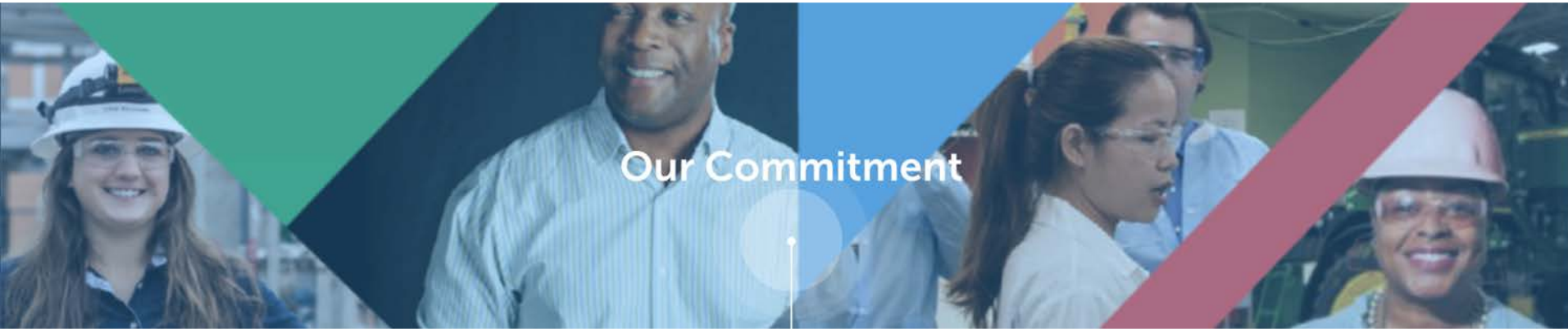
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- 28,154,844 Gallons of Water
- 402,212 Cubic Yards of Landfill
- 19,306,179 Kilowatt's of Energy

Strategy: SWOT



Business Roundtable



- sign in 2019 by major US corporation CEOs
- modernize the of *Purpose of a Corporation*
- move from *Shareholder* to *Stakeholder Capitalism*

Decision-making and Problem-solving

1. Linda: Describe your company
2. How do you use decision-making strategies?
3. What challenges do you face?
4. How does your company solve problems?
5. What skills are you looking for in employees?