



PPG Industries

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Analytic Network Process Model: Which Product Development Track Should PPG Take?



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ABSTRACT

PPG Industries is an industry leader in the coatings industry. This paper will focus specifically on PPG's Olympic brand of architectural paints, which are sold exclusively at Lowe's Home Improvement stores nationwide. PPG's ultimate goal is to increase their sales in this segment. An analysis will be completed in order to help PPG determine the best product development track for their corporation. We evaluated four options for PPG to choose from in order to make the best decision about their product portfolio and to optimize sales for Olympic. An analytic network process model was used to conclude that PPG should add a paint-plus-primer product to their portfolio.

INTRODUCTION

PPG Industries was founded in 1883; the company serves customers in industrial, transportation, consumer products, and construction markets and aftermarkets. They are headquartered in Pittsburgh, PA and operate in more than 60 countries around the globe. Sales in 2010 were \$13.4 billion.

PPG's vision is to continue to be the world's leading coatings and specialty products company. One of PPG's many Architectural Coatings brands is Olympic® Paints. The Olympic brand is a category leader in the paint segment with distribution through Lowe's, the nation's second-largest home improvement retailer. The Olympic line offers several value added products to the consumer such as the zero VOC, low-odor premium interior line. Olympic Paints' history of excellence and expertise in the paint category, along with its offering of environmentally-preferred products, make it the natural choice for "green" decorating.

PPG has a long history with Lowe's; however, their Olympic brand has always been the tier two brand for the retailer. One of PPG's largest competitors, Valspar, has historically maintained the top position. As the number one brand at Lowe's, Valspar enjoys better shelving position, more shelf space and more co-branding initiatives via print and television advertisements. A Lowe's employee is also trained to recommend Valspar paint over Olympic in most situations. PPG is continuously looking for ways to raise their status at Lowe's.

A recent launch of the Behr All-in-One Paint which is offered exclusively through Home Depot, Lowe's largest competitor, has opened up a potential opportunity for PPG. At the time of the launch, the new Behr product was the only paint-plus-primer product on the market. This means that Lowe's does not offer a competitive product, and has no way to compete with their largest adversary in this market. If PPG can develop and launch either a competitive product to

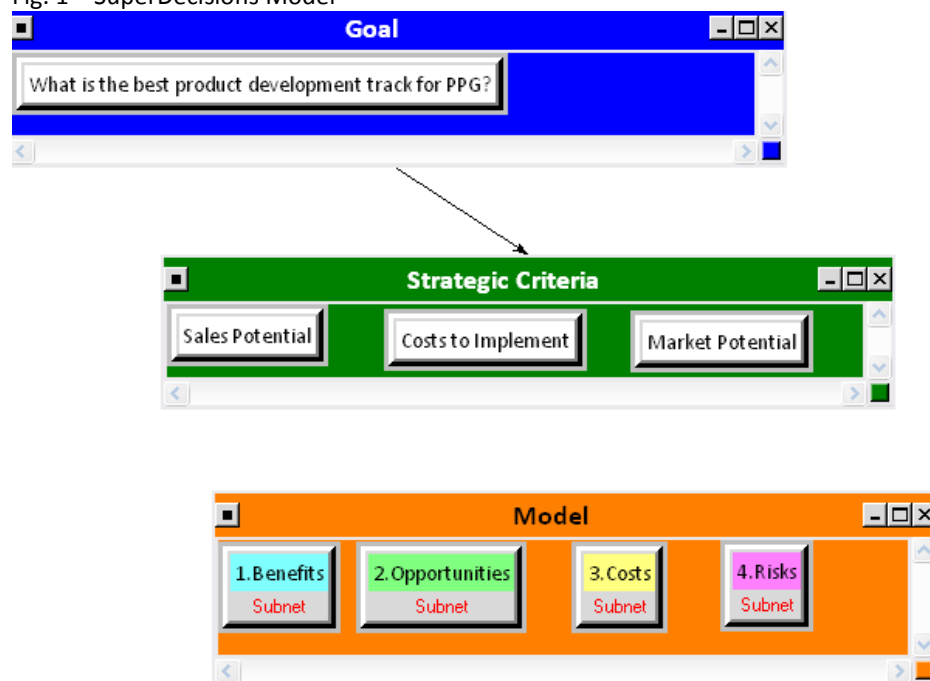
Behr's All-in-One, or develop some other revolutionary product before Valspar can, they could gain significant ground at Lowe's.

The architectural market was one of the hardest hit during the recent US recession. Sales volumes have rebounded slightly but are nowhere near historical levels. Because of this capital is at a premium and many budgets have been cut. To invest heavily in R&D for a market that is still depressed may not be the best use of PPG's cash. However, given the unique opportunity to surpass Valspar and launch a product that they currently do not offer, should significantly boost sales through the Lowe's chain. PPG needs to decide which course of action they will take: develop a competing product to the Behr All-in-One, develop a completely new, revolutionary product, re-formulate an existing product or do nothing and leave the Olympic line as is. PPG's ultimate goal is to maximize sales.

METHODOLOGY

The Model:

Fig. 1 – SuperDecisions Model



Goal: Which product development track should PPG take?

Strategic criteria: Cost to Implement, Market Potential, Sales Potential

These three factors were determined to be the most important to PPG in order to decide the best route for their products. Cost to Implement covers all costs associated with research and

development, as well as costs to market and sell the product. Also included are the production costs to buy capital and materials. The Market Potential factor includes details about the market availability and size for the product PPG would try to implement. Finally, Sales Potential includes details about the competition and their size and strength. By thoroughly reviewing these three criteria a decision will be reached that will best position PPG's product lines.

Alternatives: these are the four options that PPG will decide on.

- 1) Launch paint-plus-primer product. Behr is the only paint-plus-primer product on the market; it is only sold through Home Depot. Lowe's does not have a product to compete with Home Depot in this segment. It would benefit PPG to develop an all-in-one product before Valspar because it would elevate their position at Lowe's.
- 2) Launch a revolutionary product. PPG could develop a completely new product that is currently not available on the market today. This could be a risky option but may have the potential to drive the most sales because it would be a revolutionary product.
- 3) Re-formulate an existing product. Make an improvement to an exist product in the Olympic line. For example decrease the drying time for their premium interior line.
- 4) Do nothing. Leave the Olympic product line as is.

We used our Strategic Criteria as our Control Criteria in the model because they are the most important factors to PPG when making a new product launch decision. The solution must best fit of the following criteria: Cost to Implement, Market Potential and Sales Potential.

We used the ratings approach in Super Decisions to evaluate the magnitude of each of the three strategic criteria based on the opportunities, benefits, costs and risks for the model.

Weighing the criteria against Benefits, Opportunities, Costs and Risks, it was found that Market Potential was the most important with 52.8%. The Cost to Implement criteria was next in line with 33.3%. This is what we expected to see relating to our decision factors. A market needs to be available for a product in order for it to be an option for a company to pursue. Also the costs that it will take a company to design and produce a product are a major factor in order for it to have a viable product for an organization.

Fig. 2 - Strategic Criteria Ratings

Ratings for Super Decisions Main Window: Bauer_Kopacko_PPG Product Development				
File Edit View Calculations Help				
Super Decisions Ratings				
	Priorities	Sales Potential 0.139642	Costs to Implement 0.332525	Market Potential 0.527833
1.Benefits	0.552699	Very High	High	Very High
2.Opportunities	0.194137	Very High	Very Low	Average
3.Costs	0.104290	Very Low	Medium	Low
4.Risks	0.148874	Very Low	Medium	Average

Fig. 3 - Priorities from Ratings

Column Priorities from Ratings		
Priorities for columns of ratings system.		
Sales Potential	<div></div>	0.238487
Costs to Implement	<div></div>	0.136500
Market Potential	<div></div>	0.625013

Each subnet of Benefits, Opportunities, Cost and Risk were further divided according to the following outline:

Benefits

The subnet for criteria is as follows

- Sales Potential:
 - Financial
 - Increase profits
 - Lower product cost
 - Market Share
 - Increase brand strength
 - Increase sales
- Cost to Implement:
 - R&D Cost
 - Increased resources
 - Larger product portfolio
 - Development timeline
 - Selling Cost
 - Marketing impact

- Sales resources
- Production Cost
 - Capital investment
 - Inventory impact
 - Plant optimization
- Market Potential:
 - Competition
 - Number of competitors
 - Brand strength of competing products
 - Customers
 - Number of customers
 - Brand loyalty of customers

Fig. 4 - Subcriteria for Benefits:

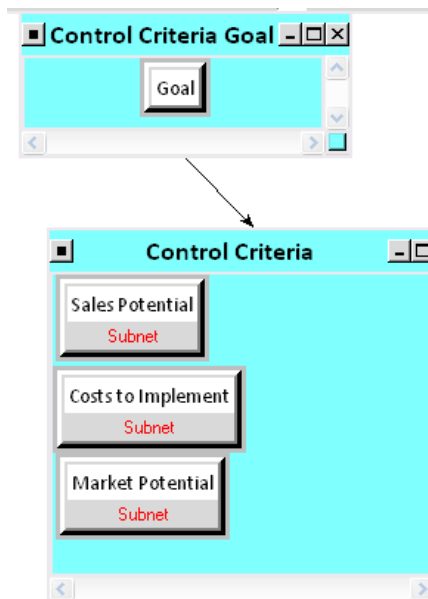


Fig. 5 - Subnet of Benefits – Sales Potential

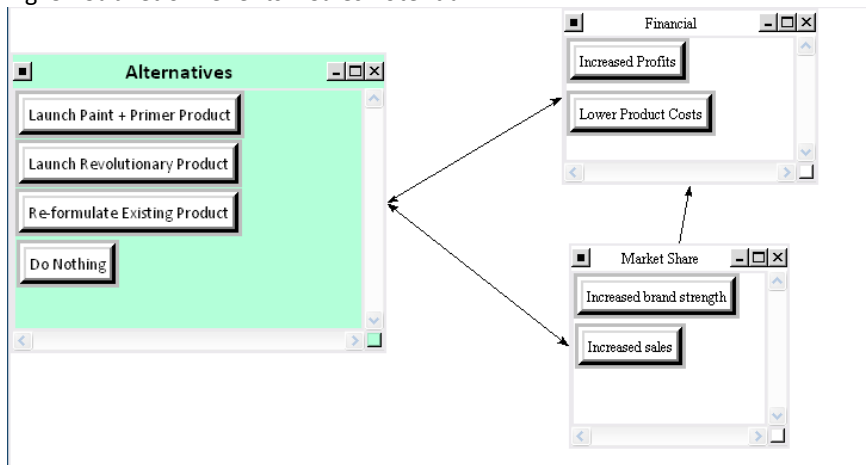


Fig. 6 - Subnet of Benefits – Costs to Implement

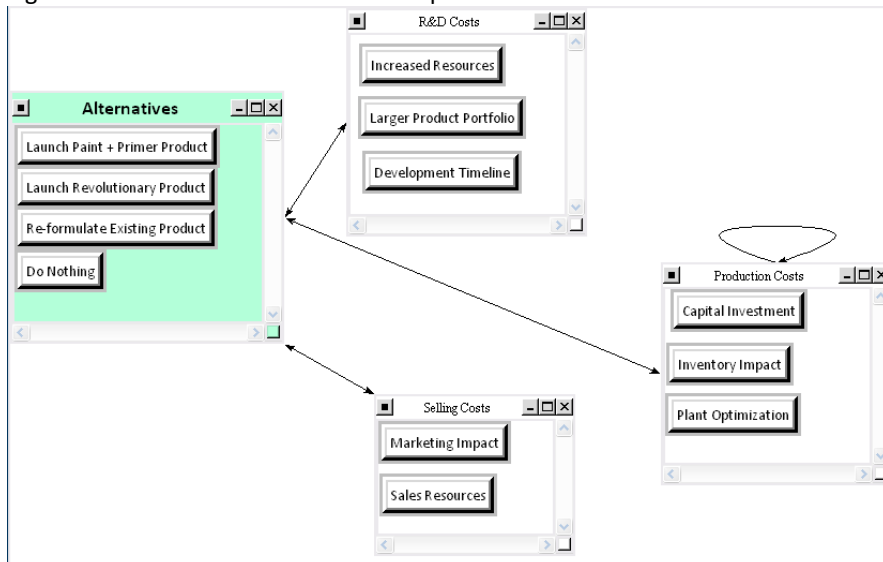
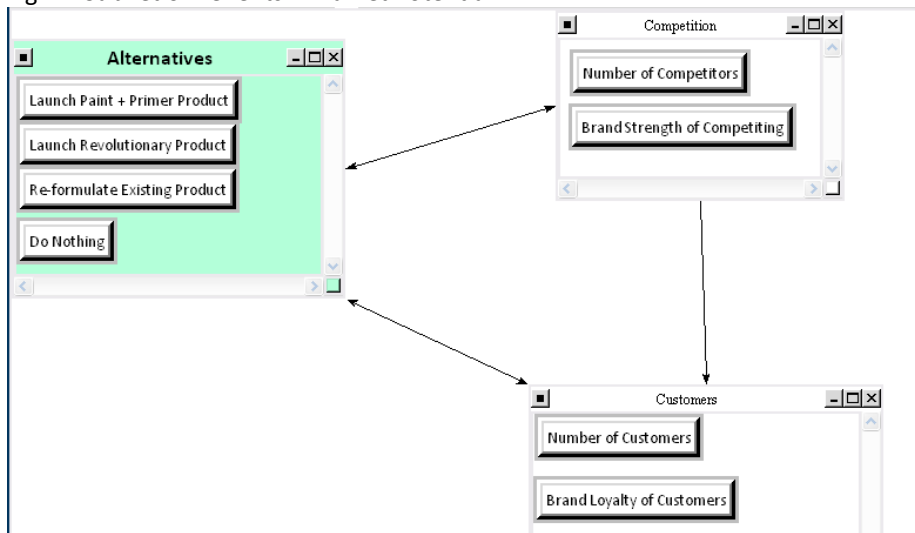


Fig. 7 - Subnet of Benefits – Market Potential



Opportunities:

- Sales Potential:
 - Financial
 - Increase profits
 - Lower product cost
 - Market Share
 - Increase brand strength
 - Increase sales
 - Capture more of the market
- Market Potential:
 - Customers
 - Increase brand loyalty of customers
 - Increase number of customers in the market (Olympic is sold to the home owner, not through contractors. The more people that paint themselves the more market share potential for Olympic brands)
 - Channel
 - Develop new channel to market
 - Maximize demand in existing channel

Fig. 8 – Subcriteria of Opportunities

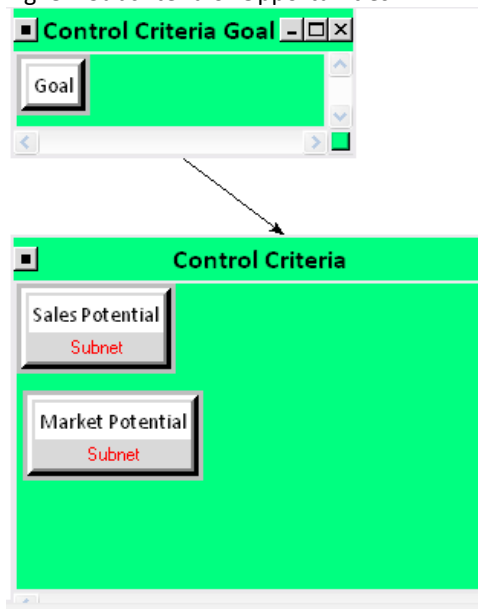


Fig. 9 - Subnet of Opportunities – Sales Potential

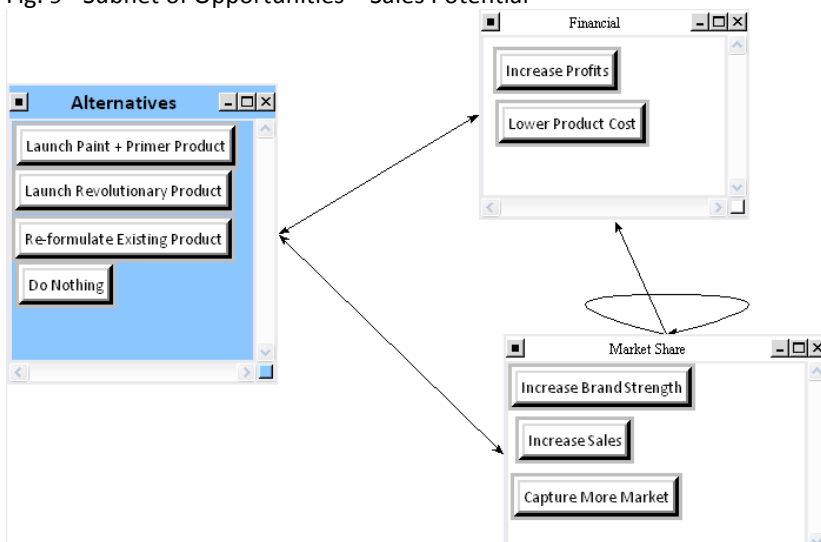
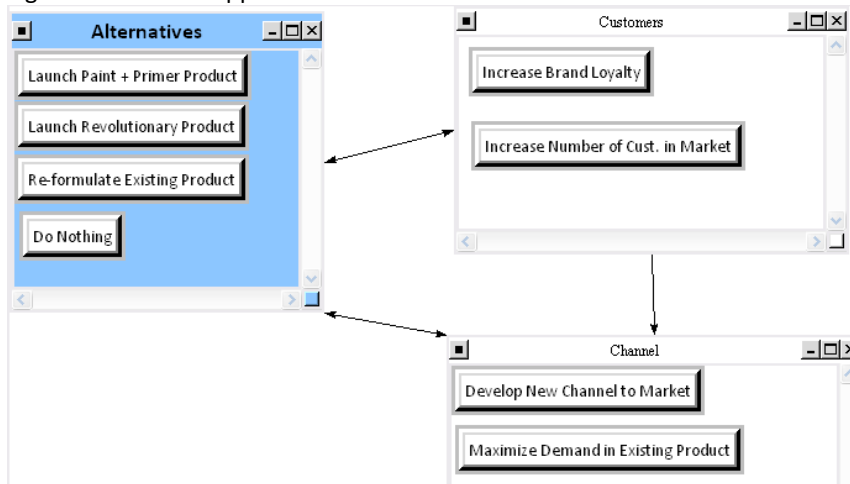


Fig. 10 - Subnet of Opportunities – Market Potential



Costs

- Costs to Implementation:
 - R & D
 - Increased Development Cost
 - Increased Development Time
 - Production
 - Increased Production Costs
 - Increase in Material Costs
 - Selling/Marketing
 - Marketing Materials
 - Human Capital
- Market Potential:
 - Resources
 - Human Capital
 - Third part Research

Fig. 11 – Subcriteria of Costs

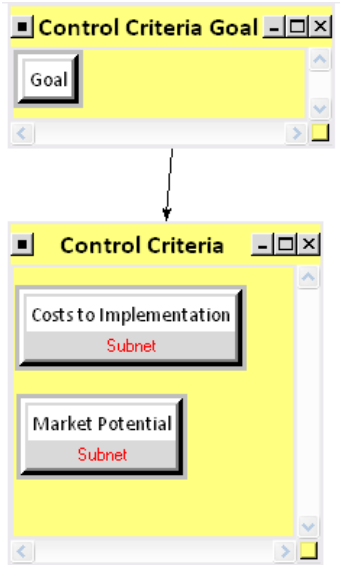


Fig. 12 - Subnet of Costs – Costs to Implement

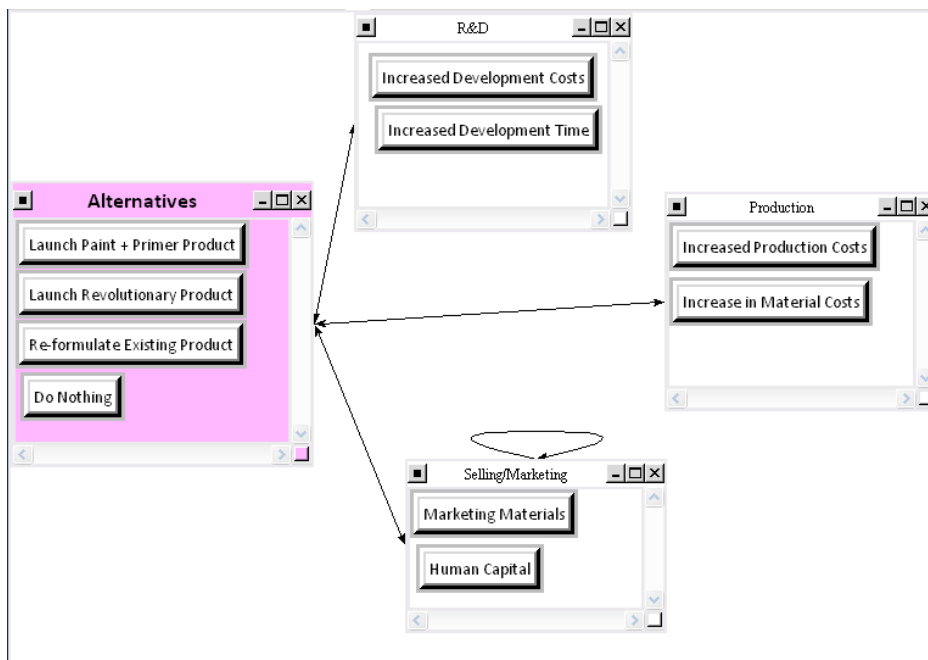
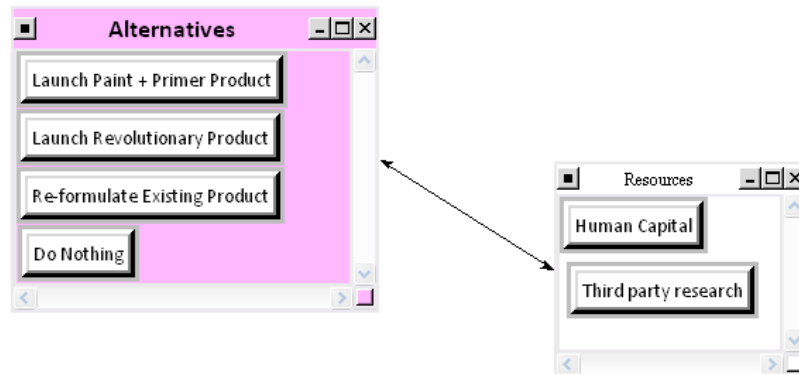


Fig. 13 - Subnet of Costs – Market Potential



Risks:

- Cost to Implement:
 - R&D Cost
 - Wasted human capital
 - Wasted financial resources
 - Opportunity cost
 - Selling Cost
 - Wasted human capital
 - Marketing campaign development
 - Production Cost
 - Capital investment
 - Inventory impact
- Market Potential:
 - Market Dynamics
 - Volatility
 - Rate of advancement
 - External Factors
 - Economy
 - Regulations
 - Distribution network

Fig. 14 – Subcriteria of Risks

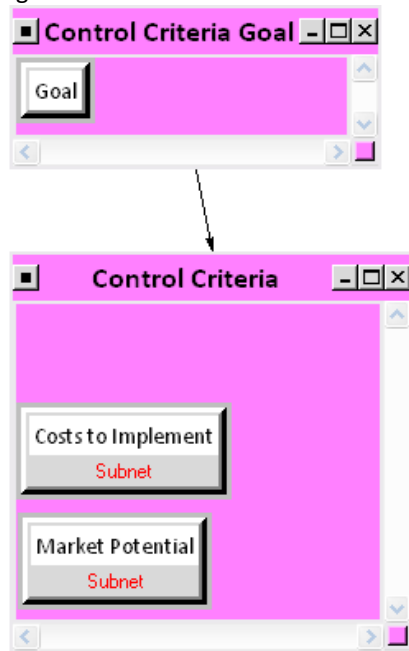


Fig. 15 - Subnet of Risks – Costs to Implement

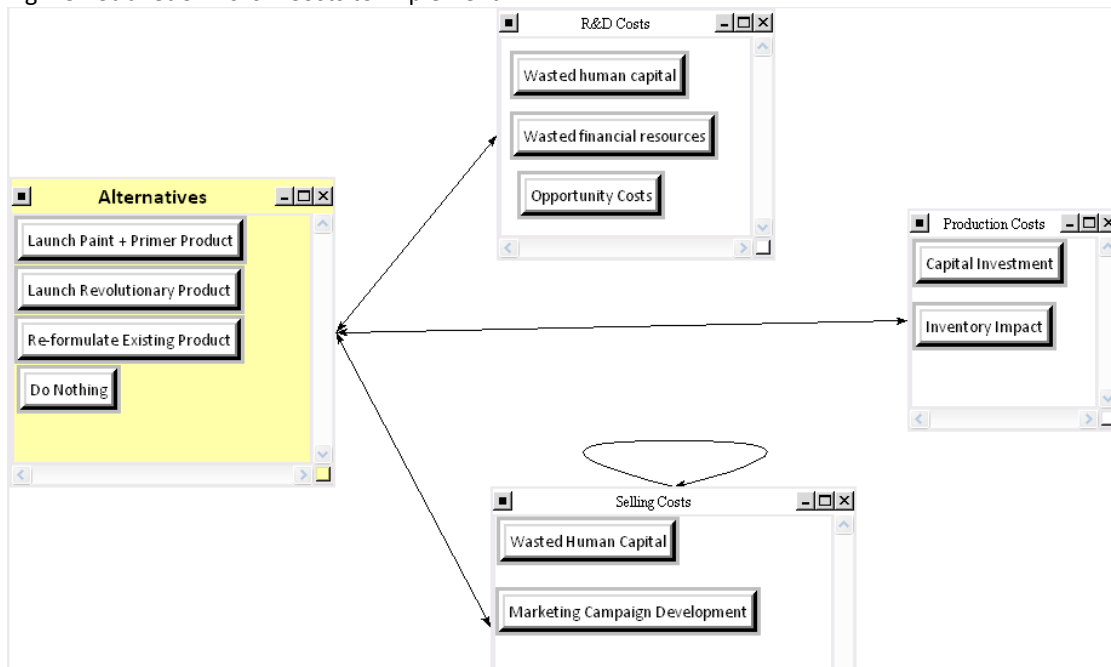
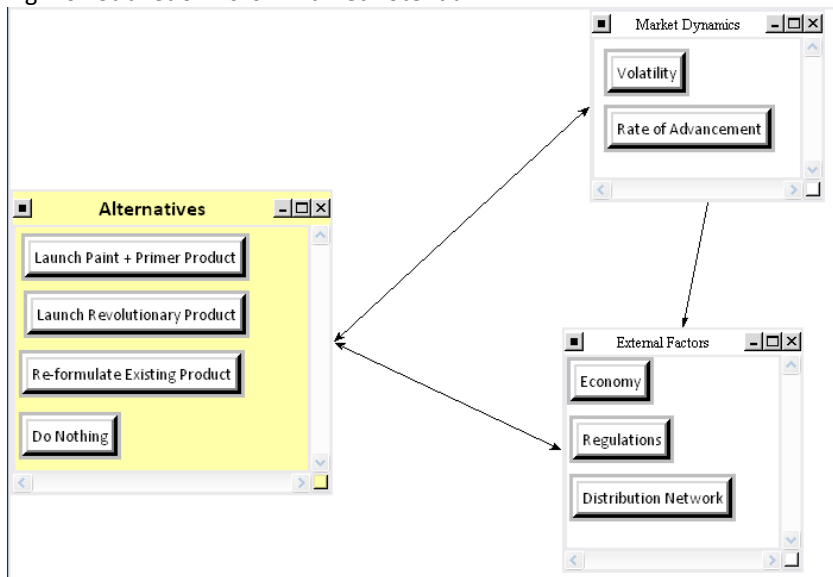


Fig. 16 - Subnet of Risks – Market Potential



Synthesis

Benefits:

The synthesis of Benefits yields that “Re-formulate Existing Product” is the best option, receiving 31.8%. However, these alternatives are very close as Do Nothing received 27.9% and Launch Paint & Primer received 24.3%.

Fig. 17 – Benefits Synthesis

New synthesis for: Subnet under 1.Benefits: formulaic

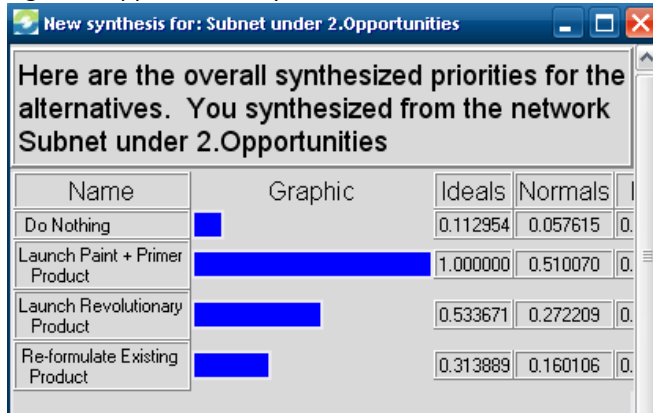
Here are the overall synthesized priorities for the alternatives. You synthesized from the network Subnet under 1.Benefits: formulaic

Name	Graphic	Ideals	Normals	Raw
Do Nothing	<div style="width: 87.8%;"></div>	0.877880	0.279067	0.50372E
Launch Paint + Primer Product	<div style="width: 76.5%;"></div>	0.765241	0.243260	0.439094
Launch Revolutionary Product	<div style="width: 50.3%;"></div>	0.502653	0.159787	0.288421
Re-formulate Existing Product	<div style="width: 100%;"></div>	1.000000	0.317887	0.57379E

Opportunities:

Under Opportunities, Launching Paint & Primer was the overwhelming favorite, receiving 51%. Launch Revolutionary product was in second. These results make sense because your higher opportunities are going to be launching a new product as opposed to not doing much to upgrade your brand.

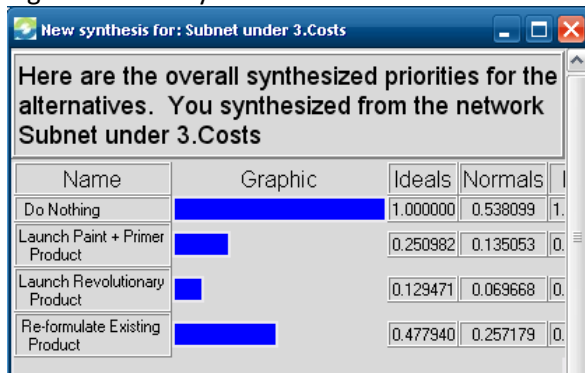
Fig. 18 – Opportunities Synthesis



Costs:

As far as costs, the optimal choice is to Do Nothing or Re-formulate. This makes sense as they will be the options with the lowest cost to the company. Launching new products will cost more to implement, which is why they are lowest on the results.

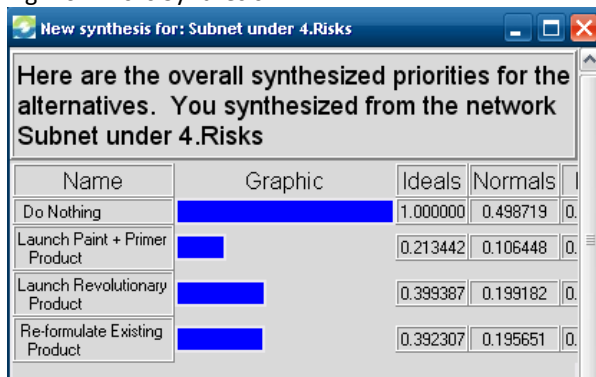
Fig. 19 – Costs Synthesis



Risks:

When analyzing the risks, it is found that Do Nothing is the optimal choice. This makes sense because there will be little risk involved with holding par with their products. The remainder of the alternatives, which involve changing PPG's products, are all fairly equal.

Fig. 20 – Risks Synthesis



Overall Synthesis:

When synthesizing the overall model, Launch Paint-plus-Primer is the overall favorite with 67%. Launch Revolutionary Product is behind with 24%. This makes sense for PPG because these are the best options to expand their market portfolio and increase sales. Launching a Paint-plus-Primer is the safer alternative because a market has already begun to develop for this type of product. There is a higher level of risk involved with launching a Revolutionary Product because the market has not developed and it is possible that it may not develop.

Fig. 21 – Overall Synthesis Multiplicative

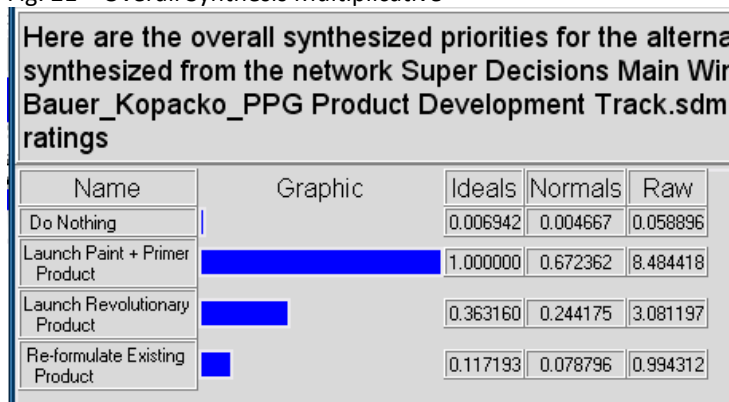
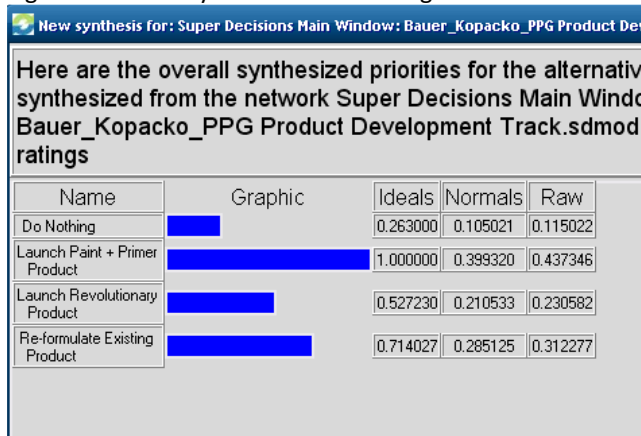


Fig. 22 – Overall Synthesis Additive Negative



SENSITIVITY

Fig. 23 - Benefits Sensitivity

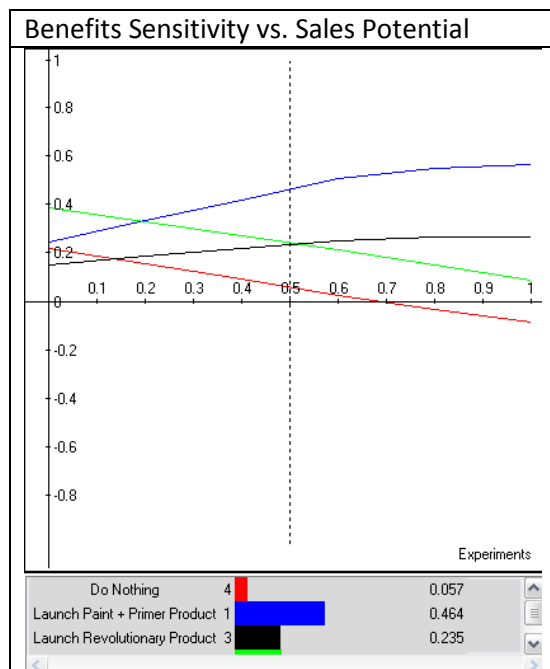
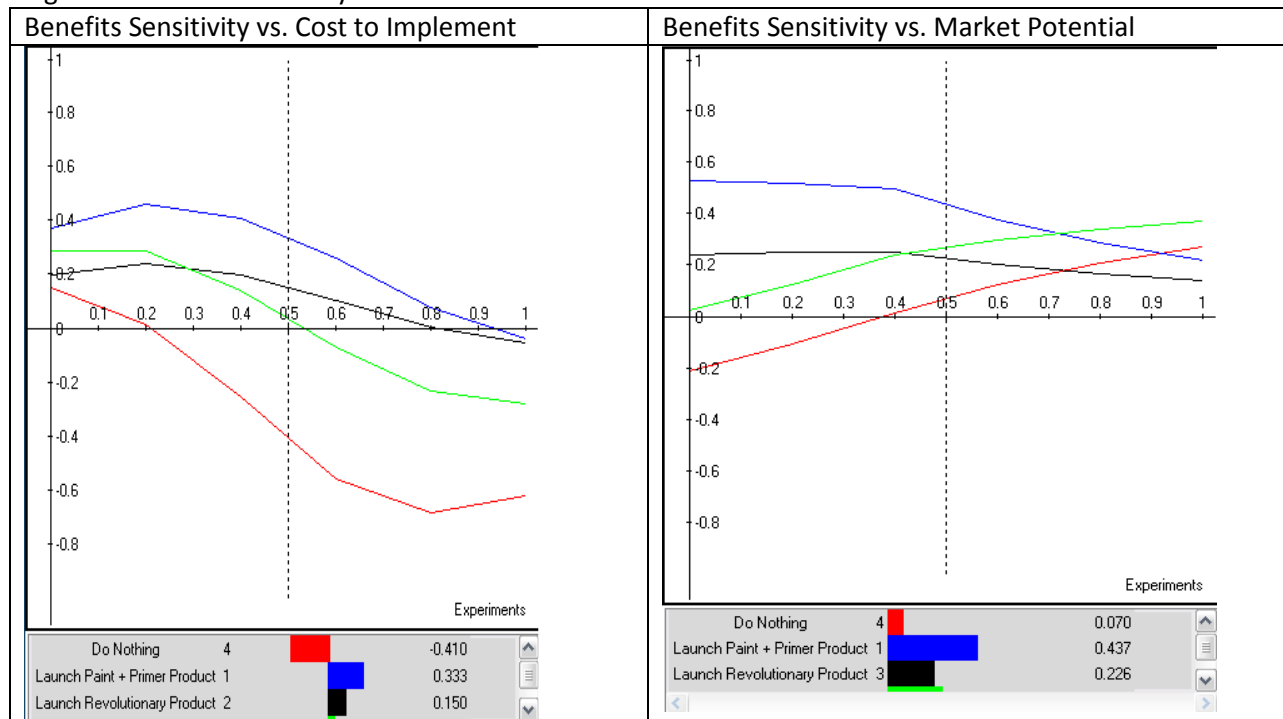


Fig. 24 - Opportunities Sensitivity

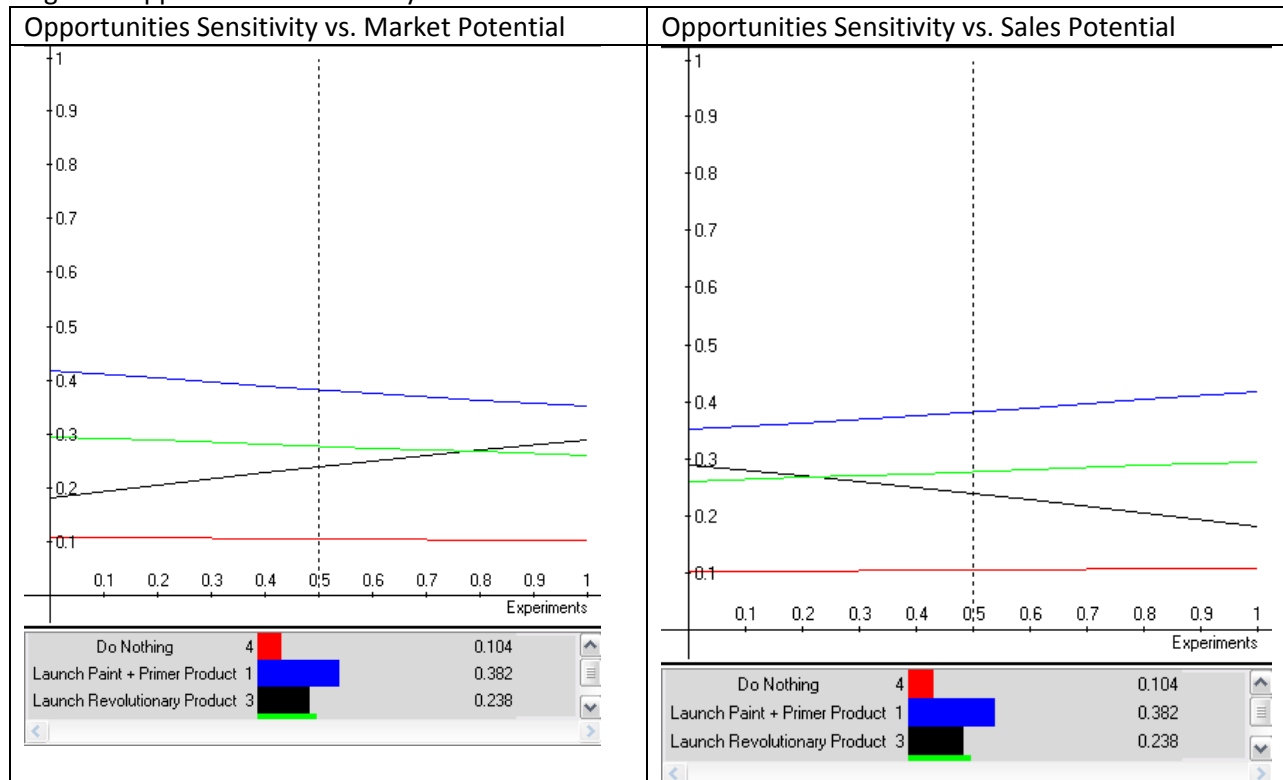


Fig. 25 - Cost Sensitivity

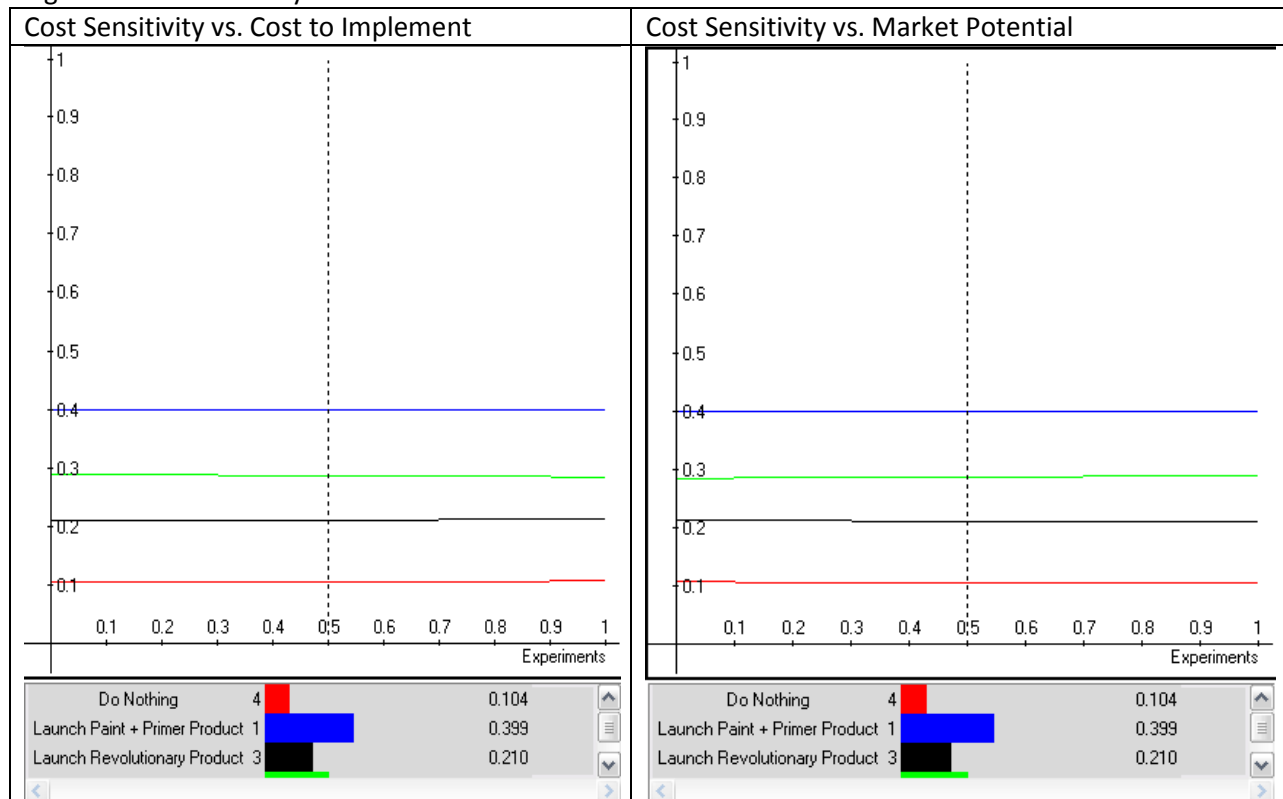


Fig. 26 - Risk Sensitivity

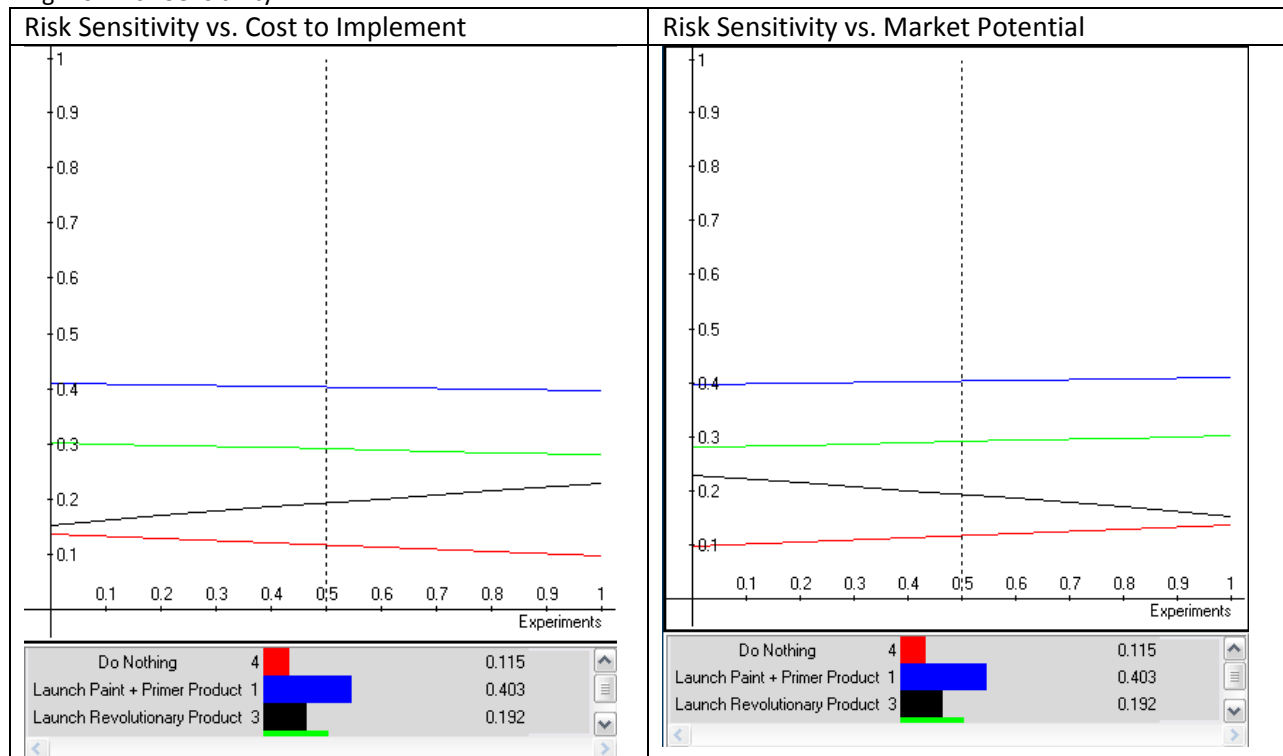
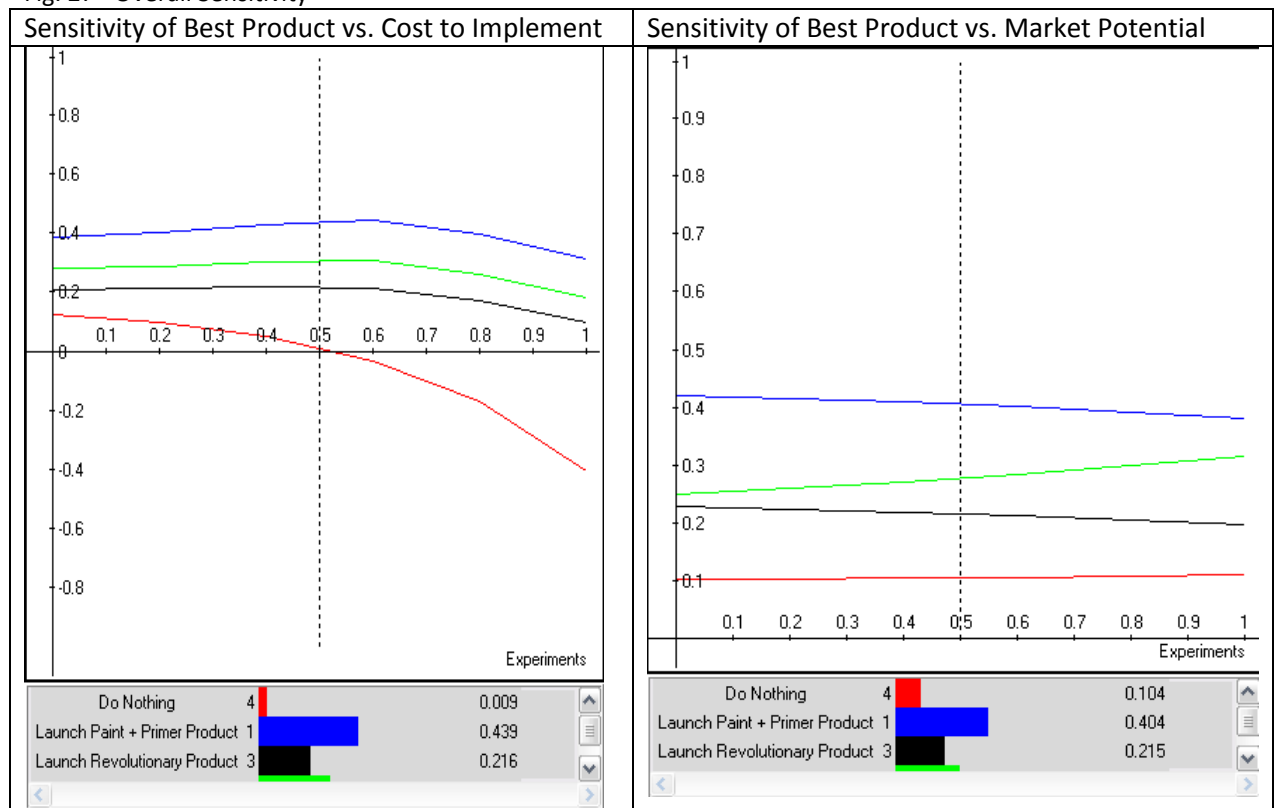
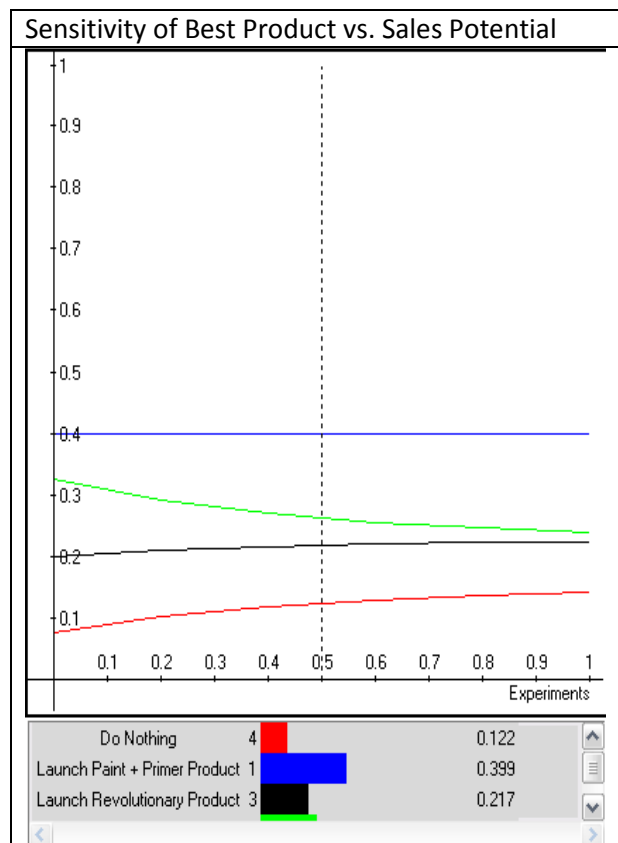


Fig. 27 - Overall Sensitivity





Results

Our sensitivity analysis shows that regardless of how the factors change, the optimal choice for PPG is to launch the paint-plus-primer product. This makes sense because the Benefits and Opportunities are highest with this option. Also, the risks are slightly lower because a market for paint-plus-primer is already established, where the risk of a market not developing is not present.

PPG should launch a paint-plus-primer product in order to optimize sales and increase their presence at the Lowe's Home Improvement stores.