IOWA
Department of
Natural Resources

Environmental Management Systems

Monitoring and Measurement

October 18, 2022

SOLID WASTE Environmental Management System
Committed to Continuous Improvement

Gresham Smith

Iowa Solid Waste EMS Framework

- Actively Pursuing Six Program Components

- By Implementing a Framework of 10 Elements

Reducing Environmental Impacts is the Main Focus of the EMS

Achieved Through Objectives and Targets and Action Plans

Process for Adopting Objectives and Targets/Action Plan/Resources

- ☑ Develop List of Aspects and Impacts
- ☑ Identify Significant Aspects/Impacts
- ☑ Review Existing Organizational Strategies Related to the Environment
- ☑ Set Objectives and Targets for Significant Aspects
- ☑ Develop Action Plans to Achieve Objectives and Targets and Identify Metrics

- ◉ Track and Verify Progress
- ◉ Continually Review and Report Progress

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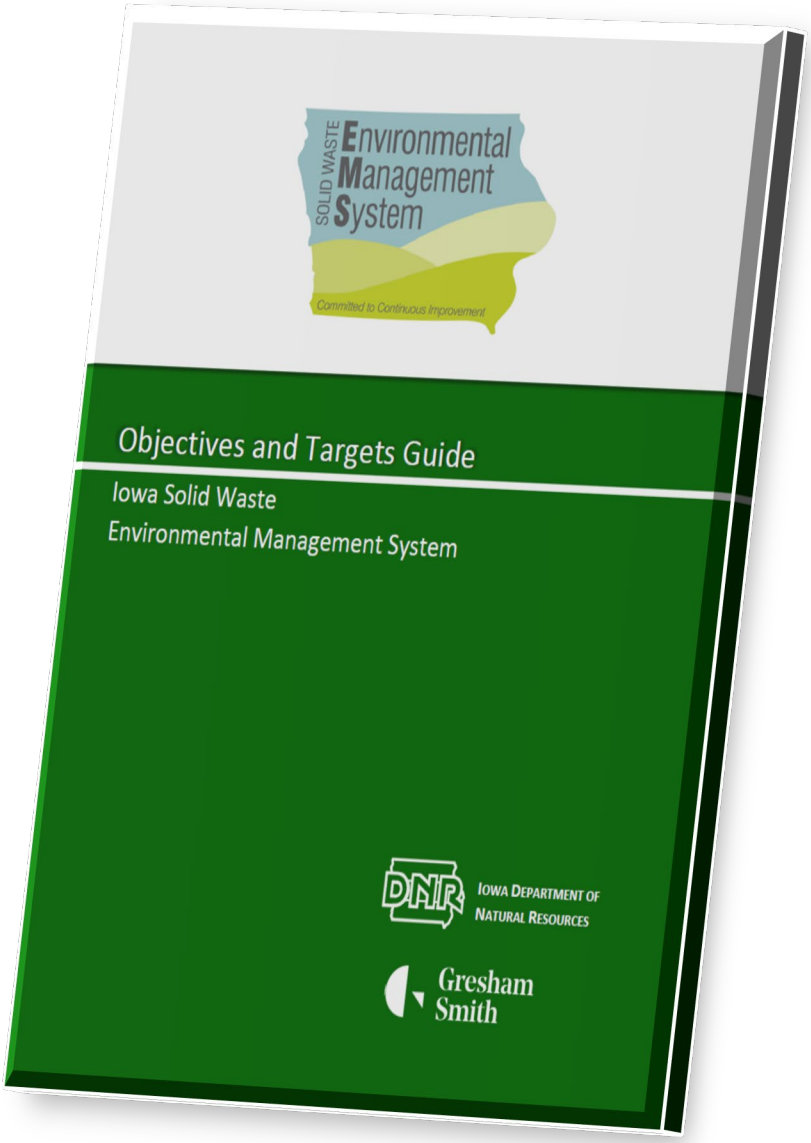
Objectives and Targets Guide



On the DNR EMS Participants webpage under “Objectives and Targets”

DNR

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Objective - An overall result of intended environmental change

Target - A justified performance requirement to meet the objective

Metric - A unit of measure that can be tracked to adequately demonstrate the intended objective

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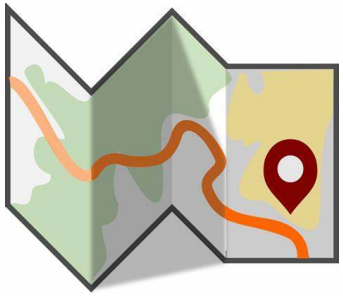
Action Plans - An overall approach with specific sequential tasks to reach objective/target



Detail of work to complete (e.g., quantities, sizes, defining characteristics, requirements)

Assigned personnel for all roles needed (e.g., task leader, management, accounting, reviewers)

	Task Description	Time Period	Responsibility	Key Resources
1	*Rank initiatives from energy audit to identify priority initiatives*	*1/1/20 – 6/1/20*	*Mark Smith (rank initiatives); Sandra Benoit (review ranking)*	*Energy audit results*
	Notes			

Timeframe for task considering overall schedule, timing of other tasks, review, approvals, etc.

Additional details

Resources needed for task (e.g., costs, equipment, tools, technology, training, etc.)

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How Do You Track Progress?

Monitoring and Measurement

Monitoring and Measurement

- Process established to:
  - Collect data on each objective and target
  - Analyze data to determine progress
- Helps demonstrate success of the EMS
- Helps identify struggles/challenges
- Must be tracked and documented

“You can't manage what you can't measure.” -Peter Drucker

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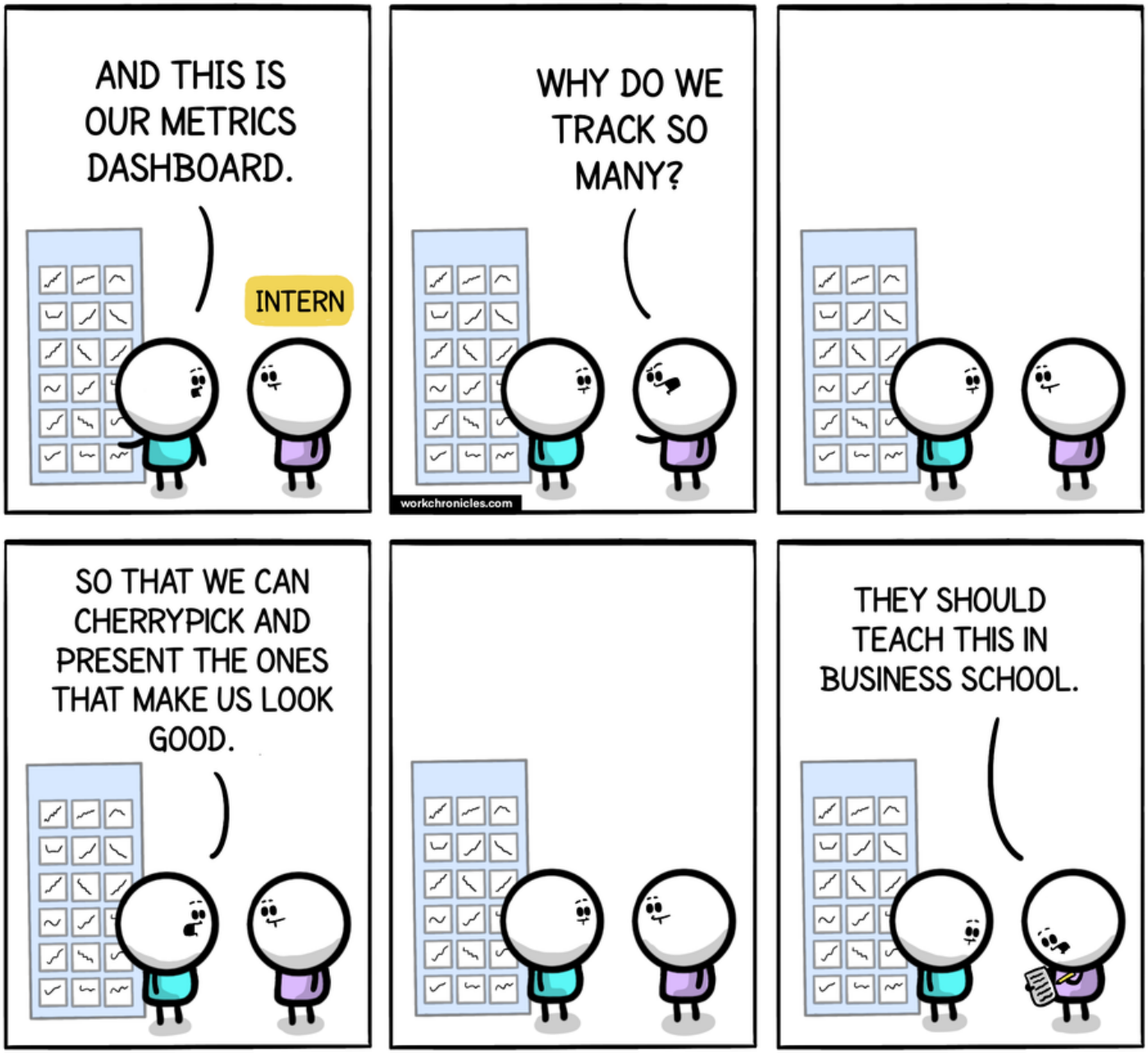
AND THIS IS OUR METRICS DASHBOARD.
INTERN
WHY DO WE TRACK SO MANY?
workchronicles.com
SO THAT WE CAN CHERRYPICK AND PRESENT THE ONES THAT MAKE US LOOK GOOD.
THEY SHOULD TEACH THIS IN BUSINESS SCHOOL.
workchronicles.com

Monitoring and Measurement

- Identify a process for collecting meaningful data on each target/metric

- Considerations:
  - How can data be collected?
  - How often will data be collected?
  - How can data accuracy be ensured?
  - How can data be stored?
  - What can proper maintenance of measuring tools (e.g., scales, gauges, etc.) be ensured?
  - How and when will data be analyzed and reported?

***Set monitoring tasks in the Action Plan**

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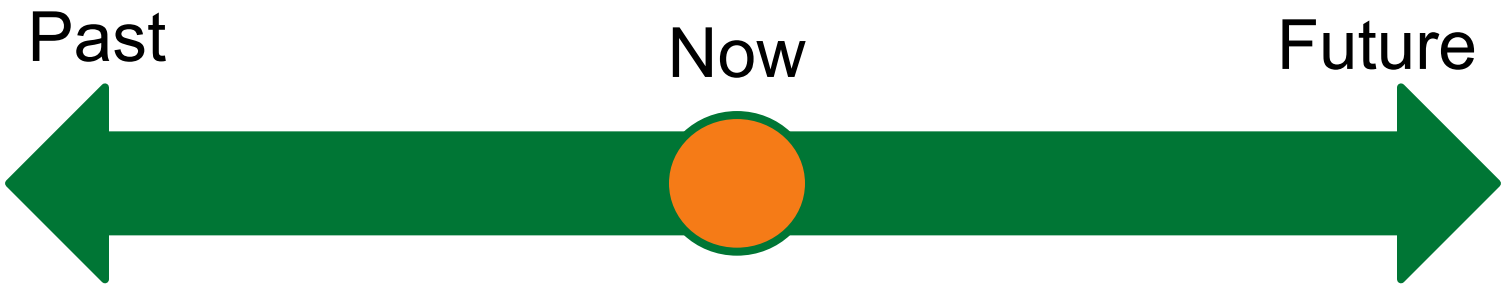
Monitoring and Measurement

- "Forecasting" vs. "Rearview Mirror" Management



- Conduct Periodic Reviews/Updates
  - Schedule
  - Roles/Responsibilities
  - Finances/Budget
  - Staff Availability
  - Equipment Needs

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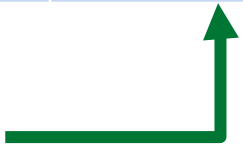
Monitoring and Measurement

Objective	Target	Metric
Increase awareness of how to recycle correctly	Increase the # of resident interactions by 10% in each successive month of the campaign until 12/31/2022	Number of social media interactions

Routinely gather data on your target/metric



January	February	March	April	May
114	127	134	150	171

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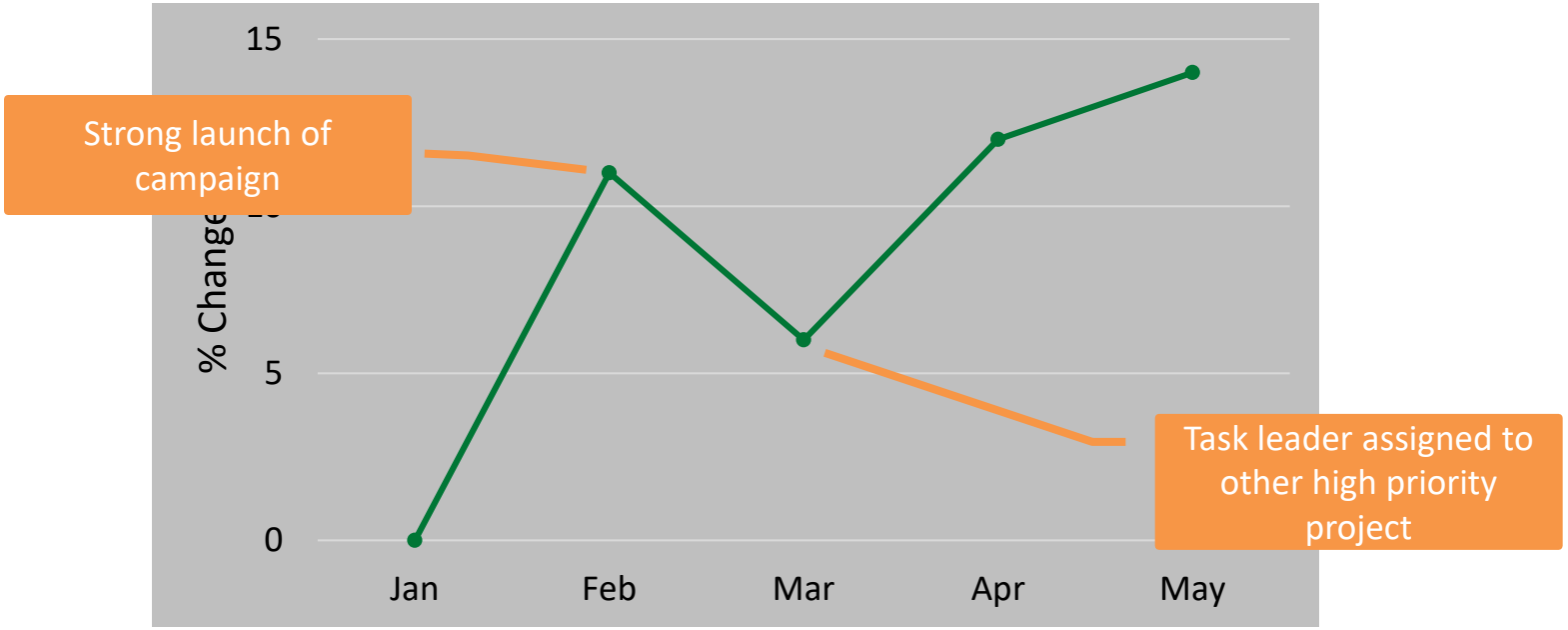
- Compile the data. Use graphs to see relationship



- Analyze the data for trends and anomalies and document any known contributing factors

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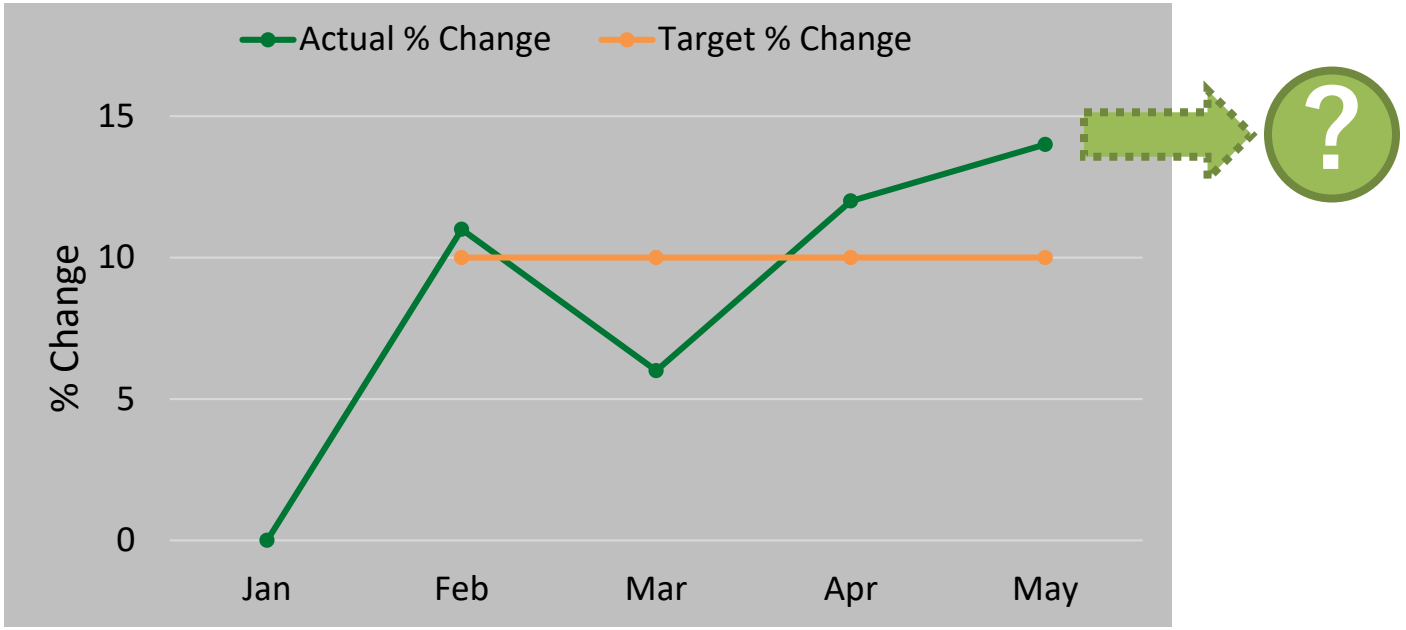
- Compare data to your target



Example in O/T Template

Action	Subject	Qty to	Metric
Decrease	electrical usage at the scale house	25,000	kWh/year
Time Period	**Time Period Type** (Select)	**Component Area** (Select)	
7/1/22 to 6/30/23	Annual	Greenhouse Gas Reduction	

Results/Baseline (Update periodically, including each fiscal year by June 30th. Add rows for additional results as needed.)

Criteria		Applicable Time Period	Qty for Period	Qty for Target To Date	% from Baseline (Calculated	Narrative Description	Date of Update
Baseline		FY 2022	27,363 kWh			baseline from electricity bills at scalehouse/office July 2021 to June 2022	9/15/2022
1	**Results Update**	Q4 2022	6,772	6,772	--	Heat pump installed Dec 1, 2022	1/15/2023
2	**Results Update**	Q1 2023	6,293	13,066	--		4/15/2023
3	**Results Update**	Q2 2023	6,430	19,496	--		7/15/2023
4	**Results Update**	Q3 2023	6,704	26,200	--		10/15/2023
Closure/Final		10/1/2022 to 9/30/2023		26,200	-4%	Heat pump installed in late Q4, so didn't achieve annual reductions anticipated within the target timeframe	10/20/2023

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- Considerations
  - Is task on schedule?
  - Have milestones been hit?
  - Will staff be available to complete tasks?
  - Do changes to staffing or roles/responsibilities need to be made?
  - Are there unanticipated equipment needs?
  - Are there any foreseeable setbacks?
  - Does the Action Plan need to be updated to reflect changes in the plan?

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Monitoring and Measurement

- Core Team Review Action Plans on Periodic Basis
- Report Progress to Senior Management
- Consider Effectiveness, Need for Change
- Update Objectives and Targets and Action Plans as needed

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Reevaluation and Modification

Performance is evaluated to identify necessary changes

- Based on evaluation of target/metric data
- Identify results periodically, including each fiscal year by June 30th
- Compare progress to target and baseline
- Evaluate conditions that may affect progress
- Act accordingly

***Report progress to and get feedback from Senior Management**

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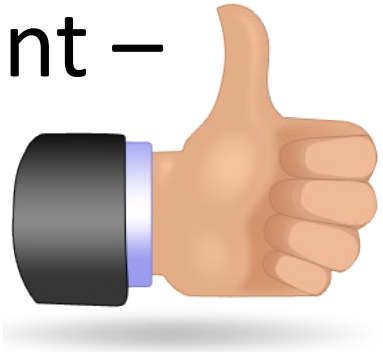
Monitoring and Measurement – Best Practices



- Keep your eye on the big picture
- Identify reconciliation points in Action Plan
- Build in contingencies (schedule and budget)
- Be realistic, not overly optimistic
- Ask hard questions
- Review and revise as needed

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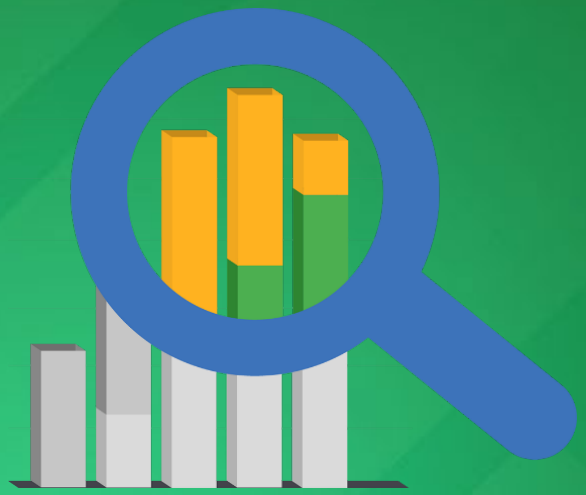
Monitoring and measuring progress is an integral part of determining and demonstrating success of the EMS



Questions?

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