Building Better Bakeries

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Practical insights from the leaders in bakery design and construction

Evaluating Options for Large-Scale Capital Projects

PART 2.

The previous issue of Bakery Insights discussed some of the factors that must be addressed when bakers look for solutions to increase capacity, lower costs, improve efficiency, and improve food safety.

In this issue, we present one way to objectively evaluate potential solutions. This approach enables the baker to identify and rank various Options. The available Options could include renovation, renovation and expansion, renovation of an existing building, or building a new plant.

A Decision Matrix Analysis is a valuable tool for reviewing the pros and cons of the various Options. Using a formal evaluation tool allows the Project Team to discuss and debate various Factors that will impact the strategic decision in an organized and objective manner. While the goal is to be objective, it is understood that some Factors will always include a degree of subjectivity.

Utilizing the Bakery Decision Matrix

The Decision Matrix on the following page lists some of the many Factors that may be considered in a bakery project analysis and assigns a sample value for each factor. The values included in the table are samples only to demonstrate how the tool works – they are not intended to represent relative importance to individual bakers. In addition, the number of factors considered could increase, decrease or significantly change, depending on the strategic decisions faced by a specific baker.

- When using the Decision Matrix, the first step is to determine the list of Factors that will be considered in the analysis. Typically, the Project Team develops this list of Factors in a brainstorming workshop, without consideration of relative importance or weight of the various Factors.
- Next, an Importance value is assigned to each Factor. This value represents the relative Importance the baker places on the various components of their operation, location, investment, etc. Additionally, a Weighting value is assigned to each Factor for each Option to indicate how easily the objective can be achieved for the given option. Multiplying Importance by Weight provides the Influence for each Factor, and the sum of all of the Influence numbers provides a total score for each facility option – with the highest score indicating the most attractive option. Using a simple spreadsheet, calculations are done automatically within the table.
- As the team discusses and debates the importance and weighting of each Factor, consensus is built, and the individual team members' goals and objectives are aligned. A review by management or other key stakeholders may follow and the values could be modified based on their input.

For the sample on the following page, values between 1 and 20 were assigned for Importance, with the higher numbers reflecting greater importance. For the Weighting, values between 0 and 10 were assigned, with the higher numbers indicating a greater likelihood of achieving an optimum result.

Of course, the Factors and values for importance and weighting will all change, depending on the specific solution being evaluated.

Facility Action		RENOVATE		RENOVATE & EXPAND		RENOVATE BROWNFIELD		GREENFIELD	
Factors Considered	Importance	Weighting	Influence	weighting	Influence	Weighting	Influence	Weighting	Influence
Capital cost – building	16	18	288	16	256	10	160	0	0
Capital cost – incentives	8	2	16	6	48	8	64	14	112
Capital cost – land	14	20	280	20	280	5	70	5	70
Capital cost – utility connection or impact fees	5	10	50	10	50	8	40	2	10
Capital cost – site development	12	18	216	16	192	10	120	1	12
Employee safety – eliminate low head clearance issues	2	3	6	6	12	15	30	20	40
Employee safety – eliminate vertical ladders	3	3	9	6	18	15	45	20	60
Employee safety – flat floors, no steps	3	3	9	10	30	20	60	20	60
Employee safety – floors that are not slippery	7	4	28	8	56	12	84	20	140
Employee safety – minimize crossovers	3	4	12	8	24	12	36	20	60
Employee safety – minimize flour dust	4	3	12	9	36	16	64	20	80
Employee safety – rooftop equipment access with snow	3	2	6	6	18	14	42	20	60
Energy efficiency – Daylighting – windows and skylights	8	0	0	5	40	10	80	20	160
Energy efficiency – Lighting – Flourescent, HID, LED	12	10	120	15	180	18	216	20	240
Energy efficiency – power distribution system	4	6	24	8	32	14	56	20	80
Energy efficiency – powered equipment for building	4	2	8	6	24	14	56	20	80
Energy efficiency – powered equipment for process	6	8	48	14	84	20	120	20	120
Energy efficiency – shell insulation "R" factor	12	5	60	14	168	8	96	20	240
Food safety – air filtration levels – MERV8 thru MERV14	4	5	20	9	36	20	80	20	80
Food safety – allergen seperation	19	1	19	5	95	17	323	20	380
Food safety – building security and access control	19	4	76	11	209	18	342	20	380
Food safety – harborage potential	6	4	24	9	54	16	96	20	120
Food safety – how easy are surfaces to keep clean	4	3	12	7	28	11	44	20	80
Maintenance simplicity – access to bag filters	1	1	1	4	4	7	7	15	15
Maintenance simplicity – adequate clearance	2	1	2	5	10	13	26	20	40
Maintenance simplicity – commonality of controls systems	2	2	4	5	10	7	14	7	14
Maintenance simplicity – commonality of motors & parts	1	2	2	3	3	14	14	18	18
Production costs – area wages	15	18	270	18	270	6	90	9	135
Production costs – inbound freight	12	10	120	10	120	14	168	16	192
Production costs – outbound freight	18	18	324	18	324	10	180	8	144
Production costs – training incentives from community etc.	6	0	0	2	12	6	36	8	48
Production costs – utilities: gas, electric, water, sewer	17	8	136	8	136	8	136	8	136
Production costs – waste disposal; food waste and other	4	12	48	12	48	4	16	4	16
Production efficiency – by close grouping equipment	3	0	0	4	12	16	48	20	60
Production efficiency – quality of available employees	15	20	300	20	300	14	210	12	180
Production efficiency – through high visibility to operators	2	10	20	15	30	15	30	20	40
Production efficiency – using a single floor level	9	20	180	20	180	20	180	20	180
Production efficiency – using state of the art equipment	19	7	133	12	228	20	380	20	380
Production efficiency – using straight line/continuous flow	14	4	56	8	112	14	196	20	280
Schedule – financing costs	2	20	40	18	36	2	4	0	0
Schedule – meeting customer requirements	12	20	240	15	180	10	120	0	0
INFLUENCE TOTAL FOR EACH OPTION			**3219**		**3985**		**4179**		**4542**

For more information, contact Greg Carr at
908.295.9185 or at greg.carr@theaustin.com