# How To Use the BOAT

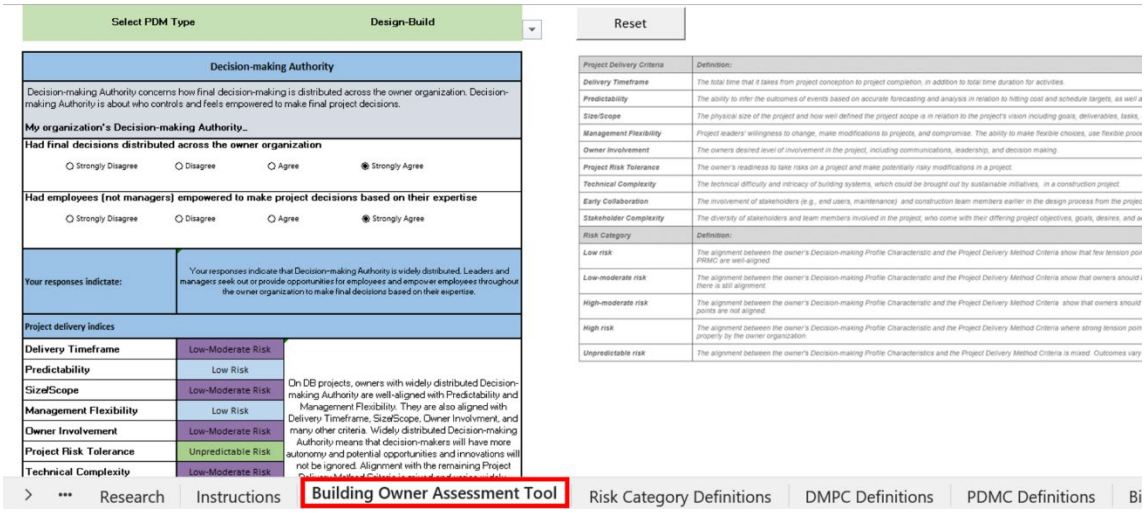
BOAT is designed to foster conversations about an owner's alignments or misalignments with different project delivery methods based on their decision-making profile. Using the profiling tool, owner project teams can identify potential organizational challenges and design specific strategies and processes, addressing challenges before projects begin.

The optimal use of BOAT requires the owner's project team to answer each question in the tool and discuss the results. Many project delivery methods can be tested, and if the owner's team chooses to do this, responses for each delivery method can be saved as an excel file (or create a pdf of the file). Investing energy in a substantive discussion comparing results is valuable in proactively anticipating project risks as well as understanding differences in perceptions among the owner's team members about risk tolerance and decision making.

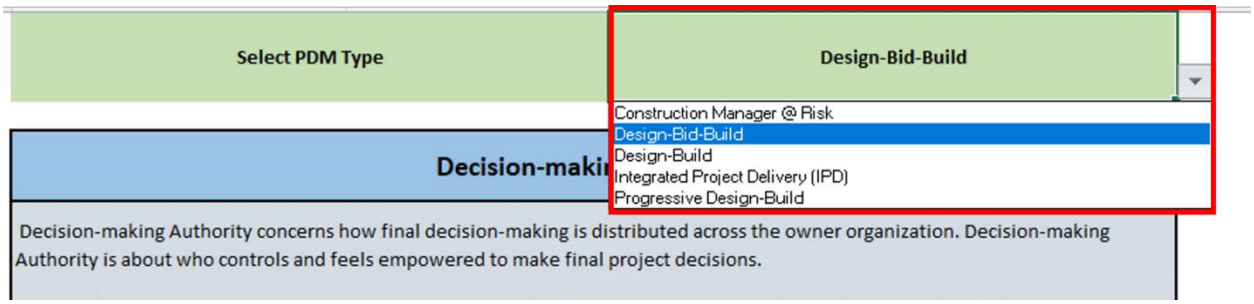
# Instructions For Using the Excel Spreadsheet

1. First, download either the macro-enabled or non-macro-enabled tool. (The workbook containing a macro helps to facilitate tool function.)

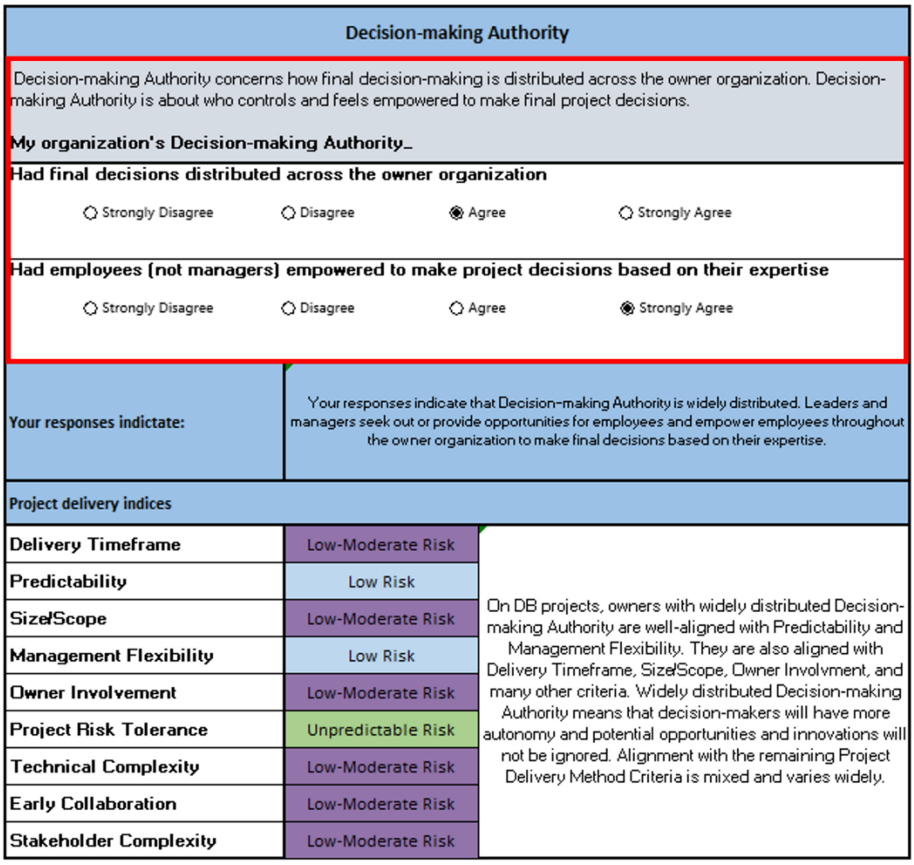
2. Open the tool, save it with a new file name, and select the Building Owner Assessment Tool Tab.



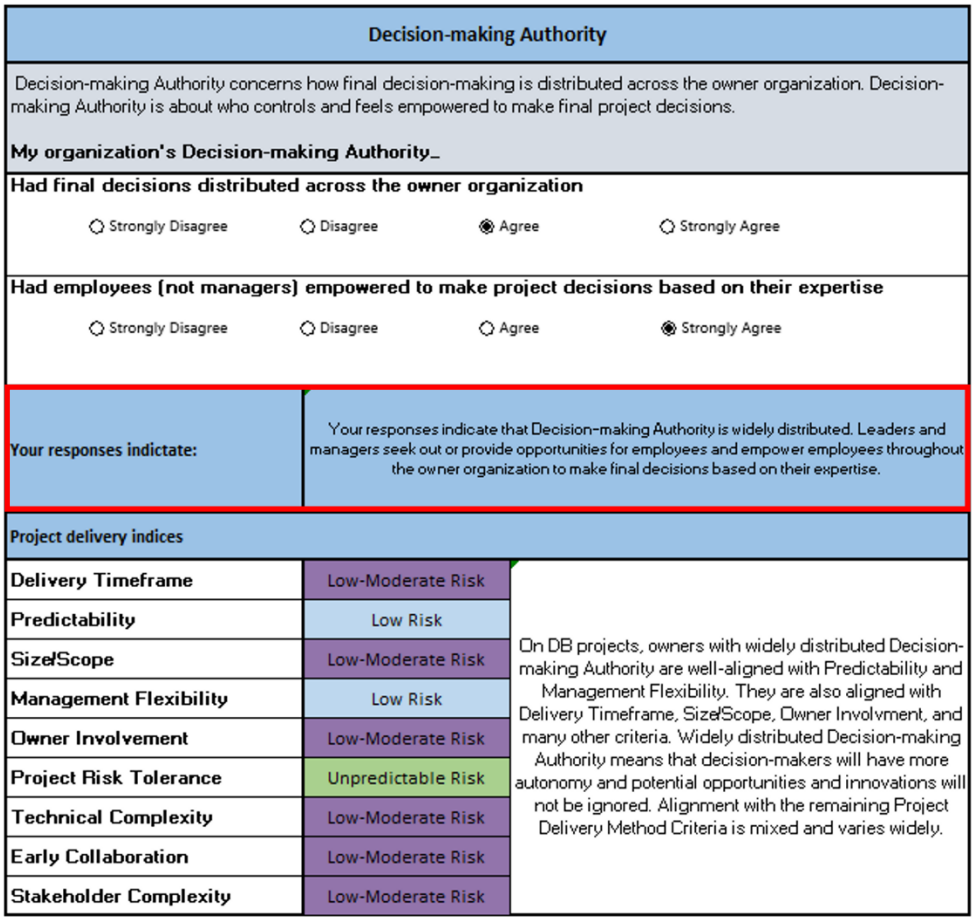
3. At the top of the sheet, click on the pull-down menu to select the Project Delivery Methods you are interested in using on your next project.




4a. As prompted for each decision-making characteristic, answer the questions in each survey block.



4b. Based on broad research findings, the tool generates your profile for each dimension of decision-making. More on the research and descriptions are found in the Decision-making Profile Characteristic (DMPC) Definitions tab.



**Decision-making Authority**

Decision-making Authority concerns how final decision-making is distributed across the owner organization. Decision-making Authority is about who controls and feels empowered to make final project decisions.

**My organization's Decision-making Authority_**

**Had final decisions distributed across the owner organization**

○ Strongly Disagree ○ Disagree ◉ Agree ○ Strongly Agree

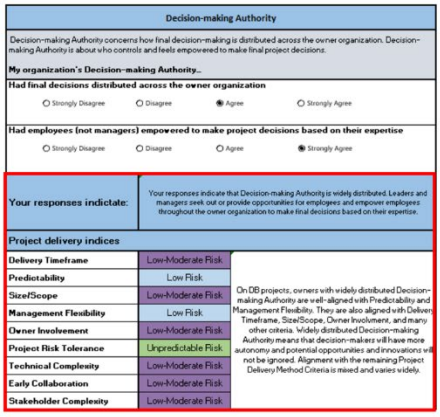
**Had employees (not managers) empowered to make project decisions based on their expertise**

○ Strongly Disagree ○ Disagree ○ Agree ◉ Strongly Agree

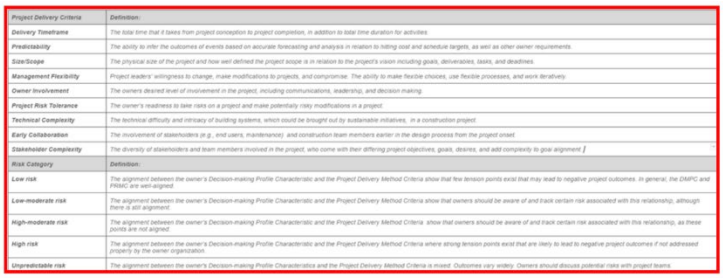
| Your responses indictate: | Your responses indicate that Decision-making Authority is widely distributed. Leaders and managers seek out or provide opportunities for employees and empower employees throughout the owner organization to make final decisions based on their expertise. |
|---|---|

| Project delivery indices | | |
|---|---|---|
| Delivery Timeframe | Low-Moderate Risk | On DB projects, owners with widely distributed Decision-making Authority are well-aligned with Predictability and Management Flexibility. They are also aligned with Delivery Timeframe, Size/Scope, Owner Involvment, and many other criteria. Widely distributed Decision-making Authority means that decision-makers will have more autonomy and potential opportunities and innovations will not be ignored. Alignment with the remaining Project Delivery Method Criteria is mixed and varies widely. |
| Predictability | Low Risk | |
| Size/Scope | Low-Moderate Risk | |
| Management Flexibility | Low Risk | |
| Owner Involvement | Low-Moderate Risk | |
| Project Risk Tolerance | Unpredictable Risk | |
| Technical Complexity | Low-Moderate Risk | |
| Early Collaboration | Low-Moderate Risk | |
| Stakeholder Complexity | Low-Moderate Risk | |

4c. Based on additional research, the tool generates an analysis of how your profile aligns with risk specific to the Project Delivery Method Criteria (PDMC) you selected. Analysis is updated if you change the delivery method. More information is found on the PDMC Definitions sheet and the Risk Category Definitions sheet.

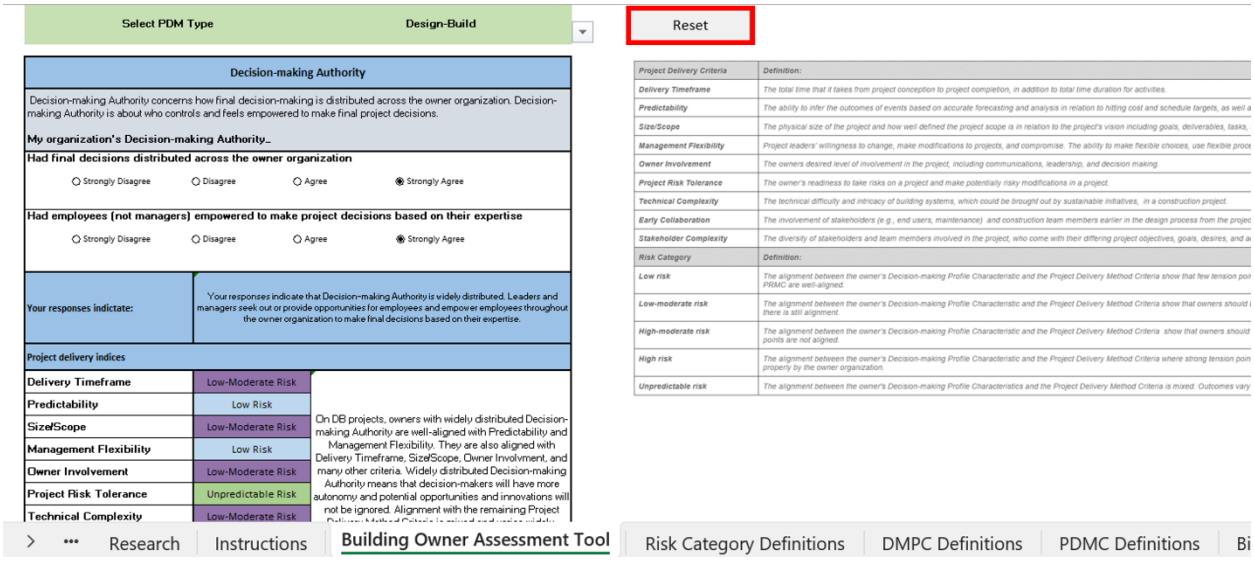


| Decision-making Authority | | |
|---|---|---|
| Decision-making Authority concerns how final decision-making is distributed across the owner organization. Decision-making Authority is about who controls and feels empowered to make final project decisions. | | |
| My organization's Decision-making Authority... | | |
| Had final decisions distributed across the owner organization | ○ Strongly Disagree ○ Disagree ◉ Agree ○ Strongly Agree | |
| Had employees (not managers) empowered to make project decisions based on their expertise | ○ Strongly Disagree ○ Disagree ○ Agree ◉ Strongly Agree | |
| Your responses indictate: | Your responses indicate that Decision-making Authority is widely distributed. Leaders and managers seek out or provide opportunities for employees and empower employees throughout the owner organization to make final decisions based on their expertise. | |
| Project delivery indices | | |
| Delivery Timeframe | Low-Moderate Risk | On DB projects, owners with widely distributed Decision-making Authority are well-aligned with Predictability and Management Flexibility. They are also aligned with Delivery Timeframe, Size/Scope, Owner Involvment, and many other criteria. Widely distributed Decision-making Authority means that decision-makers will have more autonomy and potential opportunities and innovations will not be ignored. Alignment with the remaining Project Delivery Method Criteria is mixed and varies widely. |
| Predictability | Low Risk | |
| Size/Scope | Low-Moderate Risk | |
| Management Flexibility | Low Risk | |
| Owner Involvement | Low-Moderate Risk | |
| Project Risk Tolerance | Unpredictable Risk | |
| Technical Complexity | Low-Moderate Risk | |
| Early Collaboration | Low-Moderate Risk | |
| Stakeholder Complexity | Low-Moderate Risk | |



| Project Delivery Criteria | Definition: |
|---|---|
| Delivery Timeframe | The total time that it takes from project conception to project completion, in addition to total time duration for activities. |
| Predictability | The ability to infer the outcomes of events based on accurate forecasting and analysis in relation to hitting cost and schedule targets, as well as other owner requirements. |
| Size/Scope | The physical size of the project and how well defined the project scope is in relation to the project's vision including goals, deliverables, tasks, and deadlines. |
| Management Flexibility | Project leaders' willingness to change, make modifications to projects, and compromise. The ability to make flexible choices, use flexible processes, and work iteratively. |
| Owner Involvement | The owners desired level of involvement in the project, including communications, leadership, and decision making. |
| Project Risk Tolerance | The owner's readiness to take risks on a project and make potentially risky modifications in a project. |
| Technical Complexity | The technical difficulty and intricacy of building systems, which could be brought out by sustainable initiatives, in a construction project. |
| Early Collaboration | The involvement of stakeholders (e.g., end users, maintenance) and construction team members earlier in the design process from the project onset. |
| Stakeholder Complexity | The diversity of stakeholders and team members involved in the project, who come with their differing project objectives, goals, desires, and add complexity to goal alignment [ |
| Risk Category | Definition: |
| Low risk | The alignment between the owner's Decision-making Profile Characteristic and the Project Delivery Method Criteria show that few tension points exist that may lead to negative project outcomes. In general, the DMPC and PRMC are well-aligned. |
| Low-moderate risk | The alignment between the owner's Decision-making Profile Characteristic and the Project Delivery Method Criteria show that owners should be aware of and track certain risk associated with this relationship, although there is still alignment. |
| High-moderate risk | The alignment between the owner's Decision-making Profile Characteristic and the Project Delivery Method Criteria show that owners should be aware of and track certain risk associated with this relationship, as these points are not aligned. |
| High risk | The alignment between the owner's Decision-making Profile Characteristic and the Project Delivery Method Criteria where strong tension points exist that are likely to lead to negative project outcomes if not addressed properly by the owner organization. |
| Unpredictable risk | The alignment between the owner's Decision-making Profile Characteristics and the Project Delivery Method Criteria is mixed. Outcomes vary widely. Owners should discuss potential risks with project teams. |

5. If you have downloaded the macro-enabled tool, you will be able to reset the survey so you can take the survey again with another project delivery method. If you want to clear your prior survey responses, select the reset button at the top of the sheet.



Select PDM Type: Design-Build

Reset

| Decision-making Authority | | |
|---|---|---|
| Decision-making Authority concerns how final decision-making is distributed across the owner organization. Decision-making Authority is about who controls and feels empowered to make final project decisions. | | |
| My organization's Decision-making Authority... | | |
| Had final decisions distributed across the owner organization | ○ Strongly Disagree ○ Disagree ○ Agree ◉ Strongly Agree | |
| Had employees (not managers) empowered to make project decisions based on their expertise | ○ Strongly Disagree ○ Disagree ○ Agree ◉ Strongly Agree | |
| Your responses indictate: | Your responses indicate that Decision-making Authority is widely distributed. Leaders and managers seek out or provide opportunities for employees and empower employees throughout the owner organization to make final decisions based on their expertise. | |
| Project delivery indices | | |
| Delivery Timeframe | Low-Moderate Risk | On DB projects, owners with widely distributed Decision-making Authority are well-aligned with Predictability and Management Flexibility. They are also aligned with Delivery Timeframe, Size/Scope, Owner Involvment, and many other criteria. Widely distributed Decision-making Authority means that decision-makers will have more autonomy and potential opportunities and innovations will not be ignored. Alignment with the remaining Project |
| Predictability | Low Risk | |
| Size/Scope | Low-Moderate Risk | |
| Management Flexibility | Low Risk | |
| Owner Involvement | Low-Moderate Risk | |
| Project Risk Tolerance | Unpredictable Risk | |
| Technical Complexity | Low-Moderate Risk | |

| Project Delivery Criteria | Definition: |
|---|---|
| Delivery Timeframe | The total time that it takes from project conception to project completion, in addition to total time duration for activities. |
| Predictability | The ability to infer the outcomes of events based on accurate forecasting and analysis in relation to hitting cost and schedule targets, as well a |
| Size/Scope | The physical size of the project and how well defined the project scope is in relation to the project's vision including goals, deliverables, tasks, |
| Management Flexibility | Project leaders' willingness to change, make modifications to projects, and compromise. The ability to make flexible choices, use flexible proc |
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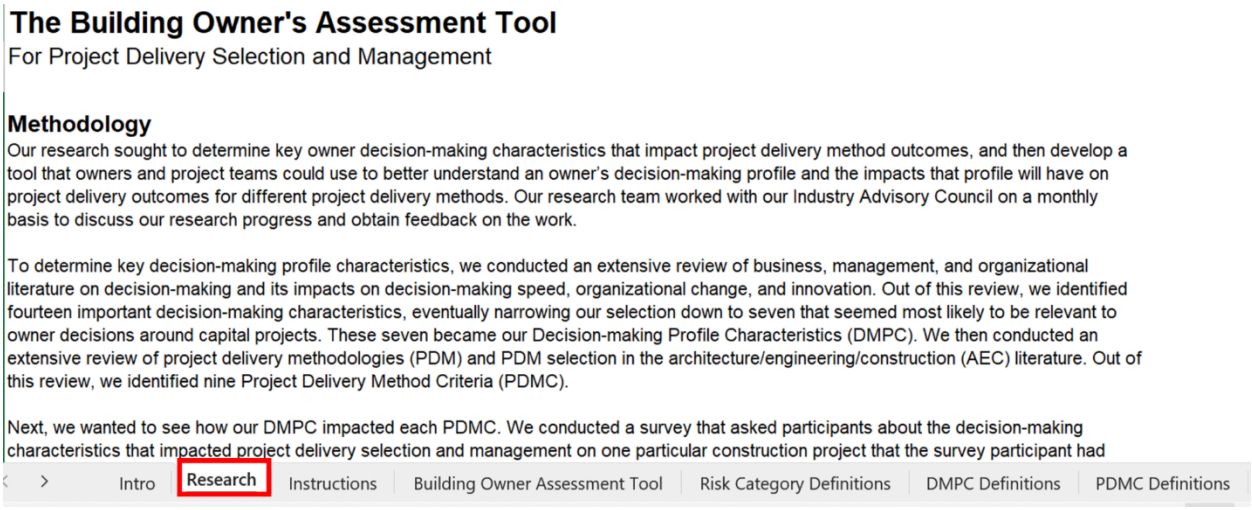
| Low-moderate risk | The alignment between the owner's Decision-making Profile Characteristic and the Project Delivery Method Criteria show that owners should there is still alignment. |
| High-moderate risk | The alignment between the owner's Decision-making Profile Characteristic and the Project Delivery Method Criteria show that owners should points are not aligned. |
| High risk | The alignment between the owner's Decision-making Profile Characteristic and the Project Delivery Method Criteria where strong tension poi properly by the owner organization. |
| Unpredictable risk | The alignment between the owner's Decision-making Profile Characteristics and the Project Delivery Method Criteria is mixed. Outcomes vary |

Research | Instructions | Building Owner Assessment Tool | Risk Category Definitions | DMPC Definitions | PDMC Definitions | Bi

# Other Sheets

The tool comes with additional sheets explaining meanings of the terms used in the tool and the research findings that underpin the framework of the tool. Below are previews of the other sheets you can view in the tool.

## A. Research



**The Building Owner's Assessment Tool**

For Project Delivery Selection and Management

**Methodology**

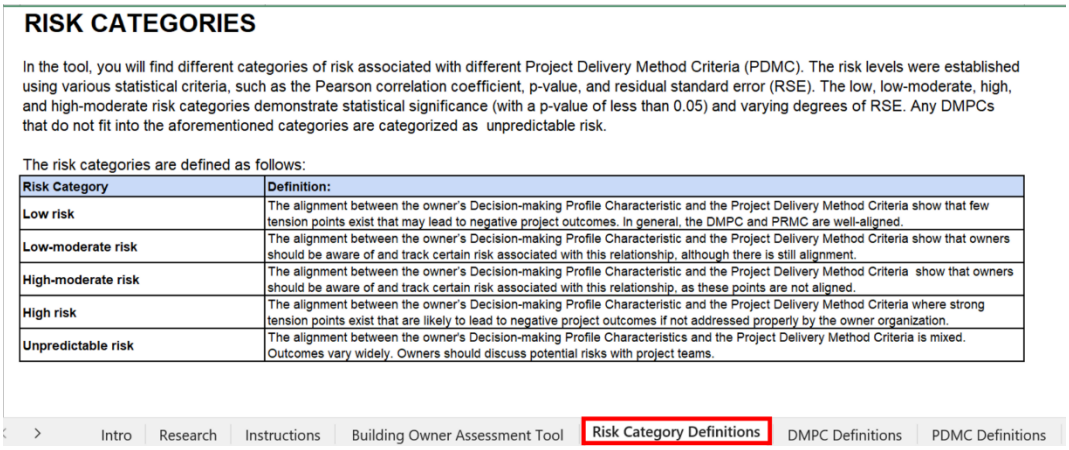
Our research sought to determine key owner decision-making characteristics that impact project delivery method outcomes, and then develop a tool that owners and project teams could use to better understand an owner's decision-making profile and the impacts that profile will have on project delivery outcomes for different project delivery methods. Our research team worked with our Industry Advisory Council on a monthly basis to discuss our research progress and obtain feedback on the work.

To determine key decision-making profile characteristics, we conducted an extensive review of business, management, and organizational literature on decision-making and its impacts on decision-making speed, organizational change, and innovation. Out of this review, we identified fourteen important decision-making characteristics, eventually narrowing our selection down to seven that seemed most likely to be relevant to owner decisions around capital projects. These seven became our Decision-making Profile Characteristics (DMPC). We then conducted an extensive review of project delivery methodologies (PDM) and PDM selection in the architecture/engineering/construction (AEC) literature. Out of this review, we identified nine Project Delivery Method Criteria (PDMC).

Next, we wanted to see how our DMPC impacted each PDMC. We conducted a survey that asked participants about the decision-making characteristics that impacted project delivery selection and management on one particular construction project that the survey participant had

Intro | Research | Instructions | Building Owner Assessment Tool | Risk Category Definitions | DMPC Definitions | PDMC Definitions

## B. Risk Category Definitions



**RISK CATEGORIES**

In the tool, you will find different categories of risk associated with different Project Delivery Method Criteria (PDMC). The risk levels were established using various statistical criteria, such as the Pearson correlation coefficient, p-value, and residual standard error (RSE). The low, low-moderate, high, and high-moderate risk categories demonstrate statistical significance (with a p-value of less than 0.05) and varying degrees of RSE. Any DMPCs that do not fit into the aforementioned categories are categorized as unpredictable risk.

The risk categories are defined as follows:

| Risk Category | Definition: |
|---|---|
| Low risk | The alignment between the owner's Decision-making Profile Characteristic and the Project Delivery Method Criteria show that few tension points exist that may lead to negative project outcomes. In general, the DMPC and PRMC are well-aligned. |
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| High risk | The alignment between the owner's Decision-making Profile Characteristic and the Project Delivery Method Criteria where strong tension points exist that are likely to lead to negative project outcomes if not addressed properly by the owner organization. |
| Unpredictable risk | The alignment between the owner's Decision-making Profile Characteristics and the Project Delivery Method Criteria is mixed. Outcomes vary widely. Owners should discuss potential risks with project teams. |

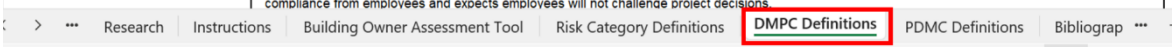
Intro | Research | Instructions | Building Owner Assessment Tool | Risk Category Definitions | DMPC Definitions | PDMC Definitions

# C. DMPC Definitions

## Decision-Making Profile Characteristics (DMPC)

An organization's Decision-making Profile Characteristics (DMPC) are the cultural, structural, and contextual characteristics that impact organizational decision-making. The PDMC were developed out of an extensive review of business, management, and organizational literature about organizational decision-making and decision-making impacts.

| Decision-Making Characteristics | Definition: |
|---|---|
| **Decision-making Authority** | Decision-making Authority concerns how final decision-making is distributed across the owner organization. Decision-making Authority is about who controls and feels empowered to make final project decisions. |
| **Decision-Making Processes** | Decision-making Processes concern the degree of formalization for making and communicating decisions, which can impact clarity and responsiveness. |
| **Decision-making Style** | Decision-making Style is the organization's approach to incorporating information, communication, and relationships in the making of decisions. Decision-making Styles are about how an owner organization approaches decision-making in relation to what types of information are deemed important for final decision-making and the nature of the relationship between employers and employees when making decisions.<br>An **Analytical Style** is driven by analysis compared to intuition when making a decision. There is a focus on formal research from qualified experts in the owner organization.<br>A **Participation Style** is committed to employee participation in decision-making and supporting strong human relationships at work. Owner organization leaders and managers seek out collaboration and building morale with all employees.<br>An **Adaptive Style** has informal managerial activities, roles, and relationships and can adapt to changing circumstances. There is an open flow of communication, the freedom for employees to adapt to different roles and processes depending on changing circumstances, and comfort with informal decision-making practices.<br>An **Authoritative Style** uses rigid processes, contracting, checklists, and issues orders to employees. This is a style that values commitment and compliance from employees and expects employees will not challenge project decisions. |




# D. PDMC Definitions

## Project Delivery Method Criteria (PDMC)

Project Delivery Method Criteria (PDMC) are the project delivery method selection and management criteria impacted by the Decision-making Profile Characteristics (DMPC). These criteria were developed from an extensive AEC literature review on project delivery method selection and management.

| Project Delivery Criteria | Definition: |
|---|---|
| **Delivery Timeframe** | The total time that it takes from project conception to project completion, in addition to total time duration for activities. |
| **Predictability** | The ability to infer the outcomes of events based on accurate forecasting and analysis in relation to hitting cost and schedule targets, as well as other owner requirements. |
| **Size/Scope** | The physical size of the project and how well defined the project scope is in relation to the project's vision including goals, deliverables, tasks, and deadlines. |
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| **Early Collaboration** | The involvement of stakeholders (e.g., end users, maintenance) and construction team members earlier in the design process from the project onset. |
| **Stakeholder Complexity** | The diversity of stakeholders and team members involved in the project, who come with their differing project objectives, goals, desires, and add complexity to goal alignment. |


# D. Bibliography

## Bibliography


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