

CBL4UAV Photogrammetry

Phase 2

Investigate

2022

The investigative phase focuses on the research activities you need to carry out to guide you from the challenge proposal to the solution.

- Phase input: Challenge proposal / essential question
- Phase output: Investigate the document/foundation for the solution

Step 4: Guiding Questions

The Investigation phase begins with writing guiding questions related to the challenge. Guiding questions should be written by the students, and they will keep them from getting lost when looking for information. As an exercise, you can practice writing questions. For example, make a list of questions, one for factual answers and one for informative answers. Factual questions start with who/whom, what, when, and where. Interpretative questions can be hypothetical, predictions, solutions, comparisons or analogies, or judgments.

Conditions

- Read the provided information about how to write good guiding questions.
- The questions should be non-judgemental.
- The questions should endorse answers that require high-level intellectual work, such as the development of a model or judgment.

Suggestions

- The more questions, the better the process will proceed.

Tip

To avoid moving too quickly towards a conclusion based on factual questions, it is advisable to also formulate an interpretative question for each part.

The questions include everything that needs to be learned to develop an informed Solution to the Challenge. The goal is to keep yourself from jumping to solutions until after you have done the necessary research.

Assignment 2 Part 1: Guiding Questions

Develop guiding questions about the selected group's essential questions. Make two lists of questions.

- one for “factual” questions
- one for “interpretative” questions
- The answers to factual questions will give you the basic background information you need to understand your topic.
- The answers to interpretive questions show your creative thinking in your trajectory

Outcome

- a) Your information and reflection
- b) List ALL of the questions that need to be answered to identify the best solution to the challenge. Hint: There are no bad questions at this point. Don't stop to discuss, judge, or answer any question.
- c) At least 5 Guiding Questions
- d) A list of possible resources (people, books, etc.)
- e) Reflect on whether changes made to your challenge proposal or certain perspectives are considered

Format

Max 2 A4.

Note: Always note that you can modify your challenge proposals and previous documents based on your findings during your research trajectory.

Step 5: Guiding resources & activities

Begin to identify **Guiding Activities and Resources** that can be used to answer the Guiding Questions.

Guiding activities can include simulations, experiments, projects, problem sets, research, expert interviews, surveys, lectures, and textbook assignments.

Any resource or activity that helps uncover the knowledge needed to answer the Guiding Questions and to develop an innovative, insightful, and realistic Solution is valuable.

Existing Guiding Questions may need to be modified or new ones added to address all of the standards. For some standards or specific goals, there may not be a match with the Challenge. In these cases, create an "other" category and identify additional activities to meet the standards. To avoid the tendency to rush through the Investigate phase and jump to pre-conceived Solutions, create a schedule, set firm expectations about research, and identify a concrete set of deliverables. Data and information should be documented and shared among the group.

Once you are done with your Guiding questions/resources/activities, try to review the questions once more. Combine similar questions, solve redundancy, identify categories based on your measures or aspects, and prioritize your questions.

Assignment 2 part 2: Guiding Questions

Outcome

- f) Your information and reflection
- g) Revise and restudy your guiding questions, combine those possible, and remove redundant and report finalize questions.

- h) Map possible activities and possible recourses for each one
- i) Try to categorize and prioritize your questions

Format

Max 2 A4.

Step 6: Analysis

List activities and resources that will be used to answer the guiding questions. Once you have identified an activity or a resource, conduct the research and record your findings. Always consider the alignment to the Los and the challenge proposal and chosen aspects should be monitored.

Assignment 2 Part 3: Guiding Questions

Outcome

- j) Your information and reflection
- k) Conduct the research activity based on your plan
- l) Try to align your questions with your considered perspectives and objectives
- m) Record your findings

Format

Max 2 A4.

Step 6: Synthesis

Defining the guiding question and data gathering through guiding activities based on resources will result in accommodated information while you need to analyze it and extract knowledge that can address your challenge. This phase will result in a clear conclusion that establishes the foundation for the solution in the next phase which is "Act". In this step, Review all of your findings, synthesize them, and create the foundation for the solution.

Assignment 2 part 4: Guiding Questions

Outcome

- n) Your information and reflection
- o) Analyze, digest, and synthesize your findings
- p) Create a foundation for your solution

q) Prepare a time plan for your Act Phase

Format

Max 2 A4.

Some suggested forms are prepared for your reference. Of course, you are allowed and appreciated to modify them and prepare your styles.

Phase 2: Guiding Questions			
No.	Essential Questions/ considered aspects	Guiding Question	Notes
1			
2			
3			
4			
5			

Phase 2: Guiding Recourses / Activities

No.	Priority	Category	Guiding Question	Guiding Resources	Guiding Activities
1					
2					
3					
4					
5					

Phase 2: Analysis

No.	Questions	Categories	Alignment	Findings
1				
2				
3				
4				
5				

Phase 2: Synthesis

No.	Questions	Categories	Alignment	Findings
1				
2				
3				

4				
5				

Assessment

Phase 1: Engagement rubric

No.	Criteria	keys	Description	Score	Grade
1	Guiding Questions	Meet the Criteria	Clear and to the point, unambiguous words Assumptions made explicit, not hidden No forced choices or closed questions The question can be answered	2	
		Cover the Essential question			
2	Guiding Activities	Completeness and correctness	The chosen activities are needed to obtain the knowledge, skills & information to be able to answer the guiding questions (Survey, experiments, literature research, expert interviews, concept mapping)	2	
		Perspective is considered			
		feasible			
3	Guiding Resources	Completeness and correctness	The resources chosen are required to be able to answer the guiding questions (methods, tools, literature, experts, course)	2	
		Perspective is considered			
		feasible			
4	Analysis	comprehensive		2	
		In the direction of the problem			
		Converge to the conclusion			
5	Synthesis	Clear and doable		2	
		The time plan is clear and feasible			