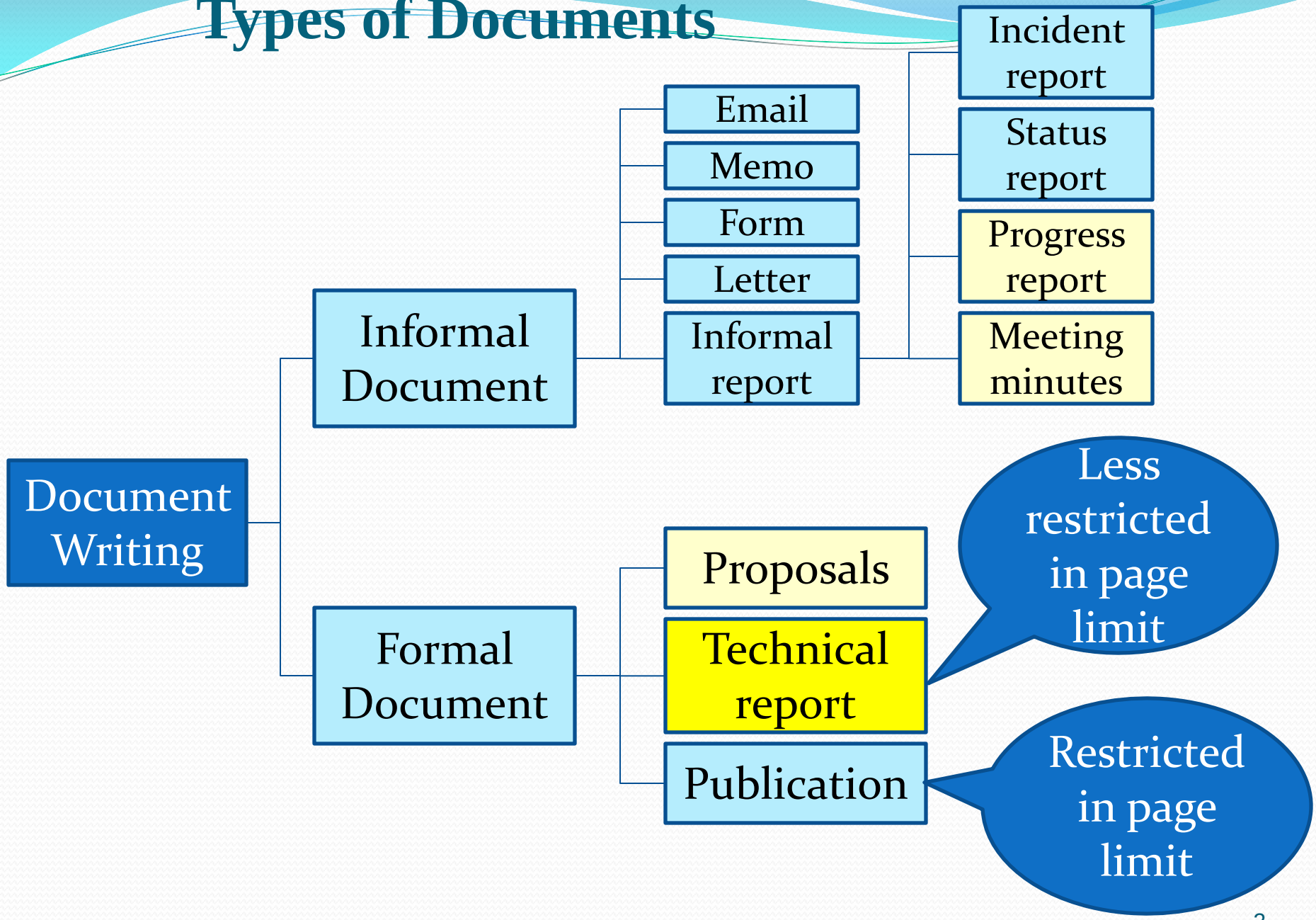
Final Report Writing and Evaluation

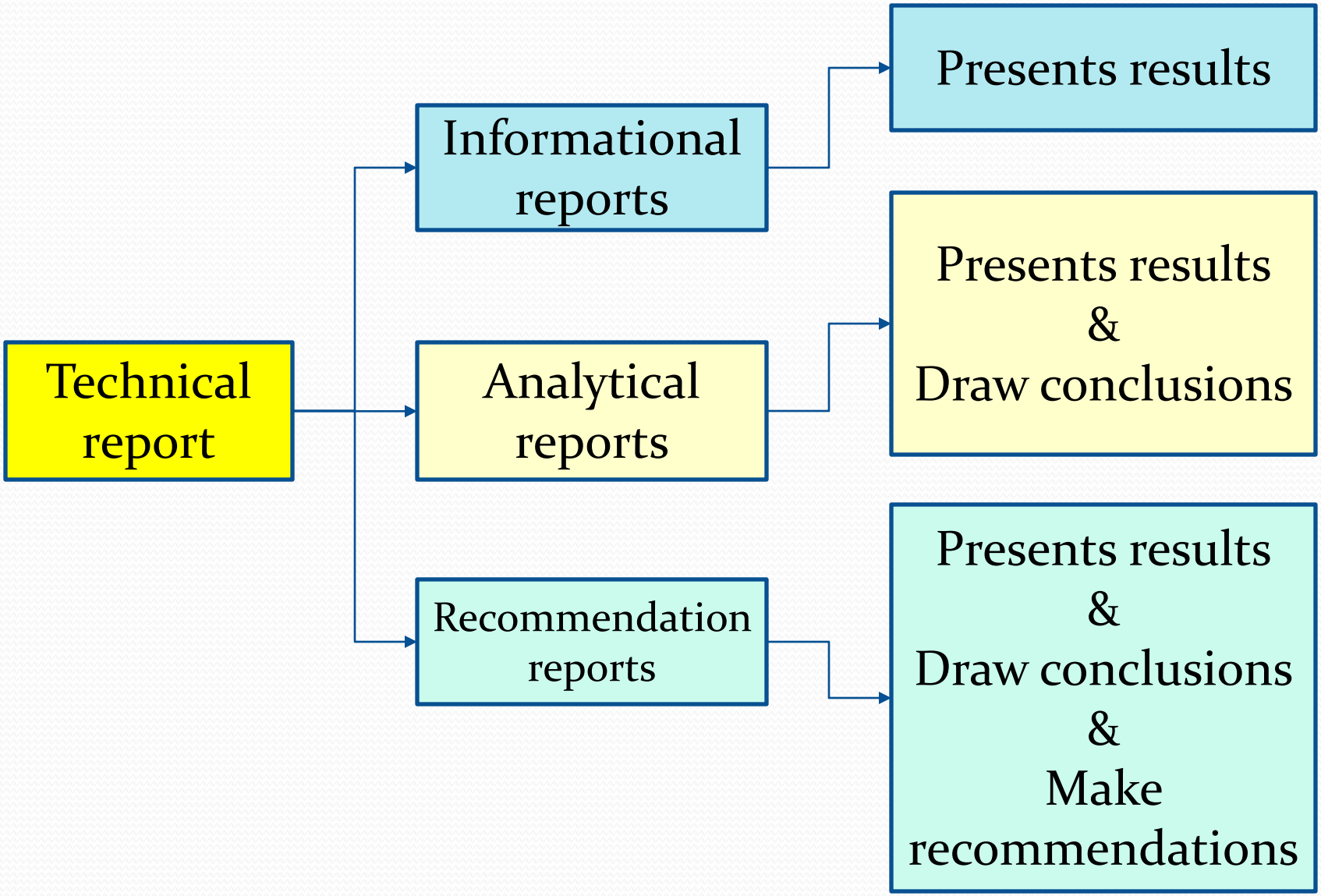
CSE 593

Dr. Yinong Chen

Types of Documents



Types of Technical Reports



Informational Report

An informational report presents **facts or results** discovered to help readers understand the current situation. It often addresses the following issues

- What are the goals and objectives of the project?
- What are the functions developed or to be developed?
- What are the most popular ways of implementing the functions?
- How are the functions in this project implemented?
- What is the status of the project if further development is needed?
- What are the plan and the vision of the end system?
- What are the impact of the system?

Analytical Report

Like an informational report, an analytical report provides facts or results. Furthermore, the report **analyzes and interprets** the results, and draw conclusions based on the theoretical analyses. It often addresses the following issues

- What are the alternative solutions and their advantages and drawbacks?
- What are the best ways of implementing the functions in terms of performance?
- What are the best ways of implementing the functions in terms of dependability?
- What are the most cost-effective ways?
- What are the ethical impacts of the system?

Recommendation Report

A recommendation report will **validate the analytical results before making a recommendation**. It often addresses the following issues

- Present the experimental and testing results.
- Do the results support the analytical results?
- If they do, validate if all constraints and conditions in both environments are identical.
- If they do not, identify the where the problems are and how can the problems be addressed.
- Feasibility study of implementing the system in an engineering environment
- Business and financial consideration

Problem-Solving Model for Writing Report

- Understand your audience
- Analyze your purpose
- Identify problems to be addressed
- Design alternative solutions
- Carry out appropriate tasks
- Collecting data and results
- Interpret results and draw conclusion
- Formulate recommendations

Introduction

- What is the subject of the report?
- What is the purpose of the report?
- What is the background of the report?
- What is the scope of the report?
- What are the most significant findings?
- What are your recommendations (summary)?
- What is the organization of the report? Use one or two sentences to describe each main section of the report.

Related Work

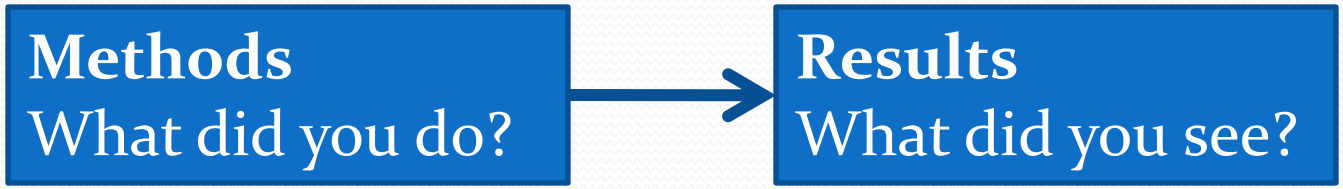
- What are the significant work that has been done in the domain and why do you still need to do the work?
- Discuss each piece of the work and compare and contrast with your work.
- What are the strength of your work which makes it competitive?
- You need a balanced partition between the introduction and the related work sections.
- You need to have a fair summary of other people's work.

Methods: Design and Implementation

- This section answers this question “What did you do to solve the problem?”
- You need to consider the readers’ knowledge of the field, the interests, and reasons of reading the report;
- You need to provide sufficient information for the readers to understand what you did and why you did it that way;
- If you want others to repeat your methods, you should include sufficient detail.

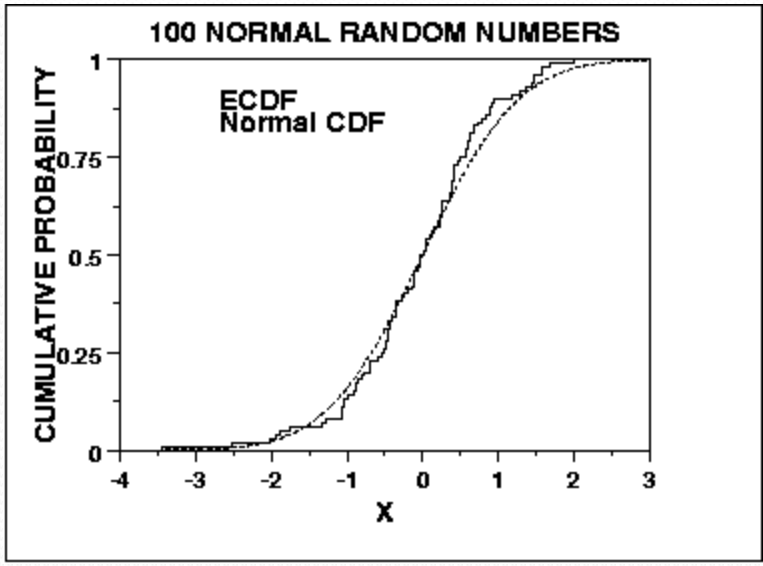
Results Part in the "Evaluation Section"

- This section answers this question "What did you see?"
- Results are the data that you discovered or compiled.
- Present the data objectively, without comments.
- Clearly separate your interpretation of results and conclusion derived from the results.
- You need to choose right method to present the data, e.g., using charts, tables, etc.



Interpretation Part in the "Evaluation Section"

- This section answers this question "What does it mean?"
- Do the data unveil certain trends or laws?
- Can the trends be extended to the scope beyond the data range experimented?
- Chi-Square Goodness-of-Fit Test

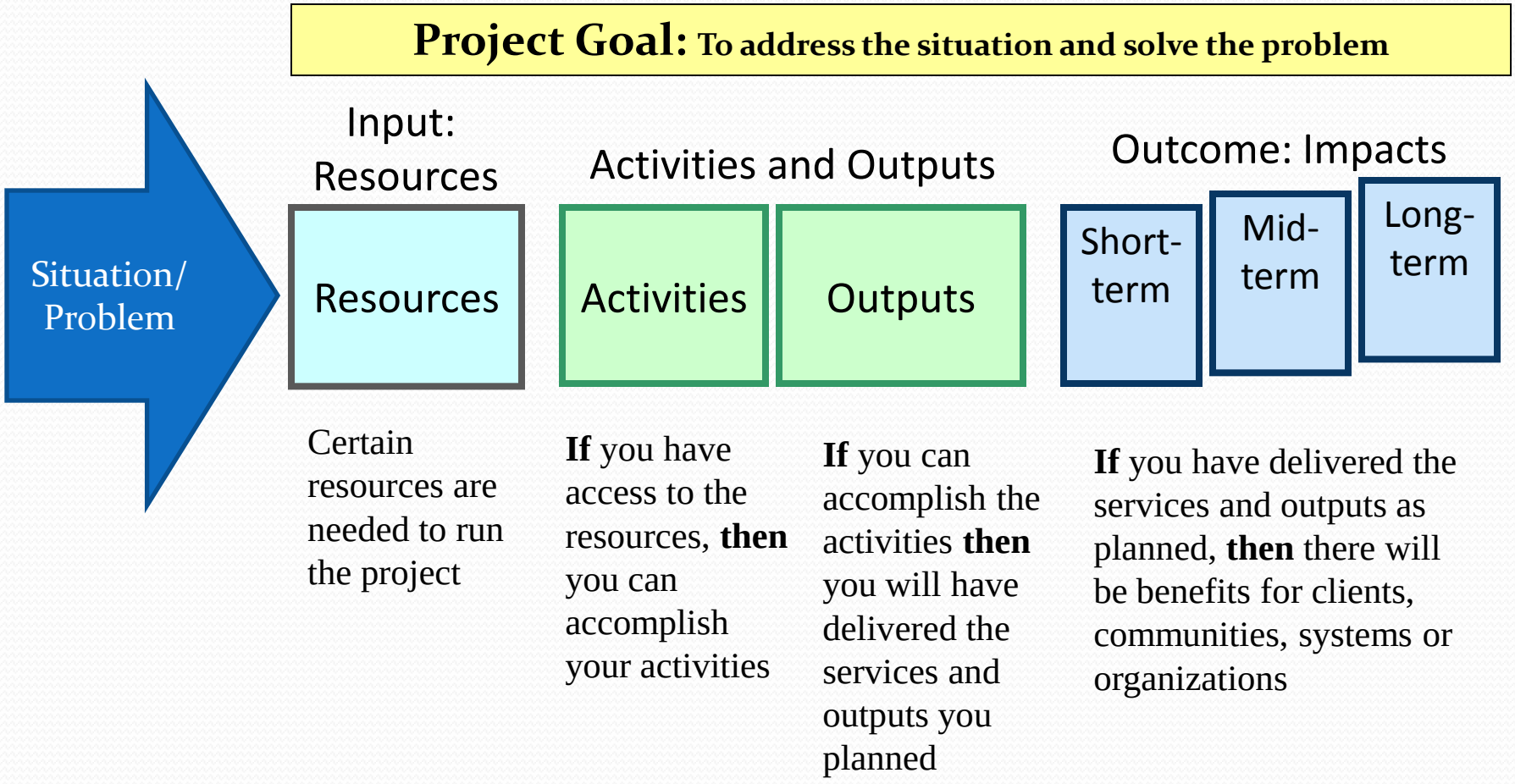


Methods What did you do? → **Results** What did you see? → **Interpretation** What does it mean?

Project Evaluation in Logic Model

- The **logic model** is a conceptual model;
- It is a tool used for describing the performance and effectiveness of projects, in terms of **resource** and **outcome** ratio;
- The model describes logical linkages among project **resources**, **activities**, **outputs**, and **outcomes** related to a specific problem or situation;
- Once a program has been described in terms of the logic model, critical measures of performance can be identified.

Block Diagram of the Logic Model



Example: Logic Model of Thanksgiving Dinner

Situation: Family members have been busy with their commitments

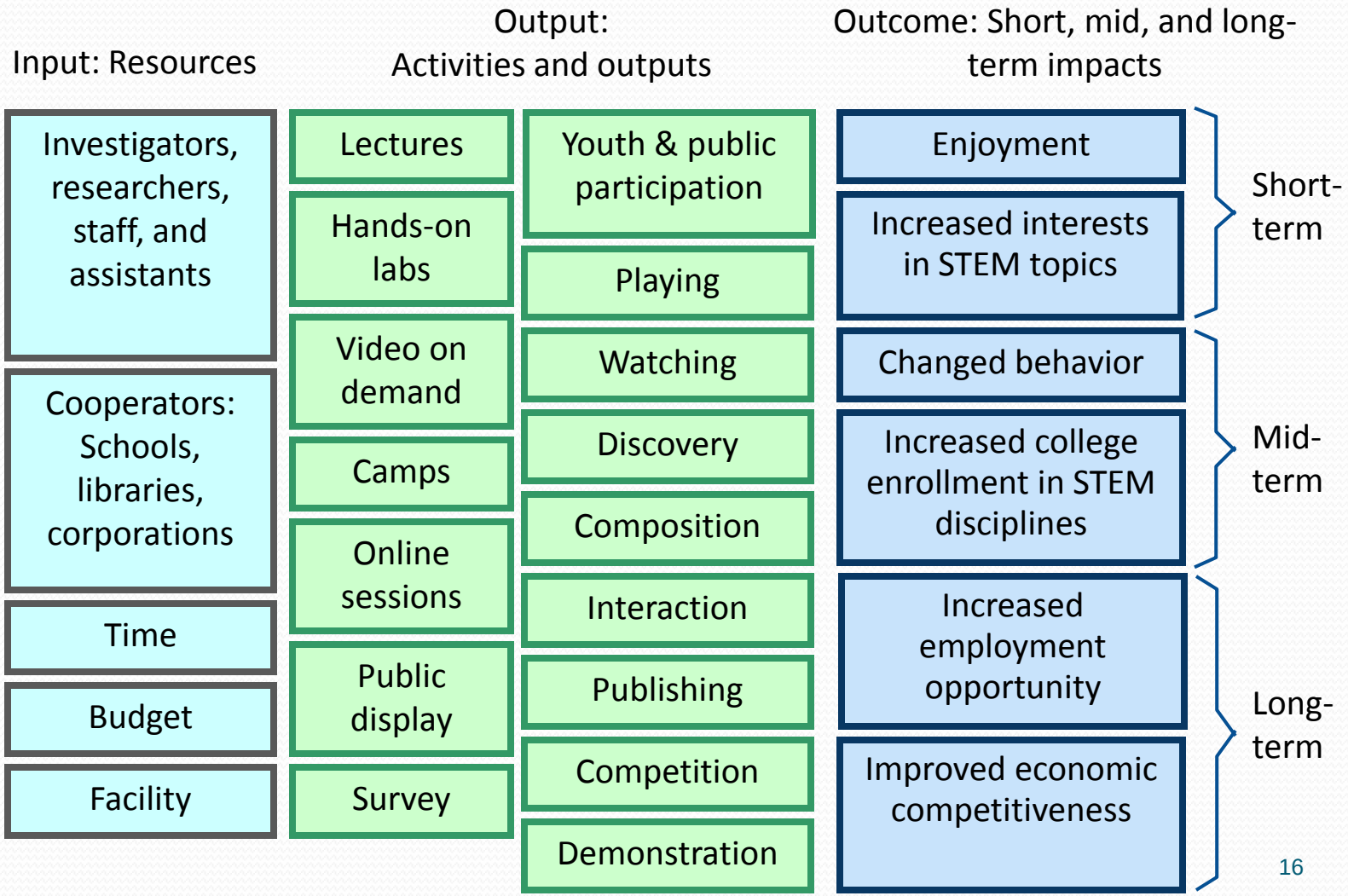
Project Goal: Celebration of Family Reunion

Input: Resources	Output: Activities & Outputs		Outcome: Impacts
Host	Shopping	Guests	Enjoyment
Time	Cooking baking	Talking playing	Harmonious Family
Budget	Setting up table	Eating drinking	Harmonious Society
Facility			

Logic Model for Informal Education

Project Goal: A platform for increasing STEM interests in an informal environment

Situation: Fewer students are interested in Science, Technology, Engineering, and Mathematics -- STEM



Evaluation of Project Effectiveness

Input: Resources

- PIs, researchers, staff, and assistants
- Cooperators: Schools, libraries, corporations
- Time
- Budget
- Facility

What amount of money and time were invested?

Activities and Outputs

- Lectures
- Hands-on labs
- Video on demand
- Camps
- Online sessions
- Public display
- Survey

Were all sessions delivered? In what periods? How effectively?

- Youth & public
- Attending
- Playing
- Watching
- Discovery
- Composition
- Interaction
- Publishing
- Competition
- Demonstration

How many youths have participated? Did they attend all sessions? Did they meet expectation?

Outcome: Impacts

- Enjoyment
- Improved knowledge in STEM topics
- Changed behavior
- Increased college enrollment in STEM disciplines
- Increased employment opportunity
- Improved economic competitiveness

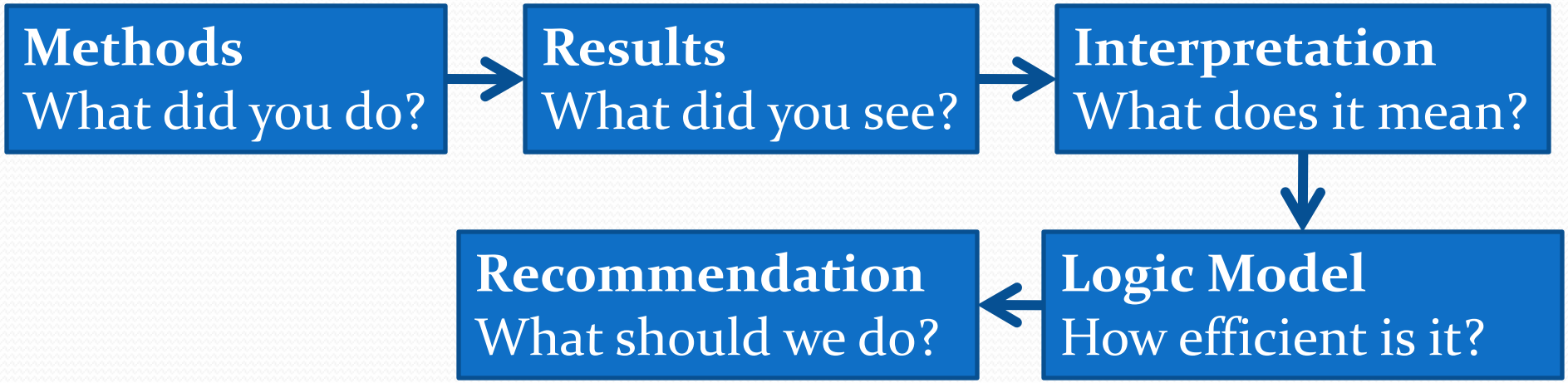
To what extent did knowledge and skills increase? For whom? Why? What else happened?

To what extent did behaviors Change and enrollment increased? For whom? Why?

To what extent are relations improved? Does this result in increased opportunity and competitiveness?

Recommendation Part in the "Evaluation Section"

- This part answers this question "What should we do?"
- A recommendation need to be made based on the results, interpretation, and OTHER factors.
- Validation of results and interpretation.
- Feasibility in terms of business and financial consideration.



CSE 593 Final Report

- Abstract
- Introduction
- Related work
- Design and Implementation
- Qualitative and Quantitative Evaluation
  - Logic model
  - Performance/Cost/Dependability
  - Ethics
- Conclusion and Recommendation