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M5.2

BQOM 2521

6/10/2021

Decision

The decision that needs to be made is whether to outsource hardware and/or software engineering efforts for legacy pharmacy automation products and how to outsource the labor. The current engineering teams are heavily involved in new product development and the sustaining team is being pulled into these efforts. The decision maker is the director of sustaining hardware and software engineering as well as the managers and team leads.

Strategic Goals

The strategic criteria include economic cost, quality of engineering work, turn around time for releases, collaboration possibilities, and future expansion. The alternatives are to not outsource and pull sustaining engineers from new product development, buy an existing firm that is capable of completing the work, partner with an existing firm, or start a branch of the existing firm to handle the work.

Control Criteria

Benefits	**Opportunities**	**Cost**	**Risks**
Financial	Financial	Financial	Financial
Efficiency	Quality	Quality	Efficiency
			Quality

The main factors of Subnets

- Benefits
    - Financial
        - What are the financial benefits of no outsourcing?
        - What are the financial benefits of buying an existing firm?
        - What are the financial benefits of partnering with an existing firm?
        - What are the financial benefits of forming a new branch?
    - Efficiency
        - What are the efficiency benefits of no outsourcing?
        - What are the efficiency benefits of buying an existing firm?
        - What are the efficiency benefits of partnering with an existing firm?
        - What are the efficiency benefits of forming a new branch?
- Opportunities
    - Financial
        - What are the financial opportunities of no outsourcing?
        - What are the financial opportunities of buying an existing firm?
        - What are the financial opportunities of partnering with an existing firm?

        - What are the financial opportunities of forming a new branch?
    - Quality
        - What are the quality opportunities of no outsourcing?
        - What are the quality opportunities of buying an existing firm?
        - What are the quality opportunities of partnering with an existing firm?
        - What are the quality opportunities of forming a new branch?
- Cost
    - Financial
        - What are the financial costs of no outsourcing?
        - What are the financial costs of buying an existing firm?
        - What are the financial costs of partnering with an existing firm?
        - What are the financial costs of forming a new branch?
    - Quality
        - What are the quality costs of no outsourcing?
        - What are the quality costs of buying an existing firm?
        - What are the quality costs of partnering with an existing firm?
        - What are the quality costs of forming a new branch?
- Risk
    - Financial
        - What are the financial risks of no outsourcing?
        - What are the financial risks of buying an existing firm?
        - What are the financial risks of partnering with an existing firm?
        - What are the financial risks of forming a new branch?
    - Efficiency
        - What are the efficiency risks of no outsourcing?
        - What are the efficiency risks of buying an existing firm?
        - What are the efficiency risks of partnering with an existing firm?
        - What are the efficiency risks of forming a new branch?
    - Quality
        - What are the quality risks of no outsourcing?
        - What are the quality risks of buying an existing firm?
        - What are the quality risks of partnering with an existing firm?
        - What are the quality risks of forming a new branch?

Benefits

The benefits portion of the BOCR analysis is broken down into two control criteria financial and efficiency with a weight of 75% and 25% respectively. The most beneficial alternative is to partner with an existing firm with 38.8%. This is closely followed by no outsourcing at 38.5%. The benefit that is the most efficient is to buy an existing firm by 44.2%. The overall most beneficial option is to partner with an existing firm. This is an expected result because of the large weight of the financial control criteria.

Benefits			
Financial	**75.0%**		
Name	Ideals	Normals	Raw
1. No Outsourcing	0.992338	0.385834	0.192917
2. Buy Existing Firm	0.374671	0.145677	0.072838
3. Partner With Existing Firm	1	0.388813	0.194406
4. Form a New Branch	0.204924	0.079677	0.039839
Efficency	**25%**		
Name	**Ideals**	**Normals**	**Raw**
1. No Outsourcing	0.260	**0.115**	0.058
2. Buy Existing Firm	1.000	**0.442**	0.221
3. Partner With Existing Firm	0.459	**0.203**	0.101
4. Form a New Branch	0.543	**0.240**	0.120
Control Criteria Priorities			
Name	**Normalized**	**Idealized**	
Finances	0.75	1	
Efficency	0.25	0.33333333	
Overall			
Name	**Ideals**	**Normals**	**Raw**
1. No Outsourcing	0.936	**0.32**	0.809
2. Buy Existing Firm	0.614	**0.21**	0.531
3. Partner With Existing Firm	1	0.35	0.864627
4. Form a New Branch	0.334679	0.12	0.289372

Figure 1: Benefits Results

Opportunities

The opportunities are broken down into two control criteria: financial and quality. Financial has a 67% weight and quality has a 33% weight. The greatest financial opportunity is to form a new branch with 47.8%. The opportunity for the greatest quality is forming a new branch at 34.0%. This resulted in the greatest opportunity overall being forming a new branch. This is expected because of the large margin forming a new branch in each of the control criteria.

Opportunities			
Financial	67%		
Name	**Ideals**	**Normals**	**Raw**
1. No Outsourcing	0.184	0.088	0.044
2. Buy Existing Firm	0.494	0.236	0.118
3. Partner With Existing Firm	0.415	0.198	0.099
4. Form a New Branch	1.000	0.478	0.239
Quality	33%		
Name	**Ideals**	**Normals**	**Raw**
1. No Outsourcing	0.249	0.085	0.042
2. Buy Existing Firm	0.897	0.305	0.153
3. Partner With Existing Firm	0.792	0.270	0.135
4. Form a New Branch	1	0.340409	0.170204
Control Criteria Priorities			
Name	Normalized	Idealized	
1. Financial	0.66666667	1	
3. Quality	0.33333333	0.5	
Overall			
Name	**Ideals**	**Normals**	**Raw**
1. No Outsourcing	0.205	0.086	0.205
2. Buy Existing Firm	0.628	0.265	0.628
3. Partner With Existing Firm	0.541	0.228	0.541
4. Form a New Branch	1.000	0.421	1.000

Figure 2: Opportunity Results

Cost

The cost has two control criteria: financial and quality with a weight of 67% and 33% respectively. Buying an existing firm has the greatest financial cost with 41.3%. The greatest organizational cost is to form a new branch. The overall greatest cost is to form a new branch with 38.3%. This result is slightly unexpected because of buying an existing firm being the greatest cost in the financial control criteria. However, forming a new branch under the financial criteria is still rated relatively high at 32.8%. In combination with the large margin in the organizational control criteria, this overall result is logical.

Costs			
Financial	67%		
Name	**Ideals**	**Normals**	**Raw**
1. No Outsourcing	0.309	**0.127**	0.064
2. Buy Existing Firm	1.000	**0.413**	0.206
3. Partner With Existing Firm	0.319	**0.132**	0.066
4. Form a New Branch	0.796	**0.328**	0.164
Organization	33%		
Name	**Ideals**	**Normals**	**Raw**
1. No Outsourcing	0.179	**0.072**	0.036
2. Buy Existing Firm	0.666	**0.267**	0.134
3. Partner With Existing Firm	0.647	**0.260**	0.130
4. Form a New Branch	1	**0.401**	0.200644
Control criteria			
Name	Normalized	Idealized	
1. Financial	0.666666667	1	
3. Quality	0.333333333	0.5	
Overall			
Name	**Ideals**	**Normals**	**Raw**
1. No Outsourcing	0.223	**0.085**	0.211
2. Buy Existing Firm	0.790	**0.303**	0.750
3. Partner With Existing Firm	0.595	**0.228**	0.565
4. Form a New Branch	1	0.383453	0.949057

Figure 3: Cost Results

Risks

There are three control criteria in the risk section: financial, efficiency, and quality with weights of 56%, 9%, and 35% respectively. The alternative with the most financial risk is forming a new branch at 49.9%. The greatest efficiency risk alternative is buying an existing firm with 30.1%. The greatest quality risk is to partner with an existing firm at 35.4%. The alternative with the overall greatest risk is to form a new branch at 40.1%. This result makes sense due to the large gap between forming a new branch and the other alternatives in the financial control criteria and the smaller gaps between forming a new branch and the other alternatives in the other control criteria groups.

Risks			
Financial	56%		
Name	Ideals	Normals	Raw
1. No Outsourcing	0.165	0.082	0.041
2. Buy Existing Firm	0.550	0.274	0.137
3. Partner With Existing Firm	0.290	0.145	0.072
4. Form a New Branch	1.000	0.499	0.249
Efficency	9%		
Name	Ideals	Normals	Raw
1. No Outsourcing	0.531	0.160	0.080
2. Buy Existing Firm	1.000	0.301	0.151
3. Partner With Existing Firm	0.943	0.284	0.142
4. Form a New Branch	0.843	0.254	0.127
Quality	35%		
Name	Ideals	Normals	Raw
1. No Outsourcing	0.265	0.094	0.047
2. Buy Existing Firm	0.612	0.217	0.108
3. Partner With Existing Firm	1.000	0.354	0.177
4. Form a New Branch	0.944	0.335	0.167
Control criteria			
Name	Normalized	Idealized	
1. Financial	0.55906505	1	
2. Efficency	0.08874604	0.15874011	
3. Quality	0.35218891	0.62996052	
Name	Ideals	Normals	Raw
1. No Outsourcing	0.24102	0.09668	0.232897
2. Buy Existing Firm	0.632967	0.253902	0.611634
3. Partner With Existing Firm	0.618974	0.248289	0.598112
4. Form a New Branch	1	0.40113	0.966297

Figure 4: Risk Results

Sensitivity Analysis

The sensitivity analysis shows that the priority of the cost does not impact the overall results. The benefit and risk have a slight impact on the results. The benefits have a change in the top priority at 60&% from not outsourcing to partnering with an existing firm. The risk has a similar change at 1% from partnering with an existing firm to not outsourcing. The risk has less of an impact on the overall results than the benefits. The largest effect on the overall result comes from opportunities, with changes occurring frequently. The not outsourcing changes from first place and drops to second at 25% with partnering with an existing firm taking its place. At 30% not outsourcing continues to drop to last place, while forming a new branch moves to first place with partnering with an existing firm in second and buying an existing firm moves to third. The final shift occurs at 50% with forming a new branch in first place followed by buying an existing firm, partnering with an existing firm, and not outsourcing. This result shows the effect in the long-term forming a new branch will yield the most opportunities.

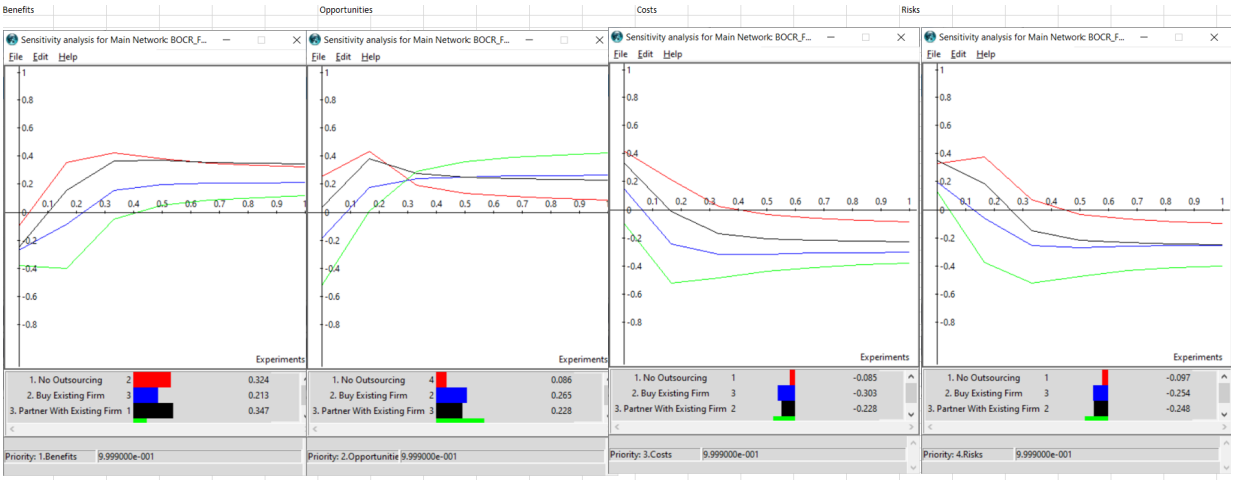

Figure 5: Sensitivity Analysis

Results

The overall results show the importance of each of the strategic criteria with respect to the decision. The most important being the quality of work. This result makes sense because no matter which alternative is chosen the product that is produced should meet the quality of Omnicell. Poor quality products will result in a failed outsourcing attempt and result in more work. The second most important criteria is economic growth which is a factor in many decisions made by companies to drive growth and profit. Communication and turn around time are third and fourth in order of important strategic criteria. While turn around time and communication with the outsourced option is important, they do not affect the decision-making process of Omnicell as much.

The short term and long-term results show that Omnicell should not outsource. Partnering with an existing firm is second to not outsourcing in both the long term and short term. This shows through ranking the best alternative under the benefits, opportunities, costs, and risk versus the strategic criteria Omnicell should not outsource. The close proximity of partnering with an existing firm to not outsourcing in the long term makes sense because the amount of capital is low to partner a firm, while being able to achieve a quality product.

The overall results are similar to what I expected for this decision. Not outsourcing and partnering with an existing firm are the safer options when first getting into outsourcing due to the low cost, work quality, and ability to form clear lines of communication. If Omnicell did not outsource and brought on additional talent whether full time, part time, or contractors the cost would be significantly lower than establishing a new branch or buying a firm.

	Benefits	Opportunities	Costs	Risks
1. No Outsourcing	0.324	0.086	0.085	0.094
2. Buy Existing Firm	0.213	0.265	0.303	0.217
3. Partner With Existing Firm	0.347	0.228	0.228	0.354
4. Form a New Branch	0.116	0.421	0.383453	0.334564

Strategic Criteria			
Inconsistency	**0.08251**		

Name	Normalized	Idealized	Rank
1. Economic Growth	0.217828654	0.393941121	2
2. Quality of Work	0.552947235	1	1
3. Turn Around Time	0.082331789	0.148896285	4
4. Communication	0.146892322	0.265653416	3

Figure 6: Overall Results

Multiplicative - Short Term			
Name	**Ideals**	**Normals**	**Raw**
1. No Outsourcing	1	58%	3.375751
2. Buy Existing Firm	0.215559	13%	0.727675
3. Partner With Existi	0.409839	24%	1.383515
4. Form a New Branch	0.093473	5%	0.31554

Additive - Long Term			
Name	**Ideals**	**Normals**	**Raw**
1. No Outsourcing	1	44%	0.341433
2. Buy Existing Firm	0.318023	14%	0.108584
3. Partner With Existi	0.873006	38%	0.298073
4. Form a New Branch	-0.090363	-4%	-0.030853

Figure 7: Final Results