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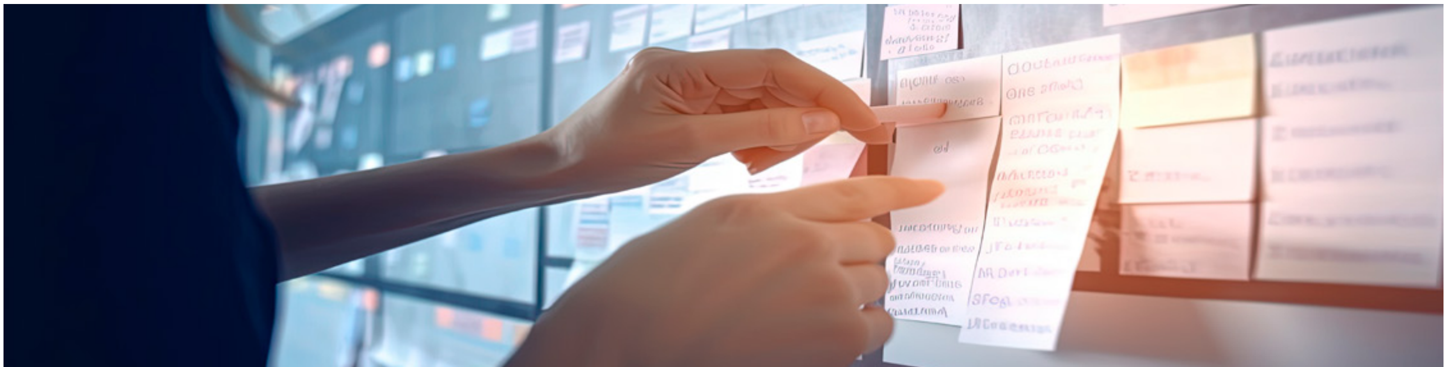


Science + Technology Perspectives

The Advantages of Choosing by Advantages

In any project, making decisions, particularly decisions that "stick," can be a tricky process. Whether there are too many good options from which to choose... or not enough..., complicated factors, or multiple stakeholders with varying perspectives on what the right choice should be, the decision-making process can be filled with difficulties.

Over the past decade, when we at Hixson have come up against situations such as this, we look to one of the tools from our Lean methodology toolkit to help: **Choosing by Advantages (CBA)**. Recognized by the Lean Construction Institute as a tool for better decision making, CBA focuses on evaluating options based on their strengths, rather than comparing them against a list of fixed criteria. Instead of simply weighing pros and cons, CBA looks at what each option offers in terms of the benefits it brings to the decision-makers' goals. The key idea is to choose the option that provides the greatest advantage, whether that's cost savings, efficiency, productivity or other outcomes that align with the desired objective.

Teams following the CBA method go through the following steps:

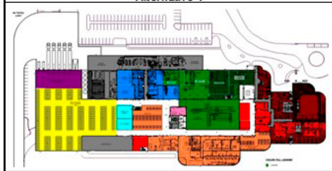
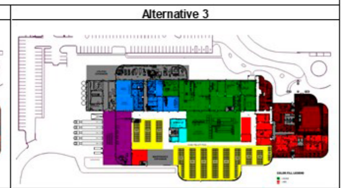
1. **Clearly define the decision goal,** and identify all the available alternatives.

2. **Determine the decision criteria or attributes that are important to achieve.** List the advantages of each, and then assess which advantages matter most and which provide the greatest overall benefit to the end result.

3. **Make the final decision.** This may be done intuitively if the differences are clear, or by ranking the alternatives according to how they satisfy the criteria.

4. **Document and review the decision.** Documenting the reasoning for the decision can help clarify the thought process and provide a reference in case the decision needs to be reviewed later. In addition, feedback may be requested from others to ensure all angles have been considered. Once the decision has been implemented, in some instances it may be good to go back and evaluate the decision and reflect on whether it achieved the desired outcomes.

For more on the Choosing by Advantages method of decision-making, and how it can be employed for the benefit of your next project, contact Hixson.

			10 Year Masterplan Vision Double Production Capacity by 2030		
			Alternative 1	Alternative 2	Alternative 3
					
			Relocate Dry-Blends, and other minor processes to OLY. Maximized Dry Storage, Staging & Dock addition on NW end of PAC1. Liquids & Spray-Dry processes enlarged within vacated storage/process spaces.	Relocate Dry-Blends, and other minor processes to OLY. Multiple additions on (3) sides of PAC1 to support enlarged Liquids, Spray-Dry, MID, dock staging and utility spaces.	Relocate Dry-Blends, MID, and other minor processes to OLY. Develop Raw/Dry Storage within vacated PAC1 space Multiple additions on (3) sides of PAC1.
Factor:	**Maintain operations during construction**	Attribute:	Phased expansion of shipping / receiving to create space for production expansions within existing facility.	Multiple small expansions outside of existing building operations.	Phased removal of process streams to create space for production / storage expansions within existing facility.
Criterion:	Minimize department downtime	Advantage:	Each production stream will be interrupted during its expansion.	Most production streams remain in operation during construction.	MID will be disrupted for duration of relocation, with partial disruption to other processes during their individual expansions.
Factor:	**Flexibility built into plan for dynamic market conditions and changing technologies, ie: unitized packing and kitting**	Attribute:	Limited additional space within the existing building and additions for future response to dynamic market conditions.	Potential for future expansion to the northwest provides the possibility of accommodating future dynamic market conditions.	Potential for future expansion to the northwest provides the possibility of accommodating future dynamic market conditions.
Criterion:	More flexibility is better	Advantage:	Provides least flexibility of the alternatives as shown.	Provides more flexibility with possible future expansions.	Provides most flexibility with additional interior space available.
Factor:	**Lead time from WIP staging to production**	Attribute:	WIP staging area provided on-site.	Limited WIP staging provided on-site.	WIP staging area provided on-site.
Criterion:	Minimize downstream lead time	Advantage:	Shorter lead time from WIP staging to production.	Lead time from WIP staging to production largely unchanged from current conditions.	Shortest lead time from WIP staging to production.
Factor:	**Raw Material/weigh-up and production at the same facility**	Attribute:	Raw ingredient storage and weigh-up provided on-site.	Raw ingredient storage off-site, some weigh-up provided on-site, some weigh-up provided off-site.	Raw ingredient storage and weigh-up provided on-site.
Criterion:	Minimize double handling of raw material	Advantage:	Less processing and handling, reducing possible errors of MO weigh-ups to the process	More processing and handling, increasing possible errors of MO weigh-ups to the process	Less processing and handling, reducing possible errors of MO weigh-ups to the process
Factor:	**Movement of raw materials**	Attribute:	Raw ingredients delivered directly to production sites.	Raw materials delivered to Olympic and shuttled to Pac1.	Raw ingredients delivered directly to production sites.
Criterion:	Minimize time to deliver raw materials to point of use	Advantage:	Shortest time to deliver raw materials to point of use.	Longer time to deliver raw materials to point of use.	Shortest time to deliver raw materials to point of use.
Factor:	**Movement of intermediates**	Attribute:	Intermediates for dry blend are separated from spray dry.	Intermediates for dry blend are separated from spray dry.	Intermediates for dry blend and MID are separated from spray dry.
Criterion:	Minimize time to deliver intermediate materials to point of use	Advantage:	Some time required to move intermediates to point of use (less advantageous than current-state).	Some time required to move intermediates to point of use (less advantageous than current-state).	More time required to move intermediates to point of use (less advantageous than current-state).
Factor:	**Speed to accommodate production capacity constraints**	Attribute:	Initial phases of construction required to make way for production capacity improvement projects.	Liquids production capacity improvement projects may begin immediately. Maintenance relocation triggers ability to begin further production improvements.	Initial phases of construction required to make way for production capacity improvement projects.
Criterion:	Minimize time to provide capacity growth	Advantage:	Slower path to production capacity growth - requires construction of warehouse / dock area.	Fastest avenue to production capacity growth.	Slower path to production capacity growth - requires relocation of MID process to Olympic

In this example CBA, the client's factors for success were balanced against three possible alternatives towards achieving their long-term vision. Once the alternatives were reviewed, the choice was clear and stakeholders were aligned in the final decision.

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CONTACT US

Direct any comments or questions to:

Chad Pendergrass
Director of Client Development

cpendergrass@hixson-inc.com
Phone: 513.241.1230
www.hixson-inc.com