DBVac Business Case

# Executive Summary

DBVac is planning to make a move to the big leagues and expand its product line by launching a new vacuum. The company’s goal is to figure out and identify which of the three products (Fin, Snorkel or Facemask) gives the best return on investment, and to also determine who is best suited to lead the development and launch of the chosen product.

After performing our super duper detailed expected cost and NPV analysis over a five-year period and using a 10% discount rate, the recommendation is for DBVac to go with the **Facemask** product. Which is interesting because even with the largest expected initial R&D cost at $6,290,000, it also produced the highest expected **NPV at $747,105**, which blew the other products out of the water. This shows that the Facemask is not only a legit product but also the best long-term investment. Facemask’s Cash Flows combine with long-term revenue potential and a likely $1,000,000 research grant in year 2.

To figure who was best suited to lead the development, a Balanced Scorecard analysis was used to evaluate all the company current Product Manager employees. The candidates were assessed on six things: A trustworthiness score, product development experience, how liked they are by the company, the bonus amount the company would pay the candidate, the relationship to the CEO, and whether they won the company softball game. The analysis used z-scores to normalize all the metrics. Based on this analysis, the two candidates to lead the launch of the product are **Evan Thompson and Everleigh Young.**

# Background

DBVac has been faced with a big position for the launching of their next product. The company has a huge opportunity to expand the product line and bring in a new vacuum to the market, but we need to know that this investment will pay off. They also want to know and make sure that the right people are leading this product, so it won’t go astray. So DBVac has asked our help with two things: First, which of the three new vacuums will be the best for the company, and second, which current product managers are the best suited to take the lead on the development of that said product.

So, to answer these questions, we used data-driven projects to evaluate the risks and benefits of each vacuum model, as well as a structured method for identifying who is best to drive success to the new product. To ensure that both these answers were accurate we used data and financial analyses rather than solely opinions. That way, the company can move forward with confidence, knowing that we have made the right decisions that are backed by real numbers.

# Product Analysis

To figure out which vacuum models the company should choose to develop, we compared how much each product would cost using expected cost analysis and NPV calculations. We wanted to focus on understanding the real risk cost to launch each product and the cash flow that would follow.

## Expected Cost Analysis

We calculated the expected cost of each product using a weighted average based on the probability of each R&D cost scenario happening. Here’s the table that shows how each product would play out:

##### Table 1: Expected Research and Development Cost by Product

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So, what this is basically doing is calculating a probability-weighted average. This considers all the possible R&D costs that we might face and how likely each one is for each product. This made it so it would compare the products fairly.

## NPV Analysis

After our Expected cost, we went further and calculated the Net Present Value for each product over a 5-year period using a discount rate of 10%. Now we have a way to compare the long-term financial return of investment.

##### Table 2: NPV Analysis: Fin Product

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##### Table 3: NPV Analysis: Snorkel Product

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##### Table 4: NPV Analysis: Facemask Product

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##### Chart 1: NPV Comparison for Products

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### Recommendation

The NPV shows the present value of future profits for the company after accounting for all the costs and the time value for money. Based on this analysis, **Facemask** had both the highest NPV value by far and the lowest Expected Cost value.

# Product Manager Analysis

In order the find the best candidates to lead the launch of the new product, we looked at all the product managers in the DBVac database. We gathered the data and evaluated the candidates using six criteria. This helped us to know who is best positioned to succeed in this role.

##### Table 1: Current Product Managers at DBVac

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## Analysis Process

Each candidate was scored based on six key criteria, and with each metric normalized using z-scores to allow it to be a fair comparison across the different criteria. These z-scores were then weighed based on how important each criterion is and then summed up the total score.

## Criteria

Here are the six criteria we used to evaluate the candidates and how the candidates were measured:

1. **Trustworthiness** – From the HREval table in the database, based on a 0-100 score. Higher scores are better.
2. **Dust Factor** – Based on the relationship to the CEO. Closer relationships scored higher based on a determined scale.
3. **Popularity** – Total number of employee votes received in the PopVote table. Higher is better.
4. **Bonus Score** – This is a score that takes the Max Bonus amount between the candidates and subtracts it by the Bonus Amount for the Candidate. This gives you how much leverage you receive in bonus amount by picking this candidate
5. **Experience** – Number of past products launches a candidate has been involved in, from the ProdInv table. Higher is better.
6. **Product Involvement** – Chosen based on if the candidate won in the company softball game.

#### Justification for the sixth criteria

The executives repeatedly made the importance of a candidate who can “destroy the competition,” and often referred to the company softball games as a strong signal of leadership and a winner. Given how often this was mentioned by the executives, this made sense to include.

## Weighting Table

Each criterion was given a unique weight from 1 to 10, based on how important the executive team emphasized it.

##### Table 2: Weights Assigned to Each Criteria

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## Weighting Explanation

Trustworthiness was the most frequently emphasized across all executives. It was foundational to the role, especially for a product like this. Experience was Strongly emphasized by the CFO, CTO, COO, and Corporate Attorney. Direct product development experience is critical to ensure success according to the executive team. Popularity was mentioned by the CMO, CFO, and COO. This would be a good boost to team morale and collaboration. Softball performance was highlighted by lots of executives. They used this as a metaphor for competitiveness and dominating the competition. The ‘Dust Factor’ was important to the CEO and COO, but was considered more to be a bonus than a necessity. (It won’t guarantee results). And then the Bonus Amount was only emphasized by the CFO and COO. It would be nice for cost control, but still less relevant compared to the other categories.

## Candidate Scoring

##### Table 3: Non-Normalized Score Analysis

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##### Table 4: Z-Score Analysis

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#### Z-Scores

Z-Scores were used to normalize the results across the different scales and make the comparison fair. So, for example a score as high in value as the bonus score would be weighted the same as the Trustworthiness score. The final scores were calculated by multiplying the z-score by the weight for each criterion and summing the total.

### Recommended Candidates

1. Evan Thompson
   * Strengths: Had a great relationship with the CEO, and had a good Trust Score
   * Weakness: He has slightly below average experience
2. Everleigh Young
   * Strengths: An exceptional Trust Score, and had lots of experience
   * Weakness: No relationship with the CEO

#### Why Two?

We ended up choosing two candidates because their normalized scores were so much higher compared to the rest of the candidates. Everleigh has a Total Score of **29.75,** compared to the next best candidate had a score of **18.01.** This is significantly higher if you look at the distribution of Total Scores.

# Conclusion

After performing a full analysis of DBVac’s three new product ideas. Our data clearly gives us **Facemask** as the product that should be pursued. Which is interesting because it had the highest expected initial R&D cost of **$6,290,000**. While the high initial expected cost, the Facemask model generated by far the highest **NPV of $747,105** over a five-year period and using a 10% discount rate. For the Facemask Product, we should expect annual training and warranty costs and a potential research grant of $1,000,000 with a 90% probability in year 2. A graph of a graph showing different colored rectangles

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We also identified the best candidates to lead the launch of the facemask model. We used a Balanced Scorecard Analysis to solve this. Based on the analysis of six criteria: Trustworthiness, Experience, Popularity, Bonus Score, Dust Factor, and Softball Win. The candidates we chose are **Evan Thompson and Everleigh Young**. Evan is overall the most well-rounded candidate to lead the launch with a great relationship with the CEO. Everleigh Young had an outstanding Trust Score along with loads of experience in this aspect.