MITHŪN | W

Design Delivery - What Really Works?

PRESENTED BY: AZITA FOOTOHI

IMAGE SOURCE: MILLER HULL

ARC RESEARCH TEAM - UW

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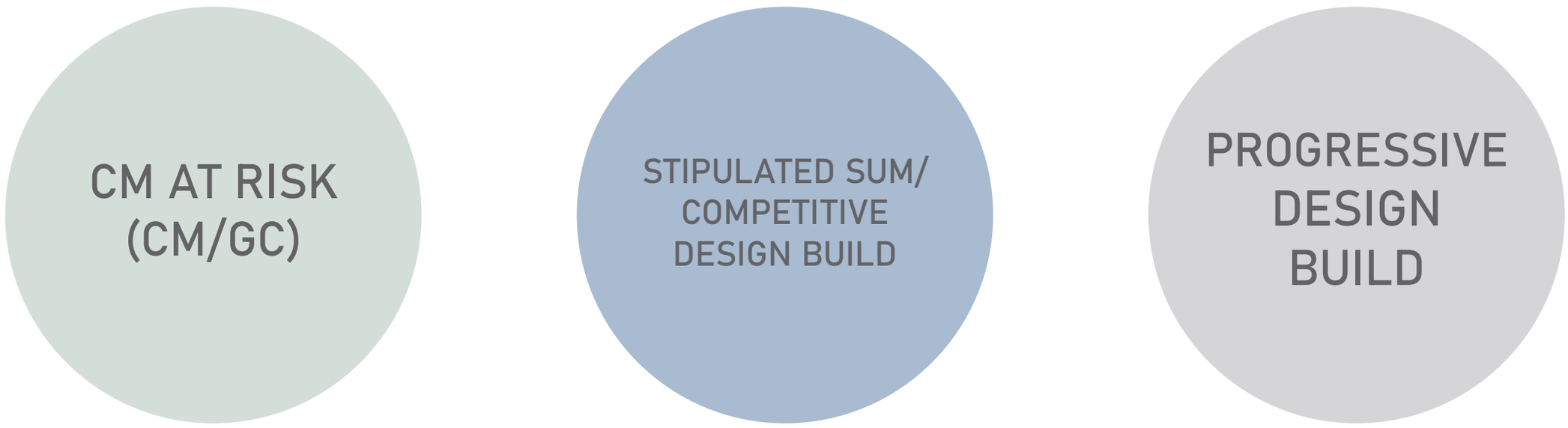
Associate Principal

DESIGN DELIVERY - WHAT REALLY WORKS?



TARGET GROUP: **HIGHER EDUCATION PROJECTS**

UNDERSTANDING THE PROJECT DELIVERY TYPES

DESIGN-BID-BUILD (DBB)

CM AT RISK (GC/CM)

STIPULATED SUM/ COMPETITIVE DESIGN BUILD

PROGRESSIVE DESIGN BUILD

INTEGRATED PROJECT DELIVERY (IPD)

SEPARATE CONTRACTS

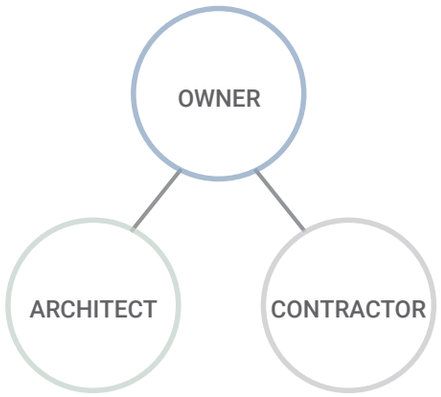
LESS COLLABORATION

SHARED RISK / CONTRACTS

EARLY COLLABORATION

UNDERSTANDING THE PROJECT DELIVERY TYPES

CM AT RISK (GC/CM)



General Contractor engages during the design process, providing Constructibility and pricing feedback.

STIPULATED SUM/ COMPETITIVE DESIGN BUILD

General Contractor engages at the commencement of the design process, guaranteeing the price at the end of the competitive period.

PROGRESSIVE DESIGN BUILD

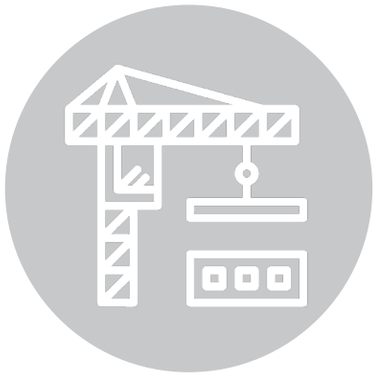
General Contractor engages at the commencement of the design process, providing constructibility and pricing feedback.

Price guarantee typically happens at 60% Document Completion

TARGET PARTICIPANTS

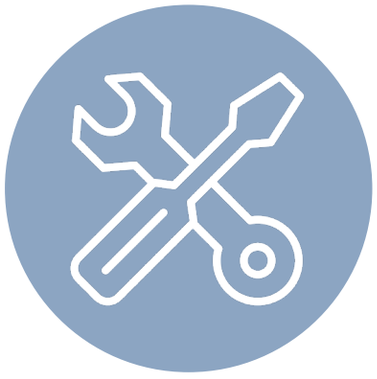
OWNER/ AGENCY
(HIGHER EDUCATION)

DESIGN CONSULTANT



GENERAL CONTRACTOR

END USER



O&M PERSONNEL

PRELIMINARY INTERVIEWS

UNIVERSITY

WASHINGTON

UNIVERSITY OF WASHINGTON

WASHINGTON STATE UNIVERSITY

OREGON

OREGON STATE UNIVERSITY

CALIFORNIA

UNIVERSITY OF CALIFORNIA - SAN DIEGO

UNIVERSITY OF CALIFORNIA - IRVINE

GENERAL CONTRACTOR

FORTIS CONSTRUCTION

CONSULTANT

BRAILSFORD & DUNLAVEY

CASE STUDIES

PROGRESSIVE DESIGN BUILD

UNIVERSITY OF WASHINGTON

HANS ROSLING CENTER FOR POPULATION HEALTH

CLIENT: UNIVERSITY OF WASHINGTON

ARCHITECT: MILLER HULL

CONTRACTOR: LEASE CRUTCHER LEWIS

CM AT RISK (CM/GC)

OREGON STATE UNIVERSITY

MARINE STUDIES INITIATIVE BUILDING

CLIENT: OREGON STATE UNIVERSITY

ARCHITECT: YGH ARCHITECTS

CONTRACTOR: ANDERSEN CONSTRUCTION

CASE STUDIES - OREGON STATE UNIVERSITY

MARINE STUDIES INITIATIVE BUILDING

IMAGE SOURCE: YGH ARCHITECTS

BACKGROUND

LOCATION
Newport, Oregon

SCHEDULE
March 2018 - January 2020

CONSTRUCTION COST
$61,700,000

CLIENT
Oregon State University

ARCHITECT
YGH Architecture

GENERAL CONTRACTOR
Andersen Construction

PROJECT CRITERIA

PROJECT DELIVERY METHOD
Construction Manager at Risk (CMR)

PROJECT DESCRIPTION
Established as a lab and classroom building on the Oregon State University (OSU) Hatfield Marine Science Center in Newport, Oregon, the Marine Studies Initiative (MSI) Building is a center for OSU students, faculty, and staff to work in an interdisciplinary environment. With assistance from various federal government agencies, EPA, and the USGS, the MSI Building is an example of an ambitious architectural design which is designed to withstand the impact of tsunami waters, allowing vertical evacuation.

(SOURCE: YGH ARCHITECTS)

PROJECT DELIVERY METHOD SELECTION

SELECTION CRITERIA
With CMR being the primary project delivery method selected by OSU, familiarity played an integral role in the selection of the delivery method for this project. Strict budget limitations has made CMR an appropriate delivery method of choice in a majority of the projects at OSU, and with its frequent use, CMR was selected as an efficient delivery method.

With a CMR delivery method, OSU and other key stakeholder, including YGH Architects and Andersen Construction, felt that this delivery method was a good choice in terms of creating a positive and collaborative team environment. There was a sense that CMR would provide more contractual clarity than a Design Build model, and that it allows the three different major entities in the contract to stretch themselves more.

Given the nature of this project being federally funded, the funding was actually provided 4-5 years prior to the onset of design and construction. The early deployment of funding created issues in designing the project within the scope of the cost, as well as meeting all of the parameters of the project program under these limitations. The goals of the project were relatively ambitious, which meant that the team involved on the project had to be tactful in how they approached the design and construction of the MSI Building.

Familiarity played a key role in the selection criteria of this project. With OSU's projects being primarily under the CMR project delivery type, YGH Architects and Andersen Construction were familiar with OSU's use of this delivery method. While YGH Architects and Andersen Construction had not worked together in the past on a project, selection of CMR as a delivery method did not impede the ability of these teams to collaborate and helped foster a healthy team environment.

PROJECT PERFORMANCE

KEY VALUES
In terms of value assessment from the key players involved in the MSI Building, the major considerations from the owner (OSU), architect (YGH Architects), and general contractor (Andersen Construction) are as follows:

Owner - OSU:
Design involvement in terms of abiding by federal regulations; meeting cost and schedule goals; serving the needs of the people utilizing the facilities on the site and fostering a sense of community; sustainability

Architect - YGH Architects:
Meeting the design requirements in terms of the project being located in a tsunami and major seismic zone; acknowledging the values of others on the team to foster positive team chemistry, especially contractors and subcontractors

General Contractor - Anderson Construction:
Meeting schedule demands; highly collaborative team; meeting guaranteed maximum price (GMP); satisfaction of the client and end-user with the final design and construction of the project

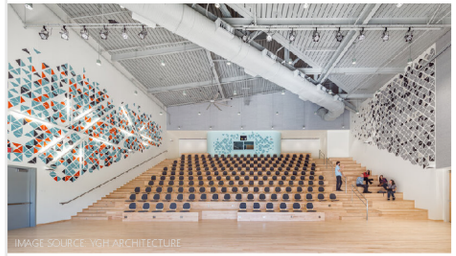


IMAGE SOURCE: YGH ARCHITECTURE

IMAGE SOURCE: YGH ARCHITECTURE

KEY VALUES (CONT.)

In working towards a common goal of designing and building a successful project where students and researchers can work together in a collaborative environment, the strong sense of team chemistry amongst the team members allowed for a successful final project. Healthy collaboration between the architect and contractor allowed for more seamless design decisions to occur. However, with a Progressive Design Build (PDB) model, there could have been increased opportunities for more sub-contractor involvement in the project.

Having an open discussion about points of conflict allowed for a more healthy work process to work past challenges throughout the design and construction process. With OSU trying to balance the politics between their needs and government regulations, the general contractor balancing time and schedule constraints, and the architects trying to balance the design and limitations of the project scope, through a healthy and collaborative environment, the team was able to work together more efficiently with a healthy team chemistry.

LEARNING OUTCOMES

In its entirety, the MSI Building was a project that was completed successfully, and met the requirements stipulated by the project budget and scope effectively. Despite having to work with a site that is in danger of tsunami and seismic damage, through the CMR delivery method, the team was able to foster a collaborative work environment to solve site limitations that implied very innovative design solutions. The teams were able to collaborate effectively with federal agencies outside of OSU, gaining guidance from federally funded sources, compromising successfully between the needs of the client, the design suggestions posed by the architect, the construction guidance from the contractor, and the needs of the end-user.

SUCCESSES
- Very positive team environment
- Project met stringent design requirements
- Design responded appropriately to budget limitations and the surrounding context of the site.

CHALLENGES
- Site limitations = innovative design solutions
- Strict budget with a limited project scope

WE WOULD LIKE TO THANK THE FOLLOWING FOR THEIR CONTRIBUTION TO THIS CASE STUDY:

OSU Oregon State | YGH ARCHITECTURE | ANDERSEN CONSTRUCTION

IMAGE SOURCE: YGH ARCHITECTURE

IMAGE SOURCE: YGH ARCHITECTURE

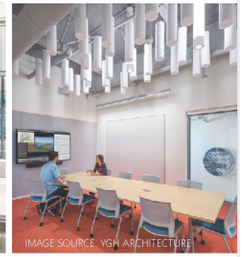


IMAGE SOURCE: YGH ARCHITECTURE

SURVEY

KEY GOALS:

PRIORITIZING CERTAIN VALUES ACCORDING TO ROLE AND DELIVERY METHOD SELECTION:

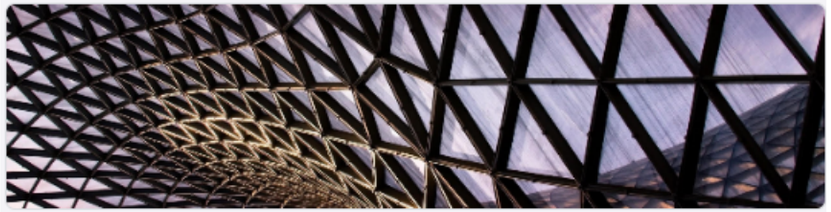
BACKGROUND INFORMATION:

- PERSONAL ROLE IN INSTITUTION
- LOCATION OF PRACTICE
- EXPERIENCE LEVEL

VALUE ASSESSMENT:

- TOP 4 GOALS/VALUES CONSIDERED
- SUCCESS OF DELIVERY METHODS IN THE CONTEXT OF SPECIFIC VALUES

CAPTURING PERSONAL EXPERIENCE
IN A HIGHER EDUCATION CONTEXT



What Delivery Systems Work Better for Higher Education Projects?

Purpose: The goal of this research is to compare the value delivery of three project delivery methods, Stipulated Sum/ Competitive Design Build, Progressive Design Build, and CM at Risk (CM/GC, GC/CM), in **higher education projects**. To achieve this goal, we would like to identify (1) what abstract values we can use to determine the levels of value delivery in each of the methods; (2) what criteria would you use when selecting a delivery method for a new project.

Activities: The study activities include a series of survey questions meant to evaluate qualitative and quantitative perspectives of different team members associated with the design delivery of a higher institution project. This includes but is not limited to: the owner/agency, architect, contractor, and sub-contractors. The survey will primarily ask the participant about their experience with the different design delivery methods and strive to determine what abstract values are taken into consideration during the process of design delivery at a **higher education institution**.

Time: Your participation in this study will last about **15 minutes**.

Confidentiality: Your identity will not be published. This survey is meant to only gain a broad perspective on the goals and general opinions regarding the three primary project delivery methods focused on in this research.

Study contacts: If you have any questions about this research project, please contact **Azita Footohi at (360) 989-8203 or by email at** afootohi@uw.edu. If you have questions about your rights or welfare as a participant, please contact the University of Washington Institutional Review Board (IRB) Office, at (206) 543-0098 or by email at hsdinfo@uw.edu

Please answer all of these questions based on your personal experience/perspectivein a higher education setting, but not based on a specific project.

afootohi@uw.edu (not shared) Switch account

SURVEY

ABSTRACT VALUES ANALYSIS

In this section, questions will be asked relating to how abstract values in project delivery method selection can be compared across the three project delivery methods at hand: Stipulated Sum/Competitive Design Build, Progressive Design Build, and CM at Risk (CM//GC, GC/CM). Please consider these questions within in a HIGHER EDUCATION context.

Of the following qualitative goals below, select the TOP 4 that are most important in a HIGHER EDUCATION building project. *

Please select the top three options.

- [ ] Ability to meet owner's goals
- [ ] Team chemistry
- [ ] Lifecycle value
- [ ] Innovative thinking
- [ ] Industry awards
- [ ] Sustainable design
- [ ] Health and wellness for building occupants
- [ ] Aesthetics
- [ ] Responding to campus environment

Value Assessment

Assess each project delivery method in terms of which achieves the goals below more effectively.

Design controllability *

	Very effective	Somewhat effective	Somewhat ineffective	Very ineffective	No impact	Unfamiliar with this delivery method
Traditional Design Build	○	○	○	○	○	○
Progressive Design Build	○	○	○	○	○	○
CM at Risk (CM/GC, GC/CM)	○	○	○	○	○	○

Cost predictability *

	Very effective	Somewhat effective	Somewhat ineffective	Very ineffective	No impact	Unfamiliar with this delivery method
Traditional Design Build	○	○	○	○	○	○
Progressive Design Build	○	○	○	○	○	○
CM at Risk (CM/GC, GC/CM)	○	○	○	○	○	○

SURVEY STRATEGIES:

- LIKERT SCALE
- TOP 4 SELECTION
- EXPERIENCE LEVEL
- MULTIPLE CHOICE
- MULTIPLE SELECTION

SURVEY - RESULTS

70
RESPONSES

40 DESIGN CONSULTANTS

16 GENERAL CONTRACTORS

12 OWNERS (HIGHER ED.)

2 ACADEMIA

SURVEY - RESULTS

70
RESPONSES

32 CALIFORNIA

16 WASHINGTON

9 OREGON

13 NON-WEST COAST

CONVERTING LIKERT SCALE TO NUMERICAL VALUES:

- **VERY EFFECTIVE**
- SOMEWHAT EFFECTIVE
- NEUTRAL / NO IMPACT
- SOMEWHAT INEFFECTIVE
- VERY INEFFECTIVE

SURVEY - ANALYSIS

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	
1	**Timestamp**	**What is the name of your Organization?**	**Describe y**	**How many**	**In which s**	**What is yc**	**What is yc**	**What is yc**	**If you are**	**What has**	**What has**	**What has**	**What are t**	**What are t**	**What are t**	**How likely**	**Of the foll**	**Co**
2	2022/04/11 5:00:50 PM MDT	School of Architecture at Montana State University	Academic	20 Years +	Montana a	Very Famil	Very Famil	Very Famil	I am not a	$50 M - $1	$50 M - $1	$250 M - $	50,000 - 1(	50,000 - 1(	100,000 - 1	Somewhat	Ability to n	Sc
3	2022/04/13 3:45:48 PM MDT	University of Washington	Academic	20 Years +	Washingto	Somewhat	Very Famil	Somewhat	I am not a	Do not hav	$100 M - $	Do not hav	Do not hav	150,000 - 3	150,000 - 3	Somewhat	Lifecycle v	Ve
4	2022/04/11 4:44:22 PM MDT	Mithun	Design Cor	20 Years +	California	Very Famil	Somewhat	Very Famil	I am not a	$100 M - $	Do not hav	$100 M - $	300,000+ s	Do not hav	300,000+ s	Very likely	Ability to n	Ve
5	2022/04/11 4:45:42 PM MDT	Choate Parking Consultants, Inc.	Design Cor	20 Years +	California	Very Famil	Somewhat	Somewhat	I am not a	$50 M - $1	$50 M - $1	Less than $	300,000+ s	300,000+ s	300,000+ s	Somewhat	Team cher	Sc
6	2022/04/11 5:08:35 PM MDT	Mithun	Design Cor	20 Years +	New York	Very Famil	Not Famili	Very Famil	I am not a	$100 M - $	Do not hav	$100 M - $	100,000 - 1	Do not hav	100,000 - 1	Somewhat	Ability to n	Sc
7	2022/04/11 5:17:18 PM MDT	Mithun	Design Cor	10-20 Year	Washingto	Somewhat	Very Famil	Very Famil	I am not a	$100 M - $	$50 M - $1	Less than $	100,000 - 1	50,000 - 1(	50,000 - 1(	Very likely	Ability to n	Ve
8	2022/04/11 5:19:22 PM MDT	SILLMAN	Design Cor	20 Years +	California	Very Famil	Very Famil	Very Famil	I am not a	Less than $	Less than $	Less than $	Less than 5	Less than 5	Less than 5	Very likely	Ability to n	Ve
9	2022/04/11 6:02:42 PM MDT	Newson Brown Acoustics	Design Cor	5-10 Years	California	Very Famil	Not Famili	Very Famil	I am not a	$50 M - $1	Do not hav	Less than $	Less than 5	Do not hav	Less than 5	Somewhat	Ability to n	Ve
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15	2022/04/12 9:48:27 AM MDT	Mithun	Design Cor	1-5 Years	Washingto	Not Famili	Not Famili	Not Famili	I am not a	Do not hav	Do not hav	Do not hav	Do not hav	Do not hav	Do not hav	Somewhat	Ability to n	Ur
16	2022/04/12 10:08:12 AM MDT	Bohlin Cywinski Jackson	Design Cor	20 Years +	WA, CA, PA	Somewhat	Very Famil	Very Famil	I am not a	Do not hav	Do not hav	Less than $	Do not hav	Do not hav	Do not hav	Somewhat	Ability to n	Ur
17	2022/04/12 10:57:07 AM MDT	KPFF Consulting Engineers	Design Cor	20 Years +	Oregon	Very Famil	Very Famil	Very Famil	I am not a	Less than $	Do not hav	Less than $	Less than 5	Do not hav	Less than 5	Very likely	Ability to n	Sc
18	2022/04/12 12:03:11 PM MDT	Woden Fire, LLC	Design Cor	5-10 Years	California	Very Famil	Somewhat	Somewhat	I am not a	$50 M - $1	$50 M - $1	Less than $	50,000 - 1(	50,000 - 1(	50,000 - 1(	Very likely	Ability to n	Ve
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28	2022/04/19 10:40:04 AM MDT	Ficcadenti Waggoner & Castle Structural Engineers	Design Cor	20 Years +	California	Very Famil	Somewhat	Somewhat	I am not a	$100 M - $	$50 M - $1	$50 M - $1	300,000+ s	50,000 - 1(	50,000 - 1(	Somewhat	Ability to n	Ve
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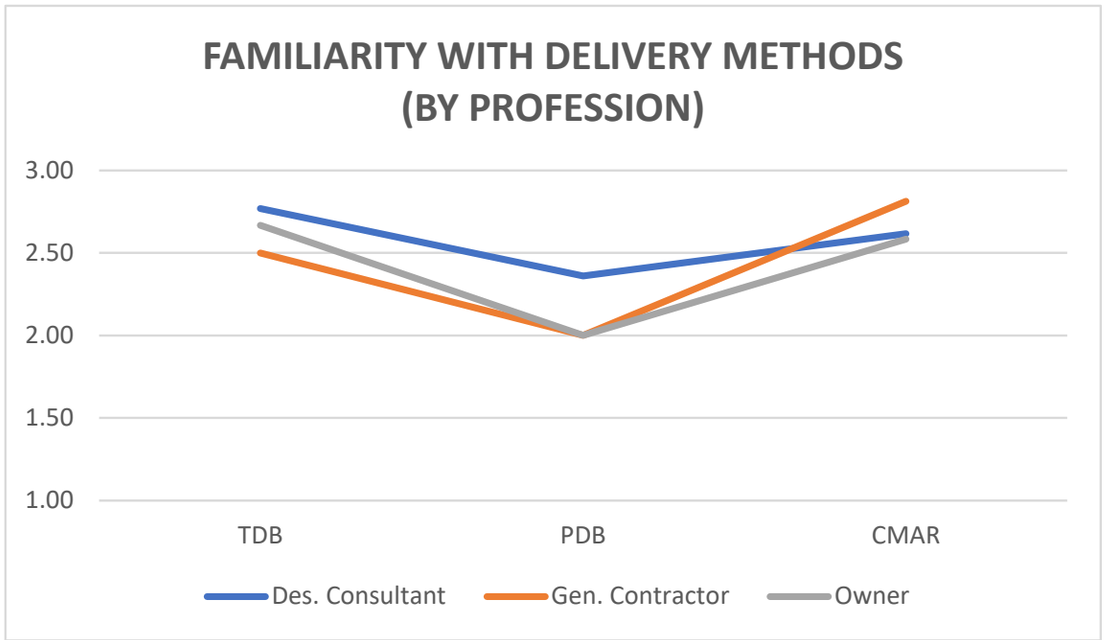
By Profession | By Location | **Sample Survey_ Mithun_Final Ass**

SURVEY - ANALYSIS

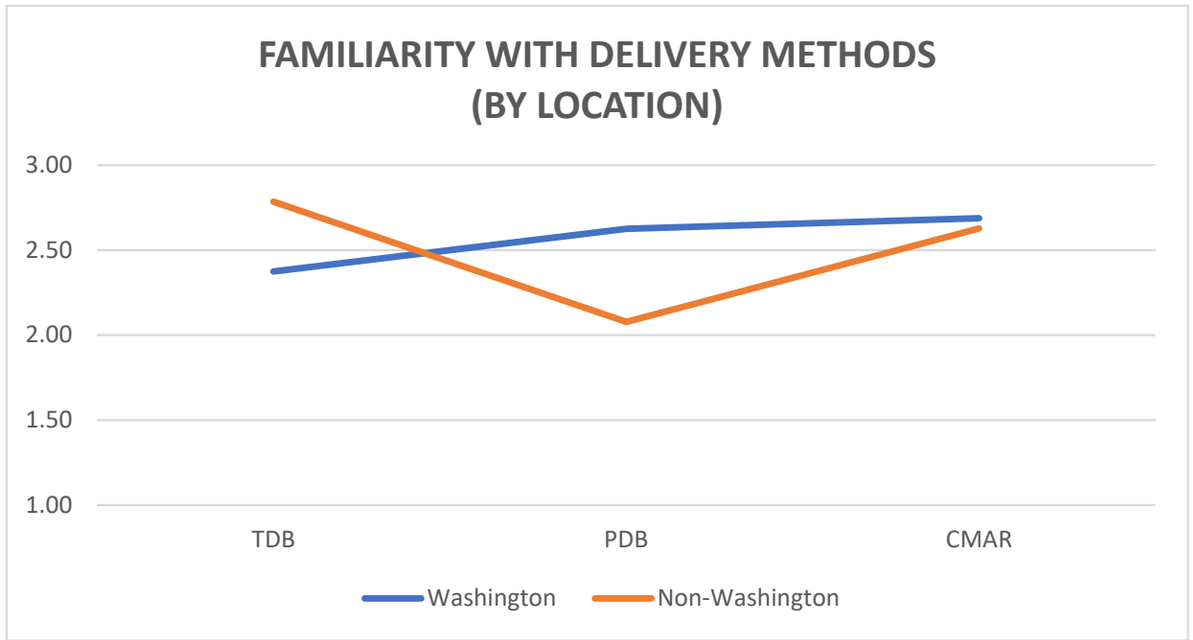
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI
1	Timest p	What is the name of your Organizatio	Describe your type of Organization:	How many years of experience do you h	In which state do you have m of your higher education pro	Wh you	Wh you	Wh you	If yo are	Wh has	Wh has	Wh has	Wh are	Wh are	Wh are	How like	Of t foll	Cos pre	Cost predi	Cos pre	Sho /exp	Sho /exp	Sho /exp	Abil to n	Abil to n	Abil to n	Tea che	Tea che	Tea che	Life e Va	Life e Va	Life e Va	Inn ive	Inn ive	Inn ive
2	2022/04/11	School of Architecture at Montana State Univ	Academic	20 Years +	Montana and Arizona	3	3	3	I am not	$50 M - $	$50 M - $	$250 M -	50,000 -	50,000 -	100,000	Somewh	Ability to	4	4	2	5	5	1	4	5	2	5	5	1	4	4	1	5	5	1
3	2022/04/13	University of Washington	Academic	20 Years +	Washington	2	3	2	I am not	Do not h	$100 M -	Do not h	Do not h	150,000	150,000	Somewh	Lifecycle	1	5	4	1	5	4	4	5	4	2	5	4	2	5	4	2	5	4
4	2022/04/11	Mithun	Design Consultant	10-20 Years	Washington	2	3	3	I am not	$100 M -	$50 M - $	Less tha	100,000 -	50,000 -	50,000 -	Very like	Ability to	5	4	2	5	4	2	4	5	4	2	5	2	4	5	2	2	5	2
5	2022/04/11	SILLMAN	Design Consultant	20 Years +	California	3	3	3	I am not	Less tha	Less tha	Less tha	Less tha	Less tha	Less tha	Very like	Ability to	5	4	4	5	5	4	5	5	5	5	5	4	4	5	4	5	5	4
6	2022/04/11	LMN Architects	Design Consultant	20 Years +	Washington	3	3	3	I am not	$50 M - $	$50 M - $	Less tha	50,000 -	50,000 -	Less tha	Very like	Ability to	4	4	4	5	4	4	2	4	5	4	4	4	4	5	5	4	5	5
7	2022/04/12	Bohlin Cywinski Jackson	Design Consultant	20 Years +	WA, CA, PA, CT	2	3	3	I am not	Do not h	Do not h	Less tha	Do not h	Do not h	Do not h	Somewh	Ability to	Unfamiliz	4	2	Unfamiliz	4	2	Unfamiliz	4	4	Unfamiliz	4	4	Unfamiliz	4	2	Unfamiliz	4	2
8	2022/04/12	KPFF Consulting Engineers	Design Consultant	20 Years +	Oregon	3	3	3	I am not	Less tha	Do not h	Less tha	Less tha	Do not h	Less tha	Very like	Ability to	2	5	4	4	5	4	2	5	4	4	5	4	2	4	4	4	5	5
9	2022/04/12	2:10:14 PM MDT	Design Consultant	20 Years +	Washington	3	3	3	I am not	Do not h	Less tha	$50 M - $	Do not h	Less tha	100,000	Somewh	Ability to	4	5	2	5	4	2	2	5	5	4	4	2	1	5	5	1	5	5
10	2022/04/12	Thornton Tomasetti	Design Consultant	10-20 Years	California	3	3	1	I am not	Less tha	Do not h	Do not h	50,000 -	Do not h	Do not h	Very like	Ability to	4	Unfamiliar	Unfamiliz	5	Unfamiliz	Unfamiliz	4	Unfamiliz	Unfamiliz	4	Unfamiliz	Unfamiliz	4	Unfamiliz	Unfamiliz	2	Unfamiliz	Unfamiliz
11	2022/04/13	Skidmore, Owings & Merrill	Design Consultant	20 Years +	Illinois	3	3	3	I am not	$50 M - $	Do not h	$50 M - $	50,000 -	Do not h	100,000	Very like	Ability to	4	Unfamiliar	4	1	Unfamiliz	4	4	Unfamiliz	4	4	Unfamiliz	2	2	Unfamiliz	4	4	Unfamiliz	4	4
12	2022/04/13	Slate Architecture	Design Consultant	20 Years +	Montana	3	3	3	I am not	Less tha	Less tha	Less tha	50,000 -	50,000 -	100,000	Very like	Ability to	2	4	5	2	4	5	4	5	5	4	5	5	4	4	5	4	5	5
13	2022/04/18	2:32:56 PM MDT	Design Consultant	20 Years +	Washington	2	3	3	I am not	Less tha	Less tha	Less tha	Less tha	50,000 -	50,000 -	Very like	Ability to	4	4	4	4	4	4	4	4	4	4	4	4	2	2	4	4	4	4
14	2022/04/19	Mithun	Design Consultant	20 Years +	Washington	3	3	3	I am not	Less tha	Less tha	Less tha	50,000 -	Less tha	50,000 -	Somewh	Ability to	5	4	4	5	5	5	4	5	5	5	5	5	4	5	5	5	5	5
15	2022/04/20	Woden Fire	Design Consultant	10-20 Years	California	3	3	3	I am not	Less tha	$50 M - $	$100 M -	Less tha	50,000 -	100,000	Very unli	Ability to	4	5	4	4	4	2	5	5	4	4	4	4	5	5	2	4	4	4
16	2022/04/25	Lamar Johnson Collaborative	Design Consultant	20 Years +	Illinois	3	3	3	I am not	Less tha	Less tha	Less tha	50,000 -	50,000 -	50,000 -	Somewh	Ability to	5	4	4	5	5	4	4	4	4	5	5	4	4	4	4	5	5	4
17	2022/04/27	LMN Architects	Design Consultant	20 Years +	Washington	2	3	3	I am not	Less tha	$50 M - $	$50 M - $	50,000 -	50,000 -	100,000	Very like	Ability to	5	4	2	5	4	2	2	5	5	4	5	2	2	5	4	4	4	4
18	2022/04/12	Glumac	Design Consultant	10-20 Years	Washington	2	3	3	I am not	Less tha	$50 M - $	$100 M -	Less tha	Less tha	Less tha	Somewh	Ability to	4	5	2	5	4	2	2	5	4	4	5	4	2	5	4	1	5	4
19	2022/04/20	Glumac	Design Consultant	10-20 Years	Washington	3	3	3	I am not	Less tha	Less tha	Do not h	Less tha	50,000 -	Do not h	Somewh	Ability to	4	4	4	2	4	2	2	4	2	4	5	4	4	4	4	4	5	4
20	2022/05/01	9:34:23 AM MDT	Design Consultant	5-10 Years	California	3	3	2	I am not	Less tha	Less tha	Do not h	Less tha	Less tha	Do not h	Very unli	Ability to	5	4	Unfamiliz	5	5	Unfamiliz	4	5	Unfamiliz	4	5	Unfamiliz	2	5	Unfamiliz	4	5	Unfamiliz
21	2022/04/29	Murray Company	Design Consultant	20 Years +	California	3	3	3	I am not	$500 M+	$500 M+	$500 M+	300,000+	300,000+	300,000+	Somewh	Ability to	5	5	1	5	5	1	5	5	2	5	5	1	5	5	1	5	5	1
22	2022/04/14	Individual - AIA member	Design Consultant	20 Years +	Jacobs has worked coast to coast	3	3	3	I am not	$50 M - $	$50 M - $	$50 M - $	50,000 -	50,000 -	50,000 -	Very like	Ability to	2	4	2	2	4	2	2	4	2	2	4	2	1	2	1	1	2	1
23	2022/04/12	Bergelectric	Design Consultant	10-20 Years	California	3	3	1	I am not	$100 M -	$100 M -	Do not h	100,000 -	100,000 -	Do not h	Very like	Ability to	2	2	Unfamiliz	4	4	Unfamiliz	4	4	Unfamiliz	4	4	Unfamiliz	2	2	Unfamiliz	5	5	Unfamiliz
24	2022/04/12	1:27:41 PM MDT	General Contractor	20 Years +	Washington	3	3	3	I am not	$50 M - $	$50 M - $	$50 M - $	100,000 -	100,000 -	100,000	Somewh	Ability to	4	5	4	4	5	4	5	5	4	5	5	3	4	5	3	5	5	3
25	2022/04/12	Webcor	General Contractor	20 Years +	California	3	3	3	I am not	$250 M -	$100 M -	Less tha	150,000 -	100,000 -	Less tha	Don't kn	Ability to	5	2	2	5	4	2	2	4	4	5	5	4	4	4	4	5	5	4
26	2022/04/22	Clayco	General Contractor	20 Years +	California	3	3	3	I am not	$50 M - $	$50 M - $	$50 M - $	Less tha	Less tha	Less tha	Very like	Ability to	5	4	5	5	2	4	4	5	4	5	5	4	5	5	4	4	5	2
27	2022/04/12	4:01:50 PM MDT	Owner (Higher Education Institution	20 Years +	CA, WA	3	3	3	Progress	Less tha	Less tha	Less tha	Less tha	Less tha	Less tha	Somewh	Ability to	4	5	1	4	5	1	2	5	2	4	5	1	2	5	2	4	4	2
28	2022/04/12	University of Washington	Owner (Higher Education Institution	20 Years +	Washington	3	3	3	Progress	Less tha	Less tha	Less tha	Less tha	Less tha	Less tha	Somewh	Ability to	5	5	4	4	5	4	4	5	4	2	5	4	4	5	4	4	5	2
29	2022/04/28	San Diego State University	Owner (Higher Education Institution	10-20 Years	California	2	3	3	Progress	Less tha	Less tha	Less tha	Less tha	Less tha	Less tha	Somewh	Ability to	5	4	4	5	4	4	4	5	4	4	5	4	4	5	4	4	5	4
30	2022/04/11	Mithun	Design Consultant	20 Years +	California	3	2	3	I am not	$100 M -	Do not h	$100 M -	300,000+	Do not h	300,000+	Very like	Ability to	5	4	4	5	4	4	2	4	5	2	4	4	2	4	4	4	5	5
31	2022/04/11	Choate Parking Consultants, Inc.	Design Consultant	20 Years +	California	3	2	2	I am not	$50 M - $	$50 M - $	Less tha	300,000+	300,000+	300,000+	Somewh	Team ch	4	4	5	4	4	5	2	5	4	2	5	4	2	5	4	4	5	4
32	2022/04/11	ArchiLOGIX	Design Consultant	20 Years +	California	3	2	2	I am not	Do not h	Do not h	Do not h	Do not h	Do not h	Do not h	Somewh	Ability to	4	4	5	4	4	5	4	4	4	2	4	5	4	5	5	2	4	4
33	2022/04/12	Mosaic Architecture	Design Consultant	20 Years +	Montana	3	2	3	I am not	Less tha	Do not h	Less tha	Less tha	Do not h	50,000 -	Very like	Ability to	4	4	5	5	5	5	2	4	5	5	5	4	2	4	5	2	4	5
34	2022/04/12	Mithun	Design Consultant	10-20 Years	Washington	2	2	3	I am not	Less tha	Do not h	Less tha	Less tha	Do not h	Less tha	Very like	Ability to	4	Unfamiliar	5	4	4	4	5	5	4	5	5	4	5	5	5	4	4	4
35	2022/04/12	Woden Fire, LLC	Design Consultant	5-10 Years	California	3	2	2	I am not	$50 M - $	$50 M - $	Less tha	50,000 -	50,000 -	50,000 -	Very like	Ability to	5	4	Unfamiliz	5	4	4	5	5	4	5	5	4	Unfamiliz	Unfamiliz	Unfamiliz	5	5	4
36	2022/04/12	Holmes	Design Consultant	20 Years +	Washington	3	2	3	I am not	$100 M -	$50 M - $	$50 M - $	100,000 -	50,000 -	50,000 -	Somewh	Ability to	4	4	2	4	4	2	4	5	2	4	5	2	4	4	2	4	5	2
37	2022/04/18	Mithun	Design Consultant	20 Years +	Oregon	3	2	2	I am not	$100 M -	Do not h	Less tha	300,000+	Do not h	Less tha	Somewh	Ability to	4	2	2	4	4	2	2	4	4	2	4	4	2	4	4	2	4	4
38	2022/04/18	DCI Engineers	Design Consultant	20 Years +	California	3	2	1	I am not	$100 M -	Do not h	Do not h	150,000 -	Do not h	Do not h	Very unli	Ability to	5	Unfamiliar	Unfamiliz	5	Unfamiliz	Unfamiliz	4	Unfamiliz	Unfamiliz	5	Unfamiliz	Unfamiliz	4	Unfamiliz	Unfamiliz	5	Unfamiliz	Unfamiliz
39	2022/04/19	Ficcadenti Waggoner & Castle Structural Engi	Design Consultant	20 Years +	California	3	2	2	I am not	$100 M -	$50 M - $	$50 M - $	300,000+	50,000 -	50,000 -	Somewh	Ability to	5	Unfamiliar	4	5	Unfamiliz	4	5	Unfamiliz	4	5	Unfamiliz	2	5	Unfamiliz	4	5	4	2
40	2022/04/27	Scott Edwards Architecture	Design Consultant	20 Years +	Oregon	3	2	3	I am not	Less tha	Do not h	Less tha	Less tha	Do not h	Less tha	Somewh	Ability to	4	4	4	2	4	4	5	4	5	4	5	5	4	4	4	4	4	5
41	2022/04/28	KPFF	Design Consultant	20 Years +	California	3	2	3	I am not	$50 M - $	Less tha	Less tha	100,000 -	Less tha	Less tha	Very like	Ability to	5	Unfamiliar	5	5	Unfamiliz	4	4	Unfamiliz	4	5	5	4	Unfamiliz	Unfamiliz	Unfamiliz	5	5	5
42	2022/05/02	KPFF Consulting	Design Consultant	20 Years +	California	3	2	2	I am not	Less tha	Less tha	Less tha	Less tha	50,000 -	Less tha	Very like	Ability to	4	5	4	5	5	4	4	4	4	5	5	4	4	4	4	4	4	4
43	2022/04/12	Hensel Phelps	General Contractor	20 Years +	California	3	2	2	Traditiona	$250 M -	$100 M -	Do not h	300,000+	100,000 -	Do not h	Somewh	Ability to	5	2	Unfamiliz	5	2	Unfamiliz	5	2	Unfamiliz	5	2	Unfamiliz	5	2	Unfamiliz	5	2	Unfamiliz
44	2022/04/19	Fortis Construction	General Contractor	5-10 Years	Oregon	3	2	3	I am not	Do not h	Do not h	$100 M -	Do not h	Do not h	100,000	Very like	Ability to	4	Unfamiliar	5	4	Unfamiliz	4	4	Unfamiliz	4	5	Unfamiliz	4	4	Unfamiliz	4	4	Unfamiliz	4
45	2022/04/20	Hoffman Construction Company	General Contractor	20 Years +	Oregon	3	2	3	I am not	Less tha	Less tha	Less tha	Less tha	Less tha	100,000	Somewh	Ability to	4	2	4	4	2	5	4	2	4	5	4	4	4	5	2	4	5	2
46	2022/04/20	Hoffman Construction	General Contractor	20 Years +	Washington	2	2	3	I am not	Do not h	Do not h	Do not h	50,000 -	50,000 -	50,000 -	Somewh	Ability to	Unfamiliz	Unfamiliar	Unfamiliz	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3
47	2022/04/21	Andersen Construction	General Contractor	10-20 Years	Oregon	2	2	3	I am not	Less tha	Less tha	Less tha	Less tha	Less tha	Less tha	Somewh	Ability to	5	4	4	5	4	2	4	5	4	5	5	4	4	5	5	5	5	4
48	2022/04/29	PCL Construction Services, Inc.	General Contractor	20 Years +	California	3	2	3	I am not	$50 M - $	Less tha	$100 M -	300,000+	Less tha	300,000+	Very like	Ability to	5	5	4	4	5	4	4	5	4	4	4	4	4	4	4	5	4	4
49	2022/04/29	PCL Construction Services, Inc.	General Contractor	10-20 Years	California	3	2	3	I am not	Less tha	$50 M - $	Less tha	100,000 -	50,000 -	Less tha	Very like	Ability to	4	1	5	4	2	4	4	2	5	5	4	5	5	2	5	5	4	2
50	2022/04/29	PCL Construction	General Contractor	5-10 Years	California	3	2	3	I am not	Less tha	Less tha	Less tha	Less tha	Less tha	Less tha	Somewh	Ability to	4	5	5	4	5	5	4	5	5	4	5	5	4	5	5	4	5	5
51	2022/05/01	Swinerton	General Contractor	10-20 Years	California	2	2	1	I am not	Less tha	$50 M - $	Do not h	50,000 -	50,000 -	Do not h	Somewh	Ability to	4	2	Unfamiliz	4	2	Unfamiliz	4	5	Unfamiliz	4	4	Unfamiliz	4	4	Unfamiliz	4	4	Unfamiliz
52	2022/05/02	PCL Construction	General Contractor	10-20 Years	California	2	2	3	I am not	Do not h	Do not h	$100 M -	Do not h	Do not h	Do not h	Somewh	Ability to	5	4	4	5	2	5	4	5	4	4	5	4	4	5	2	5	5	4
53	2022/04/11	University of California San Diego	Owner (Higher Education Institution	20 Years +	California	3	2	2	Traditiona	$50 M - $	$250 M -	Less tha	150,000 -	150,000 -	Less tha	Somewh	Ability to	5	4	4	5	5	5	4	4	4	3	2	3	2	4	4	2	5	5
54	2022/04/18	John M. Syvertsen, FAIA Architect	Owner (Higher Education Institution	20 Years +	Illinois	3	2	3	I am not	$50 M - $	Do not h	$50 M - $	100,000 -	Do not h	Do not h	Somewh	Ability to	4	5	4	4	5	2	2	5	4	2	5	4	4	5	2	4	5	2
55	2022/04/18	University of Washington	Owner (Higher Education Institution	20 Years +	Washington	2	2	1	Progress	Less tha	$50 M - $	Do not h	Less tha	50,000 -	Do not h	Somewh	Ability to	1	4	Unfamiliz	2	4	Unfamiliz	4	5	Unfamiliz	5	5	Unfamiliz	4	4	Unfamiliz	2	2	Unfamiliz
56	2022/04/20	UCLA Capital Programs	Owner (Higher Education Institution	20 Years +	California	3	2	3	Progress	Do not h	Less tha	$50 M - $	Do not h	Less tha	300,000+	Somewh	Ability to	Unfamiliz	4	4	Unfamiliz	5	4	Unfamiliz	5	5	Unfamiliz	5	4	Unfamiliz	5	5	Unfamiliz	5	5
57	2022/04/29	Chatham University	Owner (Higher Education Institution	20 Years +	Pennsylvania	3	2	3	CM at Ri	Less tha	Do not h	Less tha	Less tha	Do not h	Less tha	Very unli	Ability to	2	Unfamiliar	5	2	Unfamiliz	5	4	Unfamiliz	5	1	Unfamiliz	5	2	Unfamiliz	5	4	Unfamiliz	5
58	2022/04/29	UCLA Capital Programs	Owner (Higher Education Institution	20 Years +	California	3	2	3	CM at Ri	$50 M - $	$50 M - $	$250 M -	50,000 -	50,000 -	150,000	Very like	Ability to	1	5	4	2	4	4	5	5	5	2	4	4	2	4	4	4	4	4

... | By Location | By Experience Level | Sample Survey_ Mithun_Final Ass

SURVEY - ANALYSIS



BY PROFESSION



BY LOCATION

SURVEY - ANALYSIS

VALUE ASSESSMENT IN TERMS OF 11 KEY VALUES:

TRADITIONAL VALUES

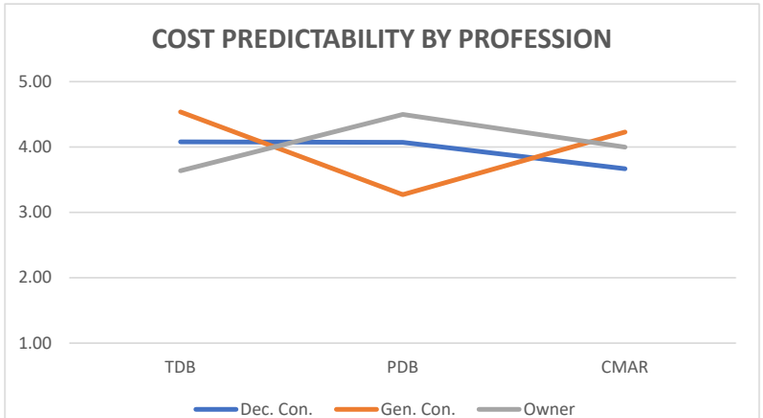
1. COST PREDICTABILITY
2. SHORTER/ EXPEDITED SCHEDULE

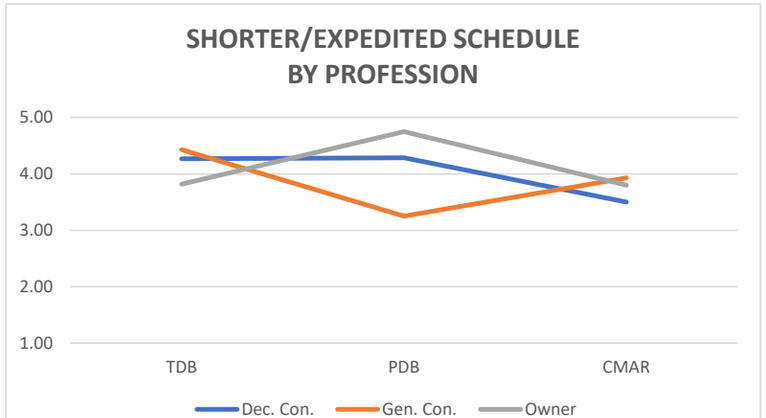
ABSTRACT VALUES

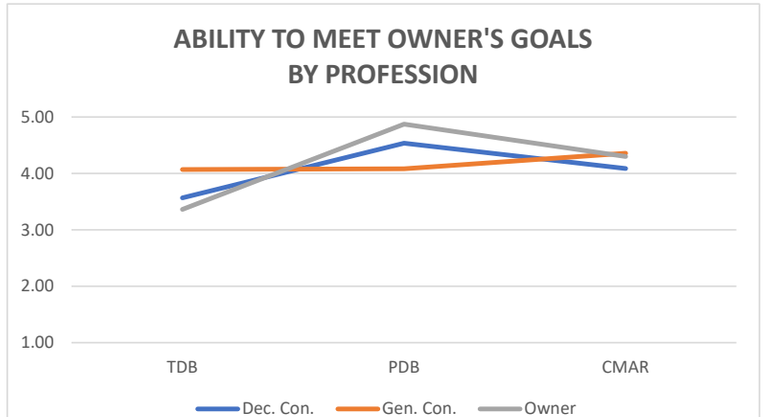
3. ABILITY TO MEET OWNER'S GOALS
4. TEAM CHEMISTRY
5. LIFECYCLE VALUE
6. INNOVATIVE THINKING
7. INDUSTRY AWARDS
8. SUSTAINABLE DESIGN
9. HEALTH & WELLNESS FOR BUILDING OCCUPANTS
10. AESTHETICS
11. RESPONDING TO CAMPUS ENVIRONMENT

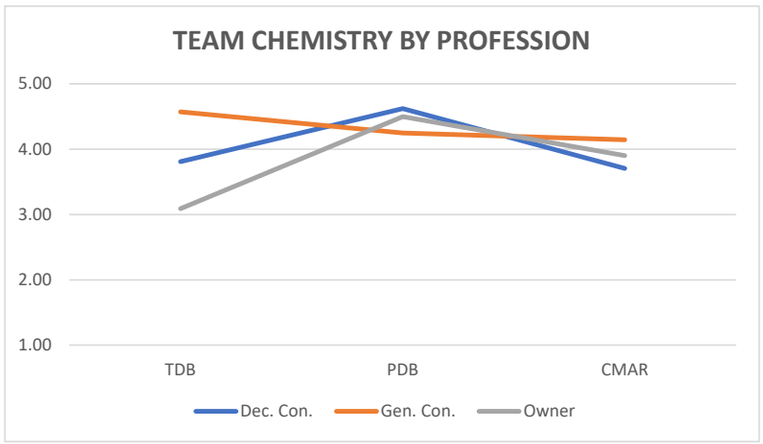
SURVEY - ANALYSIS

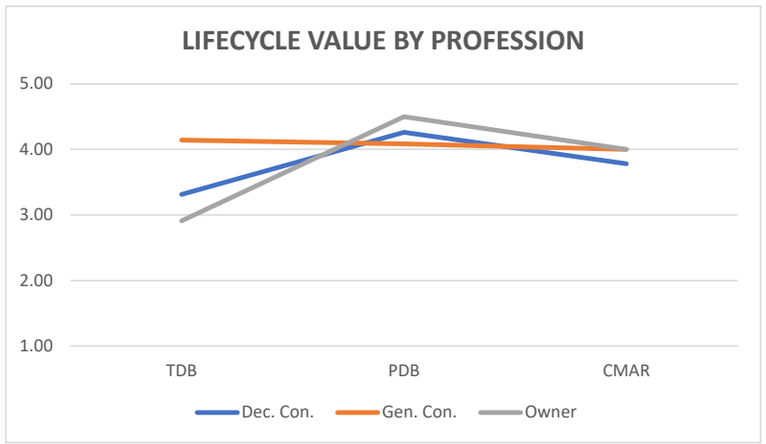
BY PROFESSION

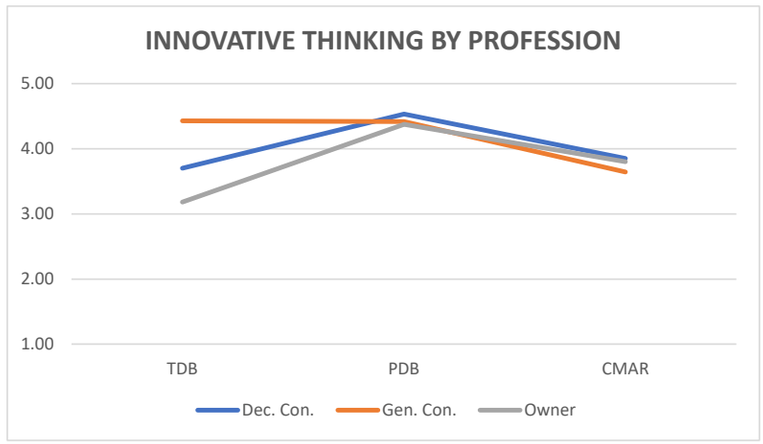












SURVEY - ANALYSIS

BY PROFESSION

KEY TAKEAWAYS:

DESIGN CONSULTANTS HAVE A MORE COMPLEX TAKE ON THE DELIVERY METHODS

ALL TEND TO UNDER-PERFORM IN TERMS OF INDUSTRY AWARDS

CONSIDERABLE DIFFERENCES IN DELIVERY METHODS SEEN WITH:

-SHORTER/EXPEDITED SCHEDULE

-ABILITY TO MEET OWNER'S GOALS

-LIFECYCLE VALUE

-INNOVATIVE THINKING

SURVEY - ANALYSIS

BY PROFESSION

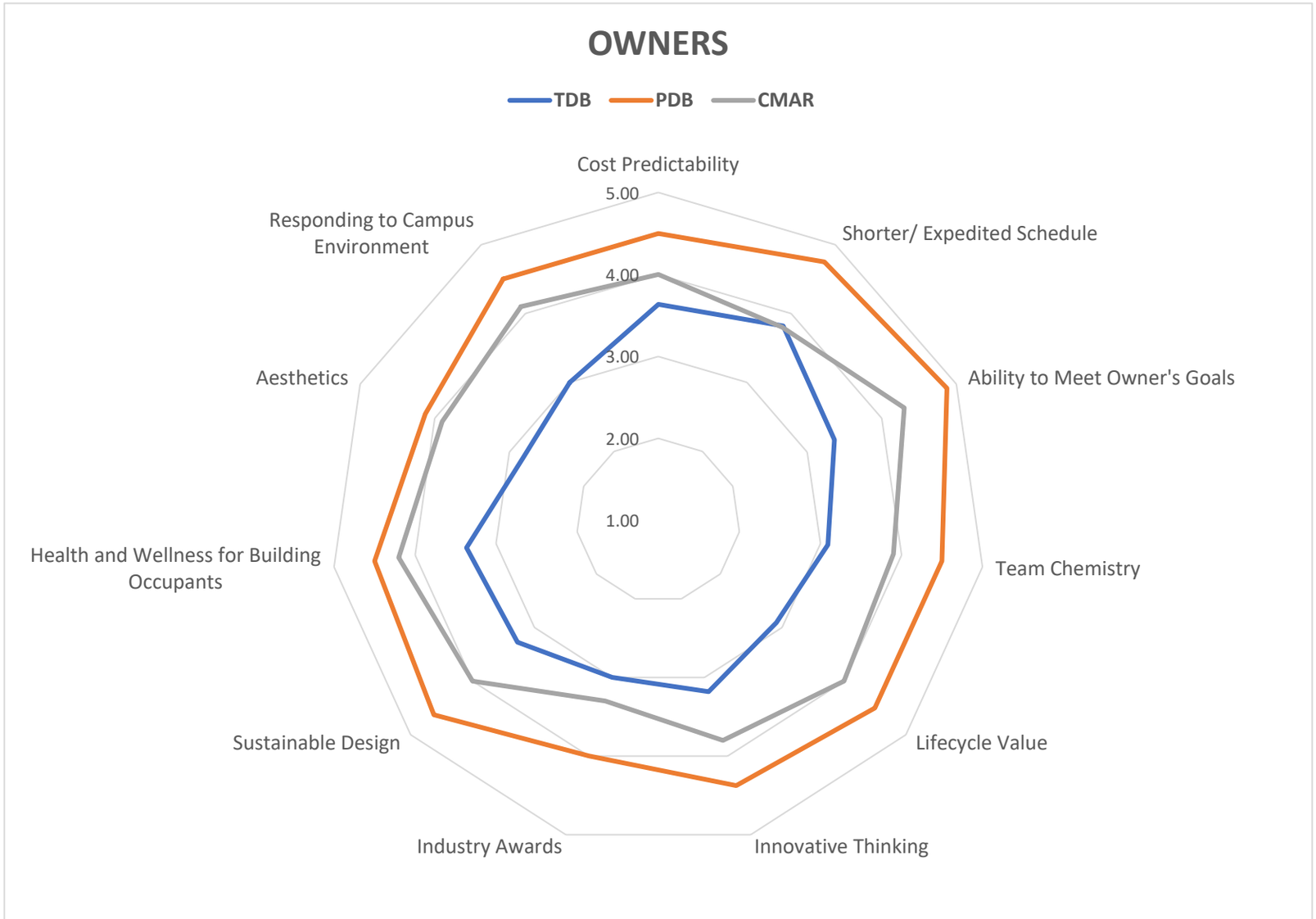
KEY TAKEAWAYS:

GENERAL CONTRACTORS SENSE THAT PDB UNDER-PERFORMS IN THE TRADITIONAL VALUES OF COST PREDICTABILITY AND SHORTER/ EXPEDITED SCHEDULE

CMAR DOES NOT PERFORM WELL IN TERMS OF INNOVATIVE THINKING

SURVEY - ANALYSIS

BY PROFESSION



KEY TAKEAWAYS:

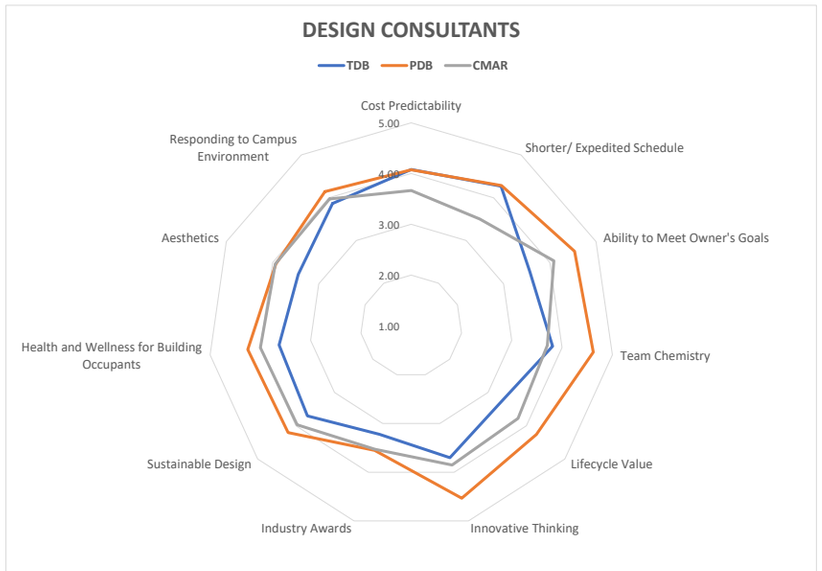
OWNERS RESPOND WITH A SUBSTANTIAL PREFERENCE TOWARDS PDB

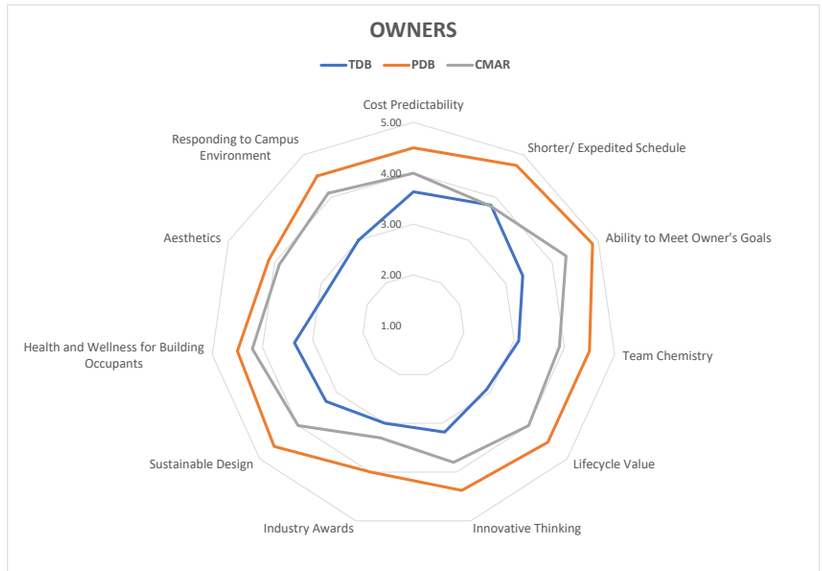
CONSIDERABLE DIFFERENCES IN PDB AND TDB SEEN WITH:

- -RESPONDING TO CAMPUS ENVIRONMENT
- -AESTHETICS
- -LIFECYCLE VALUE
- -TEAM CHEMISTRY

SURVEY - ANALYSIS

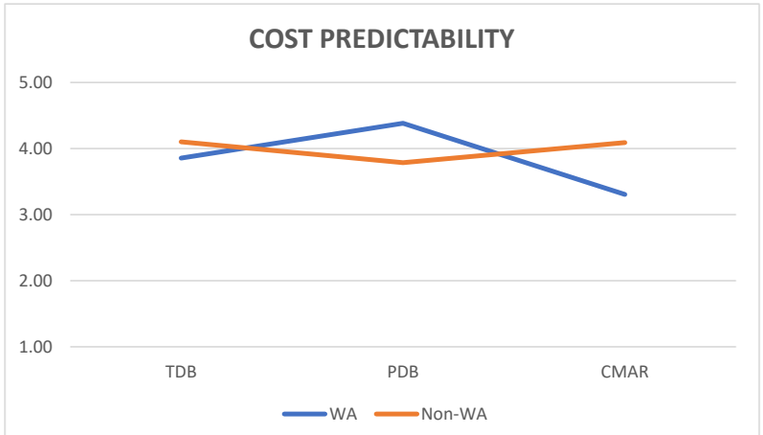
BY PROFESSION

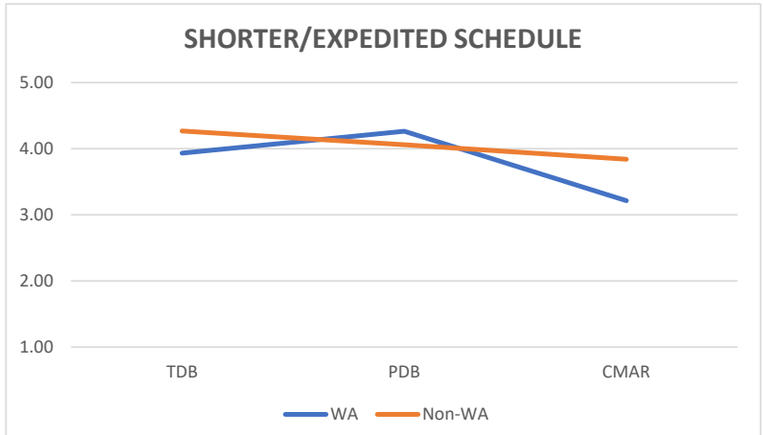


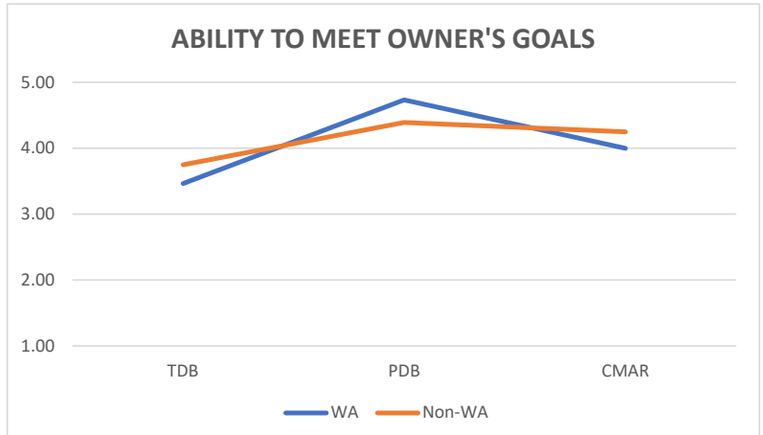


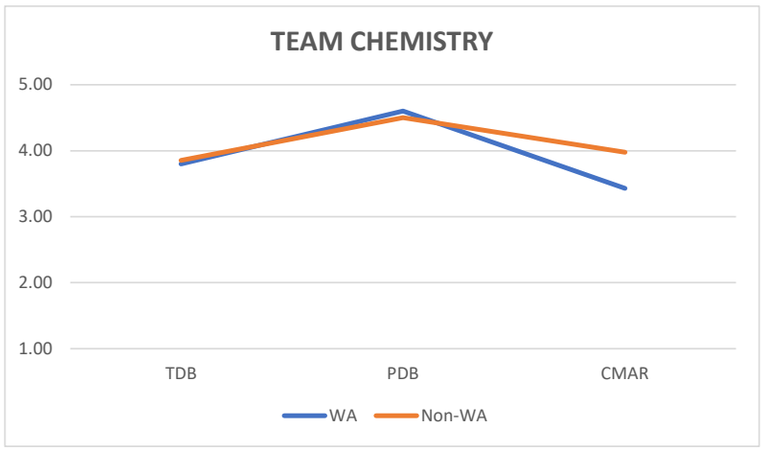
SURVEY - ANALYSIS

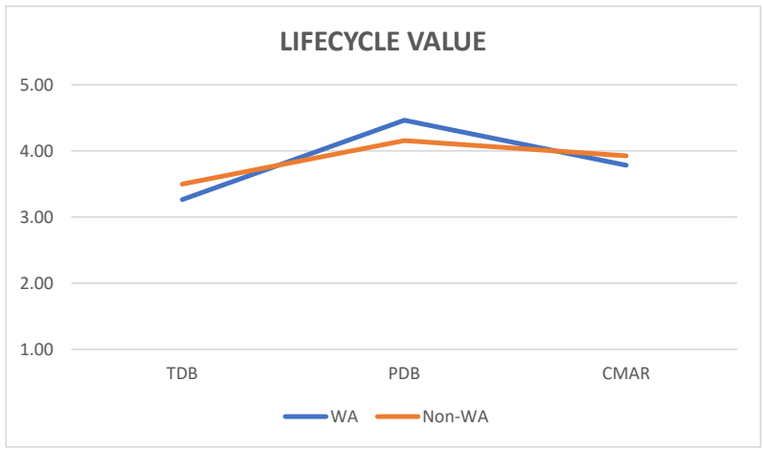
BY LOCATION

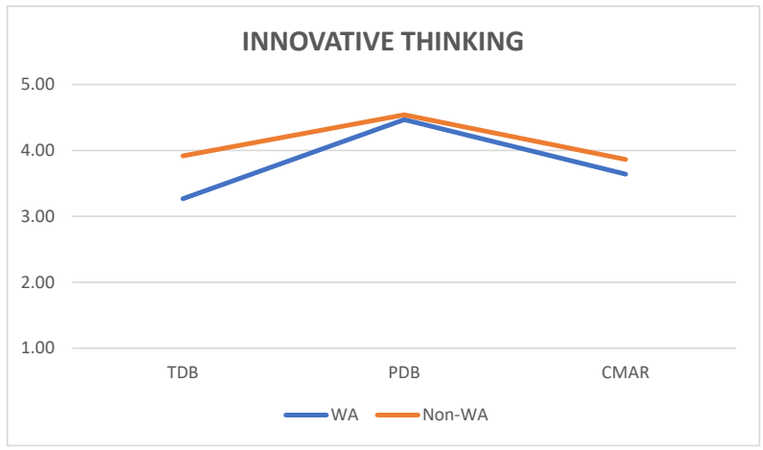






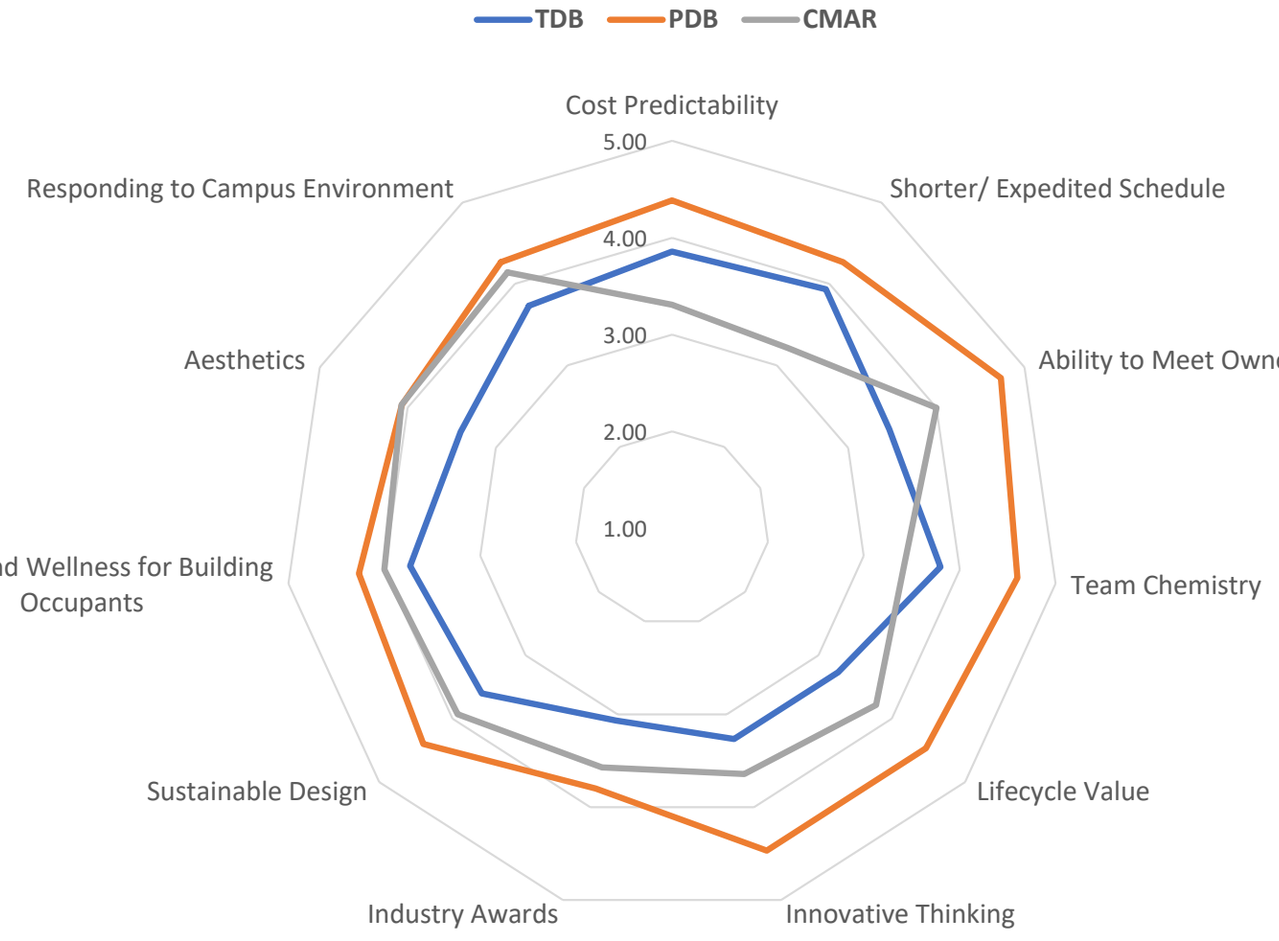






SURVEY - ANALYSIS

BY LOCATION



KEY TAKEAWAYS:

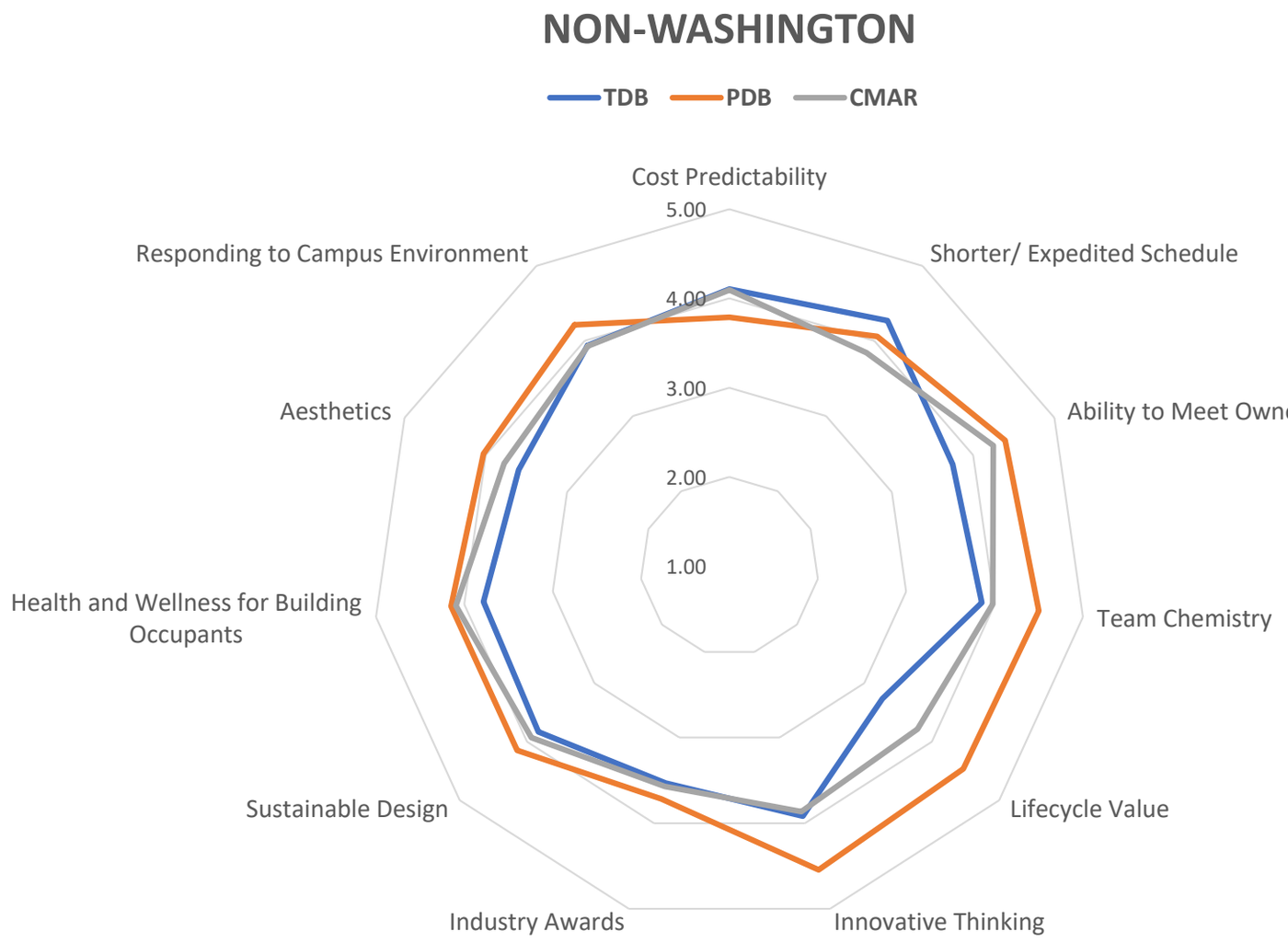
WASHINGTONIANS ARE GENERALLY MORE OPTIMISTIC ABOUT PDB

VALUES THAT ARE MET WELL WITH PDB:

-ABILITY TO MEET OWNER'S GOALS
-TEAM CHEMISTRY
-LIFECYCLE VALUE
-INNOVATIVE THINKING

SURVEY - ANALYSIS

BY LOCATION



KEY TAKEAWAYS:

NON-WASHINGTONIANS FEEL THAT ALL 3 DELIVERY TYPES PERFORM MOSTLY SIMILAR

KEY DIFFERENCES SEEN:

-ABILITY TO MEET OWNER'S GOALS

-TEAM CHEMISTRY

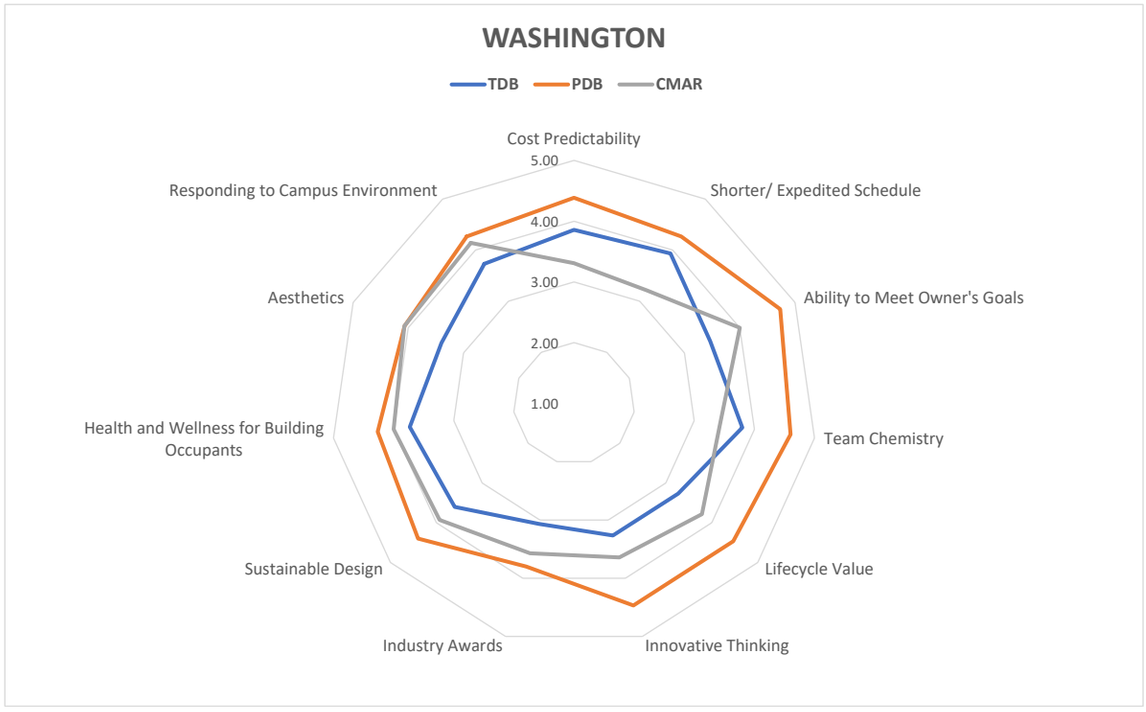
-LIFECYCLE VALUE

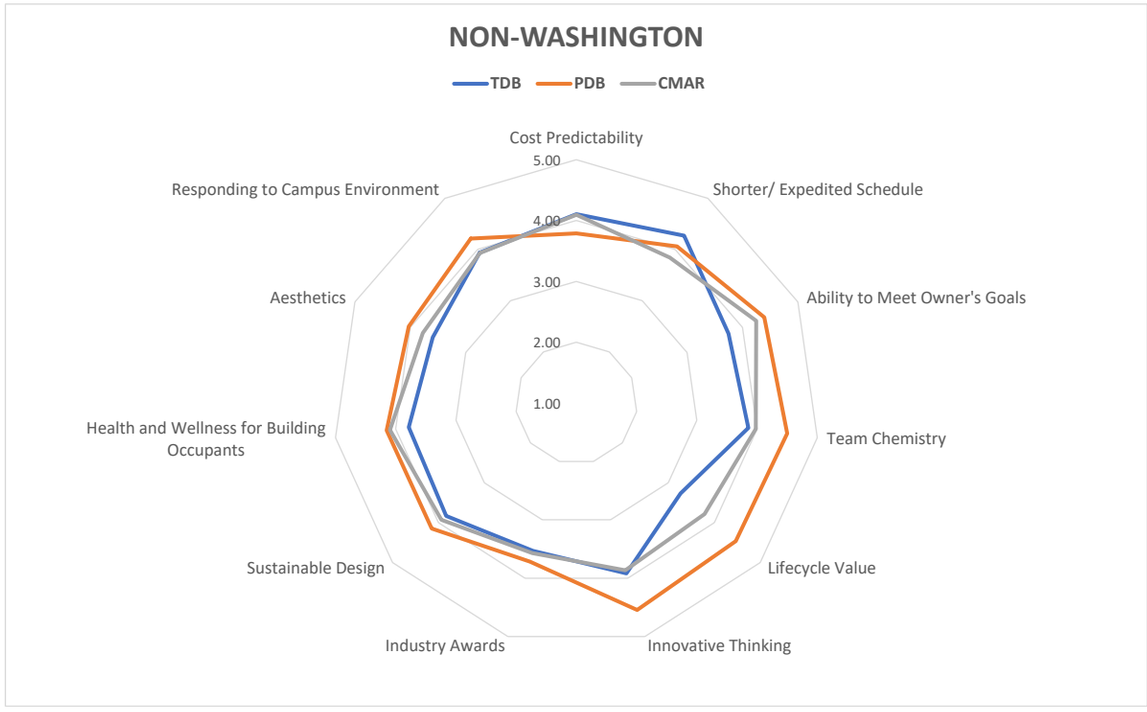
-INNOVATIVE THINKING

LACK OF FAMILIARITY COULD PLAY A ROLE IN PDB RESPONSE

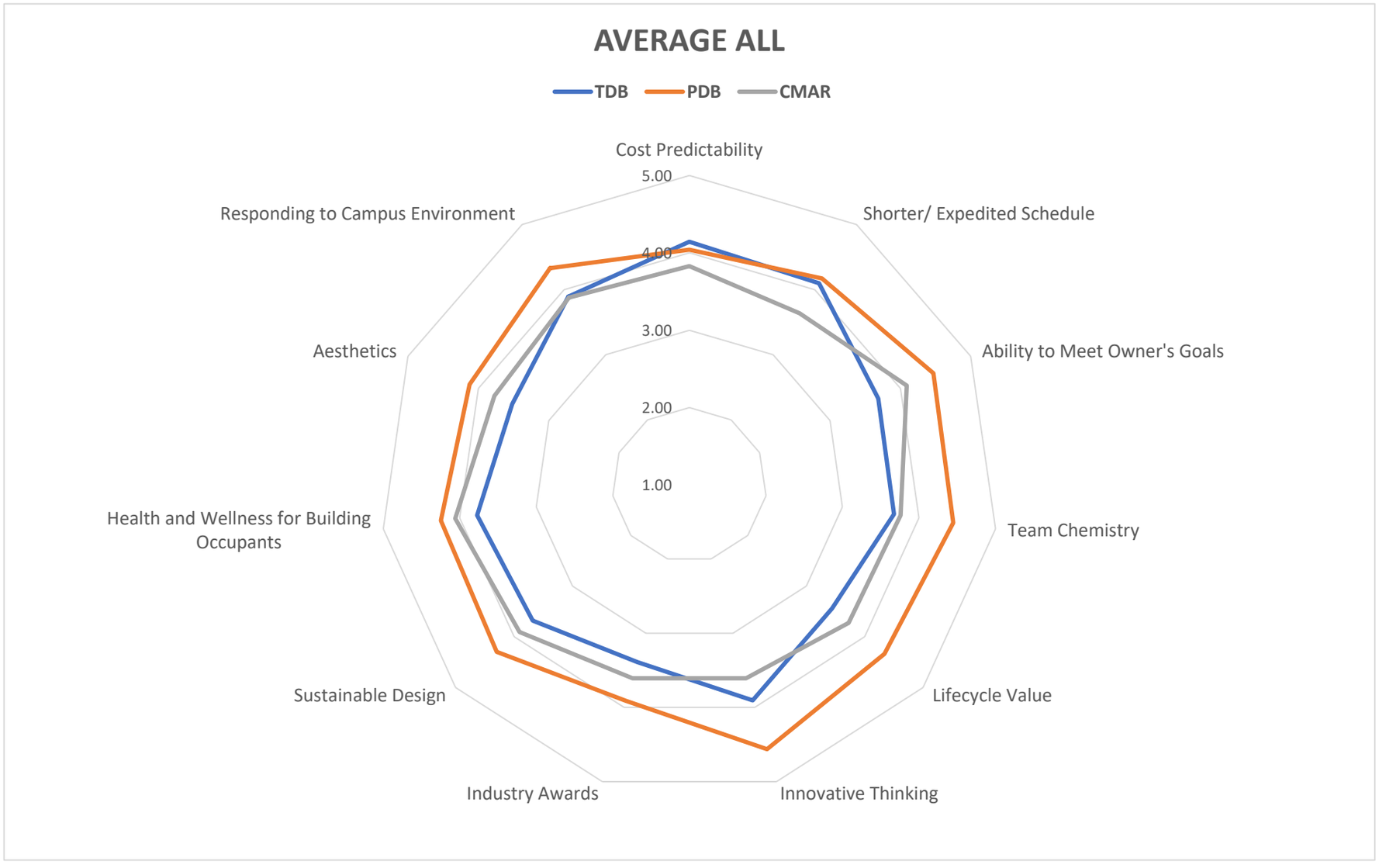
SURVEY - ANALYSIS

BY LOCATION





SURVEY - ANALYSIS



KEY TAKEAWAYS:

GENERAL OPTIMISM TOWARDS PDB

KEY DIFFERENCES SEEN:

-ABILITY TO MEET OWNER'S GOALS

-TEAM CHEMISTRY

-LIFECYCLE VALUE

-INNOVATIVE THINKING

TDB A RELIABLE DELIVERY METHOD IN TERMS OF TRADITIONAL VALUES (COST PREDICTABILITY AND SHORTER/ EXPEDITED SCHEDULE)

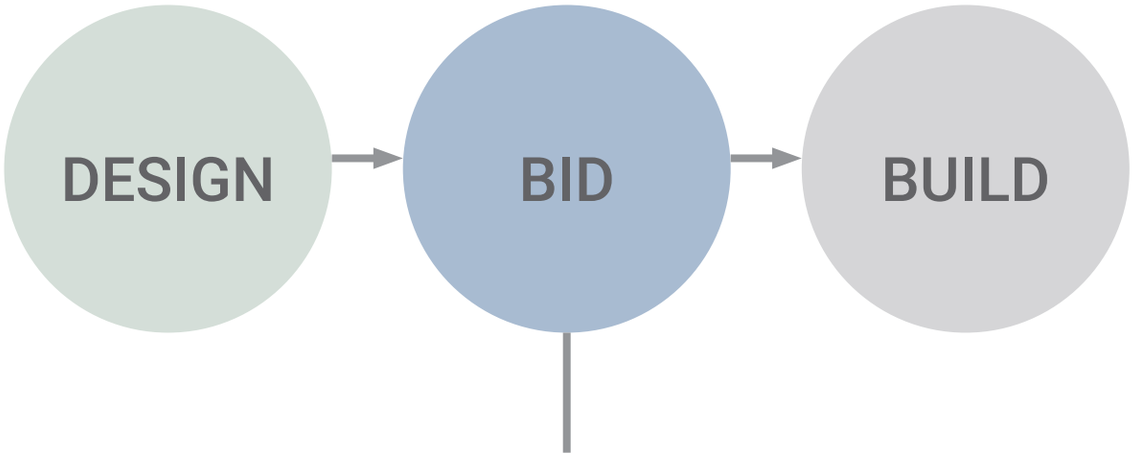
NEXT STEPS

DEVELOP A TOOL AS A FINAL PRODUCT:

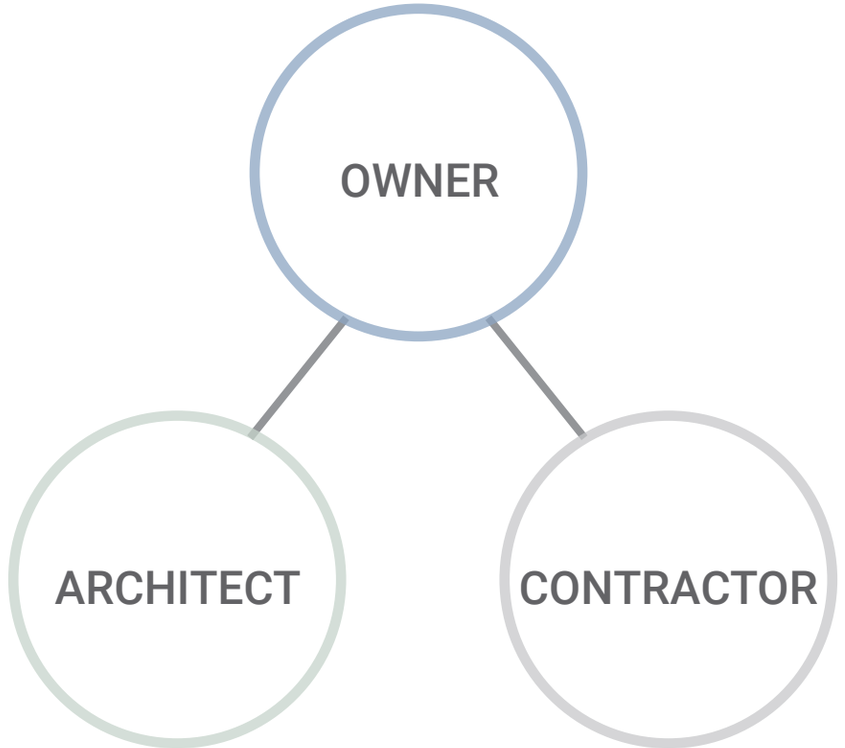
- CREATE A DECISION TREE TOOL, BASED ON SURVEY RESULTS, FOR PROFESSIONAL USE
- DISSEMINATION OF THIS TOOL

REFERENCE SLIDES

DESIGN DELIVERY - DESIGN-BID-BUILD

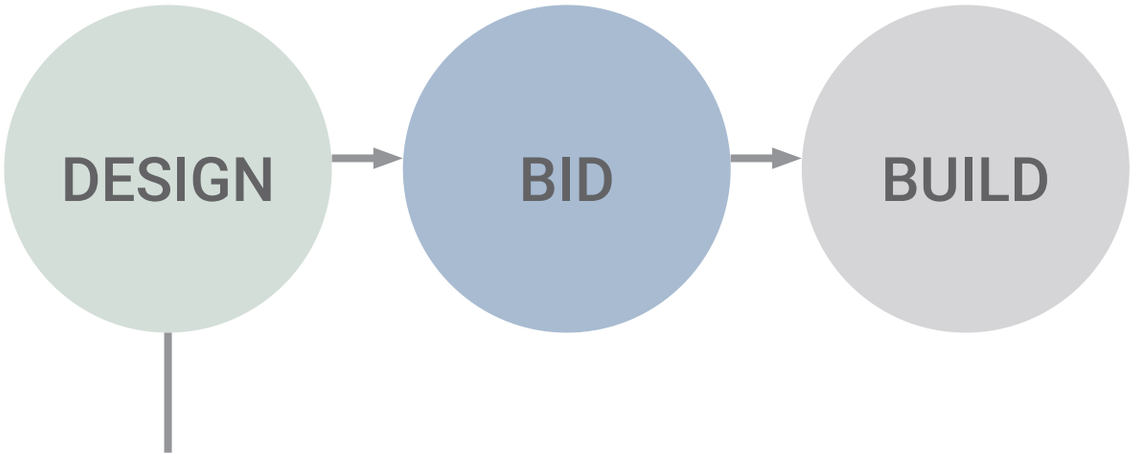


General Contractor Architect Contractor engages after design is complete and documented. Estimating by others during design.

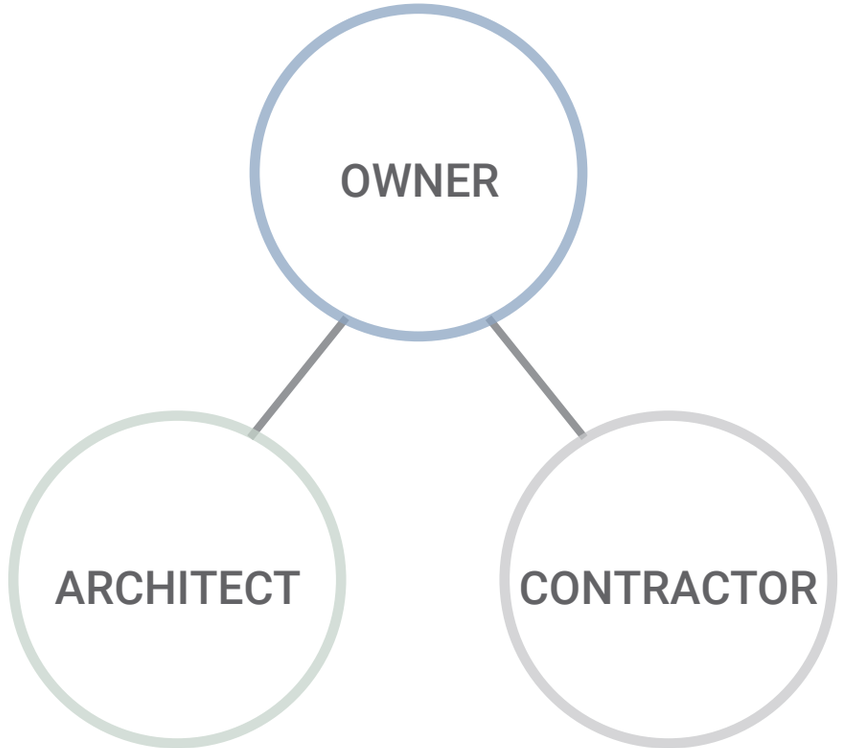


SOURCE: LYNN MCBRIDE

DESIGN DELIVERY - CM AT RISK (CM/GC)

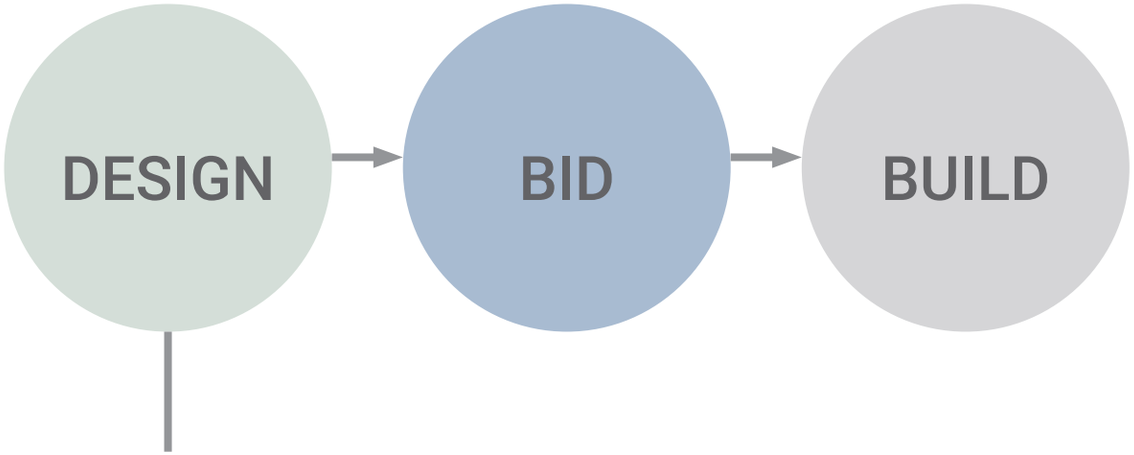


General Contractor engages during the design process, providing Constructibility and pricing feedback.



SOURCE: LYNN MCBRIDE

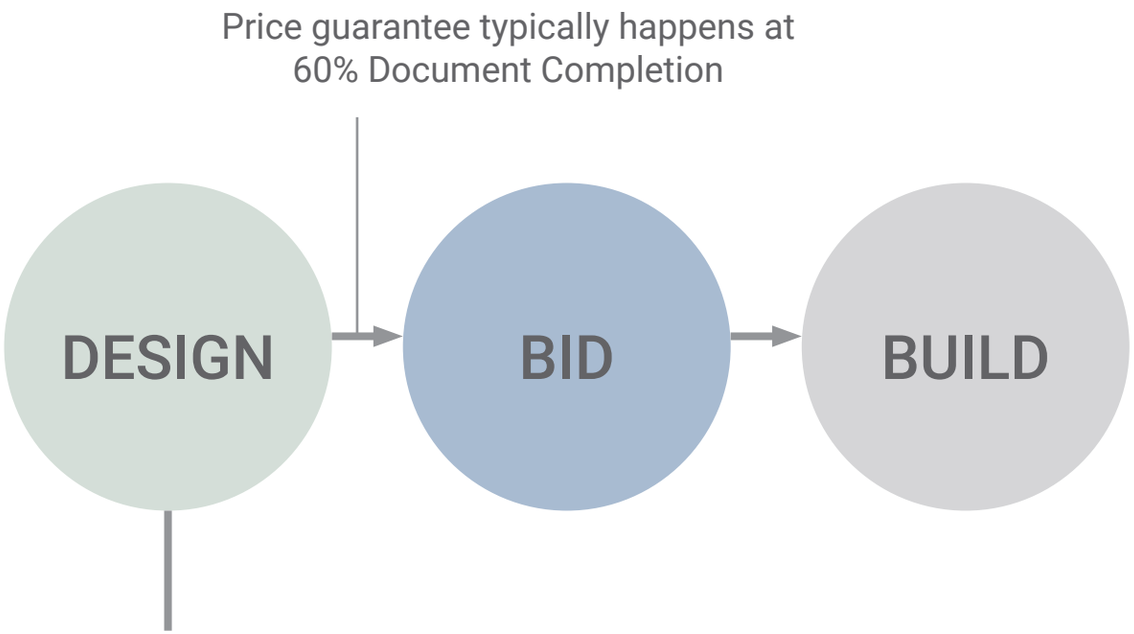
DESIGN DELIVERY - STIPULATED SUM / COMPETITIVE DESIGN-BUILD



General Contractor engages at the commencement of the design process, guaranteeing the price at the end of the competitive period.

SOURCE: LYNN MCBRIDE

DESIGN DELIVERY - PROGRESSIVE DESIGN-BUILD



General Contractor engages at the commencement of the design process, providing constructibility and pricing feedback.

SOURCE: LYNN MCBRIDE

ASSESSING VALUES

TRADITIONAL VALUES

COST

SCHEDULE

ABSTRACT VALUES

DESIGN CONTROLLABILITY

DESIGN SATISFACTION

PROGRAM GOALS

AESTHETICS

MAINTENANCE

ETC.

EXAMPLE QUESTIONNAIRE

Assessing different values:

Traditional:

- Cost
- Schedule

Abstract Values:

- Sustainability
- Life Cycle Performance
- Team Chemistry
- Aesthetics
- Etc.

UW CBE ARC Mithun

The goal of this research is to compare the value delivery of three project delivery methods, Stipulated Sum/ Competitive Design Build, Progressive Design Build, and CM at Risk/CM GC, in higher education projects. To achieve this goal, we would like to identify (1) what abstract values we can use to determine the levels of value delivery in each of the methods; (2) what criteria would you use when selecting a delivery method for a new project

Introduction

1. Please introduce your organization and your role.
2. What is your experience with each of the three different project delivery methods?
    a. Stipulated Sum/ Competitive Design Build
    b. Progressive Design Build
    c. CM at Risk/CM GC

Project Performance

3. How do you define success in a higher education project?
4. What values are of utmost importance to you during the project delivery process? (e.g., cost, schedule, design quality, teamwork, etc.)
5. What abstract values do you use to determine project success of a higher education project? (e.g., sustainability, aesthetics, maintenance, etc.)
    a. How do you measure these (metrics)?
    b. How do you measure these from the perspective of users (or any other key stakeholders)?

Selection Criteria for Project Delivery Method

6. What internal/external factors influence a project delivery method selection for your institution?
7. What is an optimum project size and typology that best aligns with each of the three project delivery methods?
8. Does familiarity with a project delivery method affect project success?

Case Study Request

9. Can you provide a case study or two we can use for our research?

METHODOLOGY

1. LITERATURE REVIEW

2. INTERVIEWS

3. CASE STUDIES

4. SURVEY

5. DOCUMENT + DISSEMINATE

	2021				2022					
	S	O	N	D	J	F	M	A	M	J
Perform literature review										
Develop interview questionnaire										
Perform interviews										
Perform case studies										
Develop survey tool										
Perform survey										
Analyze survey results										
Document and disseminate										
		FALL				WINTER			SPRING	

PRELIMINARY INTERVIEWS

VARIABLES:

GAINING A BETTER UNDERSTANDING OF HOW KEY PLAYERS IN THE DESIGN PROCESS DEFINE PROJECT SUCCESS:

PROJECT PERFORMANCE:

- DEFINITION OF SUCCESS IN A HIGHER EDUCATION CONTEXT
- VALUE ASSESSMENT
- TRADITIONAL (COST + SCHEDULE)
- ABSTRACT VALUES (E.G. SUSTAINABILITY, AESTHETICS, ETC.)

SELECTION CRITERIA:

- INTERNAL/EXTERNAL FACTORS FOR DELIVERY METHOD SELECTION
- OPTIMUM PROJECT SIZE/TYPOLOGY FOR EACH METHOD
- FAMILIARITY WITH DELIVERY METHOD

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CASE STUDIES - LEARNING OUTCOMES

HANS ROSLING CENTER FOR POPULATION HEALTH - UW

CHALLENGES:

IPD-LIKE CONTRACT IS NEW/FOREIGN TO MOST

STRICT TIMELINE DUE TO FUNDING SOURCE

SUCCESSES:

VERY POSITIVE TEAM ENVIRONMENT

COMPLETED AHEAD OF SCHEDULE

FINISHED UNDER BUDGET

MARINE STUDIES INITIATIVE BUILDING - OSU

CHALLENGES:

SITE LIMITATIONS = INNOVATIVE DESIGN SOLUTIONS

STRICT BUDGET LIMITED PROJECT SCOPE

SUCCESSES:

VERY POSITIVE TEAM ENVIRONMENT

PROJECT MET DESIGN REQUIREMENTS

DESIGN RESPONDED APPROPRIATELY TO BUDGET LIMITATIONS AND THE SURROUNDING CONTEXT OF THE SITE