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### Assignment 7: BOCR Model to Decide How Corporations Should Return to the Office

#### **Context:**

In December 2019 the world was shook by the announcement of a global pandemic. As the pandemic's impact strengthened in the US, many companies made a quick transition to remote work where possible. For example, Calgon Carbon first initiated a short-lived A and B rotating schedule so no more than 50% of the employees were in the office at once. As the infection rates spiked, they moved to allowing all employees the option to work at home 100% of the time.

During this time Calgon Carbon along with many other corporations invested in and expanded their IT capabilities. Work efficiently continued, and executive management was surprised and relieved to see how productive employees remained while carrying out their jobs from home. As a result, the situation brought a new awareness to the executive team and other top-level managers. Traditionally they held a stigma around allowing "office" employees to work remote. However, the remote setting is allowing employees to experience new flexibility and work life balance that they never had before. They realize how much time they historically have lost due to long commute times and extra-long work hours in the office. Now, employees' value and appreciate the extra family and personal time they now have. The pandemic has created a reset in employee's priorities.

Now, with vaccines widely available and lower infection rates being reported, Calgon Carbon and other workplaces are beginning to consider if or how employees will return to the office. Calgon Carbon employees have been very vocal, and one employee even said, "Covid has changed the world and Calgon Carbon must change with it. If the company does not adapt, it will not be attractive for people and it will be harder for them to attract new talent." The question the executives are now asking themselves is when it is proven safe to return to the office, what should their employee's workspace look like?

**Decision makers:** In the BOCR model, Calgon Carbon company executives will make the decision on how or if employees will return to the office once it is proven safe to do so.

**The four alternatives to consider are:**

1. **100% remote:** 100% remote means that employees are mainly working from home where possible, and only coming into the office when face to face meetings are required
2. **True hybrid:** A true hybrid option means consistent dedicated days in the office and dedicated days working from home across all employees. Approximately half of the workweek in and half of the workweek out.
3. **Flexible hybrid:** A flexible hybrid model allows employees to work with their managers to determine the best days in office versus days at home for themselves or their team.
4. **100% in office:** 100% in office means that employees will return to the office in the traditional format of five days a week, and only work remotely when absolutely necessary.

**Strategic Criteria Hierarchy:**

1. **Quality of workforce:** Focus on potential to secure and maintain top talent.
2. **Company growth & profitability:** Continuous focus on growing the business.
3. **Diversity of Workforce:** Focus on the access to and ability to hire a wide range of diverse employees.
4. **Sustainability:** Focus on the potential to create more sustainable business operations like reduced emissions, less waste generation, and reduced water consumption.

**Goal:** When it is proven safe to return to the office, what should their employee's workspace look like?

**Model:**

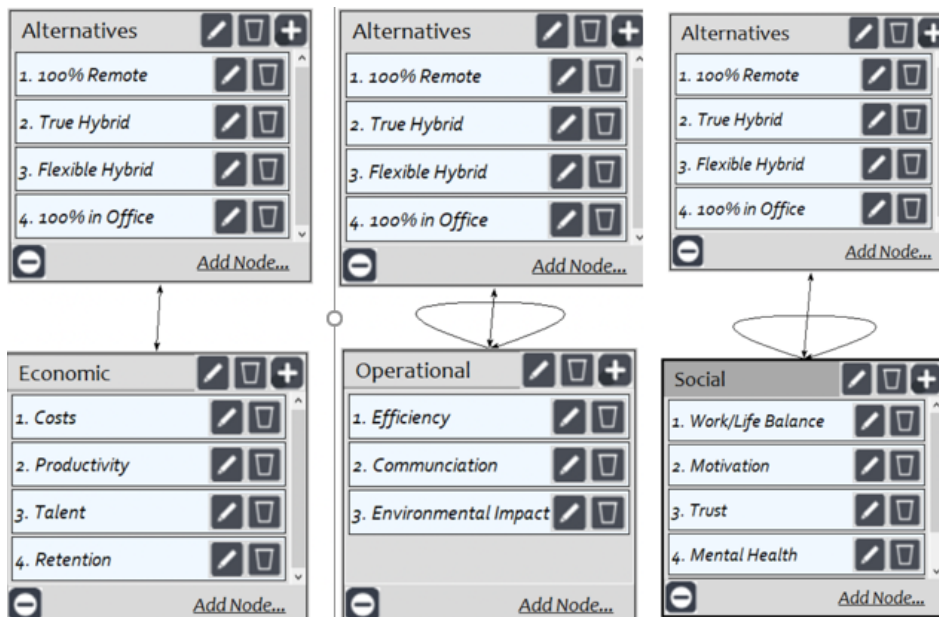
The model branches consist of Benefits, Opportunities, Costs, and Risks. Each branch will have three control criteria clusters associated with it, which are Economic, Operational, and Social. The control criteria clusters contain all the bottom level factors.

The control criteria were derived after first determining all the bottom level criteria represented in the four BOCR tables below. Once the bottom level criteria were complete, we were able to determine the control criteria that encompassed all listed factors. For each model branch, we evaluated the question--with regard to [benefits] which control criteria was most important. For example, the benefits pairwise judgements resulted in economic first, then social, and finally operational.

The following four tables display the bottom level factors within our model. We feel many of the factors are straightforward but will detail those that are not underneath each table. In the model created, the four alternatives were connected to all bottom level criteria and vice versa for each control criteria cluster listed in the Benefits, Opportunities, Costs, and Risks tables below. A copy of each model is included under the corresponding table below.

Benefits		
Economic	Operational	Social
Cost	Efficiency	Work/Life Balance
Productivity	Communication	Motivation
Talent	Environmental Impact	Trust
Retention		Mental Health
		Physical Health

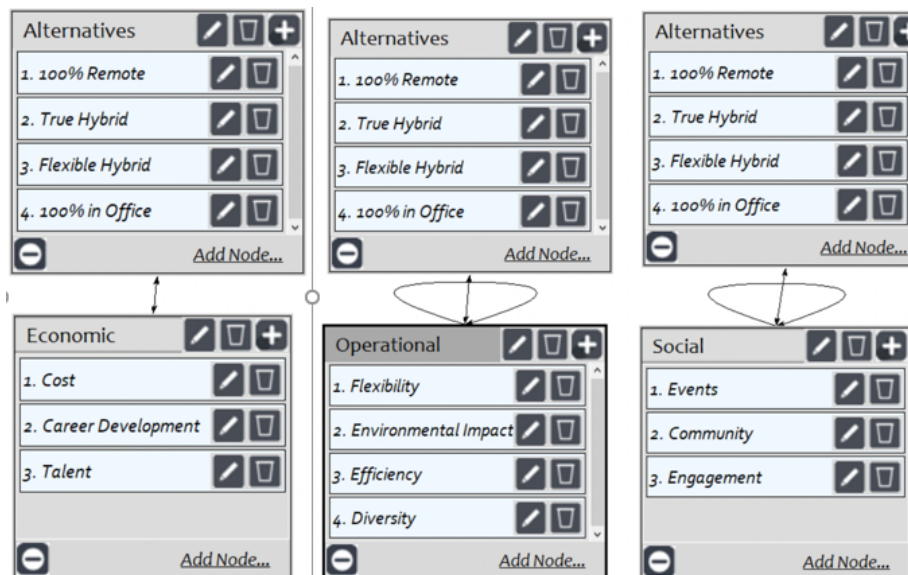
The talent criterion under economic impact was to enable comparative differences between talent in the 4 alternative workplace situations. For example, with remote work and flexible hybrids, individuals can be hired from regions beyond the geographic area of the company headquarters. This is a massive advantage for hiring quality candidates that directly impacts the success and bottom line of the company. Also, within the model it was important to create relationships across criterion in the operational and social factors before completing pairwise judgements. For example, work/life balance is connected to mental health because work/life balance impacts mental health.



**Benefits Model**

Opportunities		
Economic	Operational	Social
Talent	Flexibility	Events
Cost	Environmental Impact	Community
Career Development	Efficiency	Engagement
	Diversity	

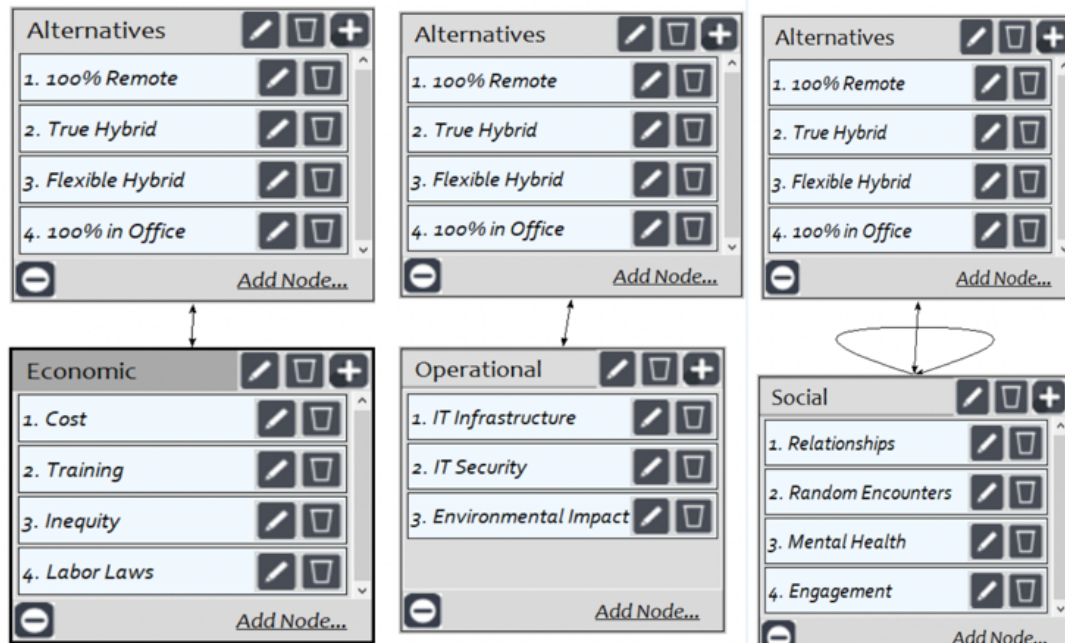
For the opportunities model, we noted events under the social cluster. Events symbolizes the company's efforts to bring staff together for social events beyond normal work meetings. The availability of budget to offer events will be dependent on the alternative selected. Lastly, before completing pairwise judgements, the necessary relationships were created in the operational and social clusters.



**Opportunities Model**

Costs		
Economic	Operational	Social
Cost	IT infrastructure	Relationships
Training	IT security	Random encounters
Inequity	Environment	Mental health
Labor laws		Engagement

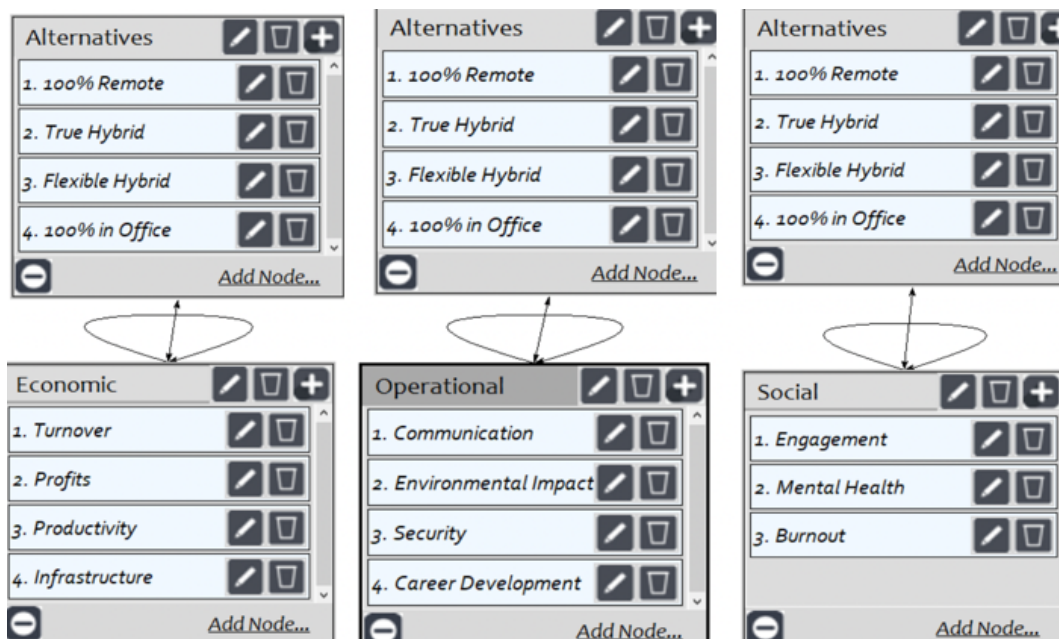
Under costs we brought up inequity in the economic cluster. This criterion represents the differences in inequities among our alternatives. We recognized that the remote and hybrid options likely require individuals to have reliable internet connections and perhaps a printer. This can limit hiring options or require an out-of-pocket expense for the company that will impact the bottom line. The last step before pairwise judgements, was to create internal relationships in the social cluster.



**Costs Model**

Risks		
Economic	Operational	Social
Turnover	Communication	Engagement
Profits	Environment	Mental health
Productivity	Security	Burnout
Infrastructure	Career advancement	

Finally, in the operational risks cluster we listed career advancement. The ability for staff to advance is viewed different across all the alternatives so we wanted the ability to compare them. Finally, the relationships affecting another criterion in each cluster were connected, and then pairwise judgments made.



**Risks Model**

After all the pairwise judgements were complete, the priorities were determined for each BOCR branch. These are included in the excel tables below. The alternative that carries the most benefits and opportunity for the company is Flexible Hybrid. The costliest and riskiest alternative is 100% in office.

	<b>Benefits</b>			<b>3. Flexible Hybrid</b>
	<b>Economic</b>	<b>Operational</b>	<b>Social</b>	
	41.3%	26.0%	32.7%	
<b>1. 100% Remote</b>	29.6%	43.8%	36.0%	35.3%
<b>2. True Hybrid</b>	19.2%	13.8%	15.7%	16.7%
<b>3. Flexible Hybrid</b>	41.9%	35.5%	40.4%	39.8%
<b>4. 100% in Office</b>	9.3%	6.9%	7.9%	8.2%
	<b>Opportunities</b>			<b>3. Flexible Hybrid</b>
	<b>Economic</b>	<b>Operational</b>	<b>Social</b>	
	25.0%	25.0%	50.0%	
<b>1. 100% Remote</b>	38.5%	44.7%	28.0%	34.4%
<b>2. True Hybrid</b>	16.2%	13.7%	20.1%	17.7%
<b>3. Flexible Hybrid</b>	36.3%	34.6%	38.8%	37.2%
<b>4. 100% in Office</b>	9.0%	7.0%	13.1%	10.7%
	<b>Costs</b>			<b>4. 100% in Office</b>
	<b>Economic</b>	<b>Operational</b>	<b>Social</b>	
	31.1%	49.3%	19.6%	
<b>1. 100% Remote</b>	28.1%	28.4%	26.3%	28.0%
<b>2. True Hybrid</b>	21.0%	23.3%	20.2%	22.2%
<b>3. Flexible Hybrid</b>	13.7%	21.5%	15.1%	18.3%
<b>4. 100% in Office</b>	37.2%	26.8%	38.4%	31.5%
	<b>Risks</b>			<b>4. 100% in Office</b>
	<b>Economic</b>	<b>Operational</b>	<b>Social</b>	
	14.3%	28.6%	57.1%	
<b>1. 100% Remote</b>	14.8%	26.2%	11.2%	18.2%
<b>2. True Hybrid</b>	22.3%	21.5%	17.3%	19.8%
<b>3. Flexible Hybrid</b>	12.1%	20.8%	8.8%	14.5%
<b>4. 100% in Office</b>	50.7%	31.5%	62.6%	47.6%

Once the BOCR model was complete and the priorities determined for each model branch, we developed a ratings model, shown below. As stated above, the best option for benefits was a flexible hybrid. The best option for opportunities was a flexible hybrid. The most expensive option was 100% in person. And the riskiest option was 100% in person.

For benefits, we considered the flexible hybrid alternative and rated how it would impact each strategic criterion. We utilized the same approach for opportunities, costs, and risks. The main difference between benefits and opportunities when it came to the strategic criteria was diversity of the workforce. This was because in the long run, the flexible hybrid alternative is a great opportunity to increase diversity in the workplace. However, in the short run, this is an average benefit to the company. The main differences between costs and risks were that in the long run, quality of work may suffer, and in the long run sustainability impacts would be poor. If sustainability is something that Calgon Carbon really cares about, then it is riskier to pick being 100% in office due to the negative impacts on sustainability. Much of this impact is grounded in research from the pandemic. When employees don't have to travel to work, there are fewer emissions from vehicles. Also, when employees are not in the office, there is less paper usage. If paper demand drops then deforestation, a major contributor to climate change, can also drop.

### Ratings Model





Alternatives	Priorities	Totals	1. Quality of w... (0.2609)	2. Company gr... (0.4512)	3. Diversity of ... (0.1689)	4. Sustainability (0.1190)
1.Benefits	0.3392	0.6914	Excellent	Above Average	Average	Above Average
2.Opportunities	0.3689	0.7519	Excellent	Above Average	Above Average	Above Average
3.Costs	0.1707	0.3478	Above Average	Average	Below Average	Below Average
4.Risks	0.1212	0.2470	Average	Average	Below Average	Poor



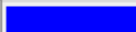

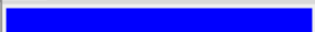

Upon completion of the ratings model, we ran the additive (negative) long-term synthesis and the multiplicative short-term synthesis. The output is shown below. Both showed that the best option was a flexible hybrid, and the worst option was returning 100% in office. In the long-term, remote is not far behind flexible hybrid. This is not surprising because many of the strategic criteria are impacted in similar ways by a fully remote or flexible hybrid situation.

### Overall Synthesis

- Additive (negative): Long Term**

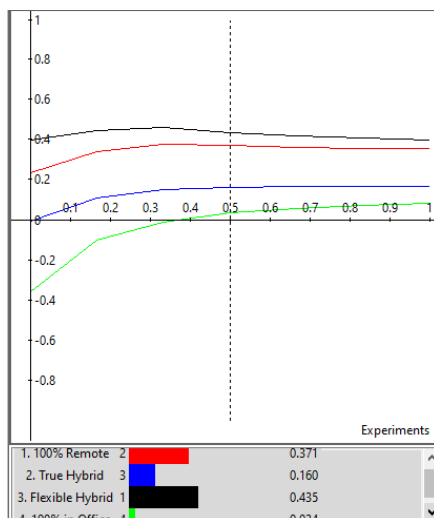
Name	Graphic	Ideals	Normals	Raw
1. 100% Remote		0.769657	0.342826	0.409705
2. True Hybrid		0.246524	0.109808	0.131230
3. Flexible Hybrid		1.000000	0.445427	0.532322
4. 100% in Office		-0.228856	-0.101939	-0.121825

- Multiplicative: Short Term**

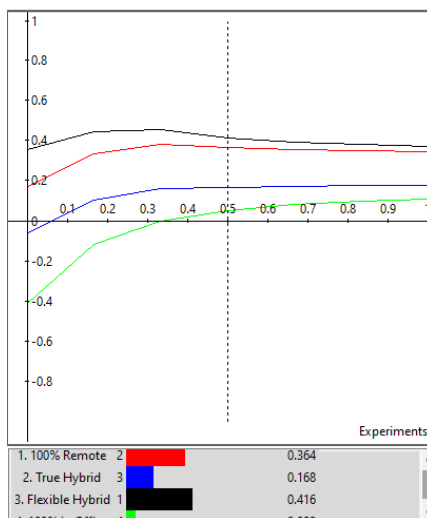
Name	Graphic	Ideals	Normals	Raw
1. 100% Remote		0.426807	0.273994	2.198685
2. True Hybrid		0.120434	0.077314	0.620413
3. Flexible Hybrid		1.000000	0.641963	5.151475
4. 100% in Office		0.010481	0.006729	0.053994

The sensitivity analysis is shown in the graphs below. Our model showed little sensitivity for B, O, C, and R. In all, the best option is a flexible hybrid, no matter how the weights shifted, and the worst was 100% in person, no matter which way the weights shifted. The only sensitivity present in the model is regarding the Cost analysis. You can see in the graph below that if the weight fell below .5, the second-best option becomes 100% remote whereas if the weight shifted to above .5, the second-best option would be true hybrid. What this means is that if we were off in our pairwise comparisons regarding costs, and the weights shift, our second-place alternative will change.

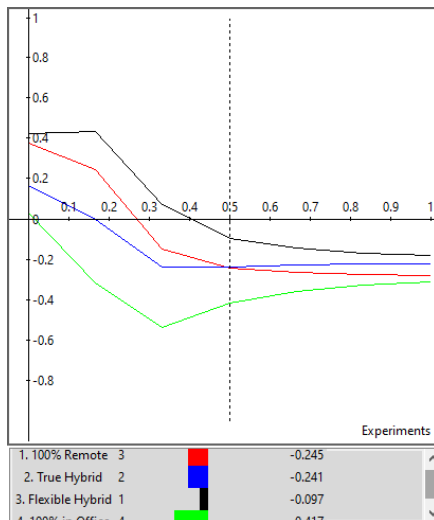
### Benefits



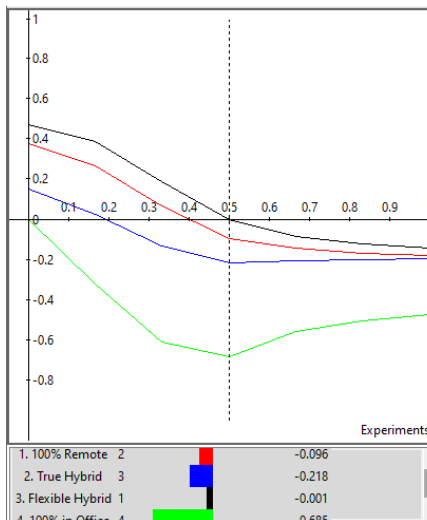
### Opportunities



### Costs



### Risks



In conclusion, we recommend that Calgon Carbon executives proceed with the model results of offering a flexible hybrid approach beginning in January 2022, as this will allow the company to maximize value in the long term. The flexible hybrid alternative will allow the Vice Presidents and senior managers in the corporate office to work with their teams to determine the best schedule for them. Studies have shown that 97% of workers desire some level of remote work (Courtney, 2021). Our model was constructed utilizing actual Calgon carbon employee feedback, as well as supplemented by third party resources found on the references page. Actual feedback and other third-party research note that employees desire flexibility and other social benefits in the long term. Calgon Carbon will not be alone in choosing a hybrid approach, as a Mercer study found that 70% of companies said they were planning to adopt the hybrid model (Peninsula, 2021).

## References

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