A Framework for Customer Collaboration: Case Study in FMCG

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Summary: Chocolate Co. is a global fast moving consumer goods (FMCG) player. Recent aggressive growth strategy through acquisitions and resulting integration efforts have historically shifted focus from organic growth. Now Chocolate Co. would like to develop an effective collaboration model to engage with its customers. Traditionally the relationships with the customers have been on a transactional basis: receiving and delivering orders. Existing level of relationships has been creating a competitive disadvantage since other competitors have been collaborating with the customers to achieve greater profitability and deeper relationships. This research explores three questions for them:

1. How should customer segmentation be conducted from a supply chain management point of view?
2. What collaboration levels are appropriate for different segments?
3. What are the driving forces and resisting forces of creating customer buy-in for collaboration and how do they interact with each other?

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KEY OUTPUTS

1. A segmentation approach covering both financial and non-financial metrics developed and implemented.

2. Customer segments matched with different collaboration levels using Delta Model framework, a strategy framework focusing on customers.

3. A methodology for system dynamic analysis of qualitative data is proposed, validated and used for analysis of creating customer buy-in.

4. Simulation results: Investment in supply chain training and people skills is key and complementor benefits help bridge gaps in creating buy-in.

Overview of Chocolate Co.

Chocolate Co. operations span the globe with 100.000 employees and a turnover exceeding $30b in 2012. 60% of revenues come from Western Europe and North America while Asia Pacific accounts for 15% of revenues.

The Malaysia operation is run through a headquarters in Kuala Lumpur and three production centers. The transportation of goods is outsourced. 70% of revenue comes from 13 distributors each with exclusive regional coverage of traditional trade channels. The remaining 30% revenue comes from modern trade accounts of multinational players and away-from-home accounts of players which use company's products as inputs for their products and services.

Problem

Suffering from the side-effects of aggressive growth, Chocolate Co. would like to develop an effective collaboration model to engage with its customers. Traditionally the relationships with the customers have been on a transactional basis, i.e. receiving and delivering orders. This has been creating a competitive disadvantage since other competitors have been collaborating with the customers to achieve greater profitability and deeper relationships.

Nevertheless, there have been efforts to enhance relationships with customers on the customer service level. The efforts mainly focused on increasing service levels. Efforts have paid off and case fill rates have improved from 79% to 90% over the last year in some cases. However the company realizes that without a well-planned strategy and execution, such efforts will only have temporary effects. During initial meeting to define scope, five points were assessed:

I. Internal alignment

Ensure Chocolate Co.'s supply chain is operating in cooperation between sales, marketing and customer service teams and no value is lost due to frictions. This was recognized but was agreed to be kept out of scope since the organization was undergoing restructuring.

II. Customer Segmentation

Develop a customer segmentation model for Chocolate Co. so that different collaboration models can be matched with relevant segments.

III. Customer Collaboration

Identify different levels of collaboration on an agreed strategy framework and identify the level of collaboration needed for each customer segment. Map customers' current positions and identify gaps.

IV. Road Map

Design a road map that will enable Chocolate Co. to move customers to higher tiers of collaboration to address the gaps identified.

V. Measure Success

Develop a dashboard to track progress and identify upcoming issues to proactively deal with them. This was recognized as important however was kept out of scope due to time limitations.

Methodology

The study employs a segmentation approach and the use of Delta Model to identify appropriate collaboration levels for each of the segments. For the customers whose current collaboration levels don't match with the identified levels, a System Dynamics analysis is conducted to identify the driving and resisting forces of getting customer buy-in

to collaborate at the desired levels. Figure 1 below summarizes the four steps.

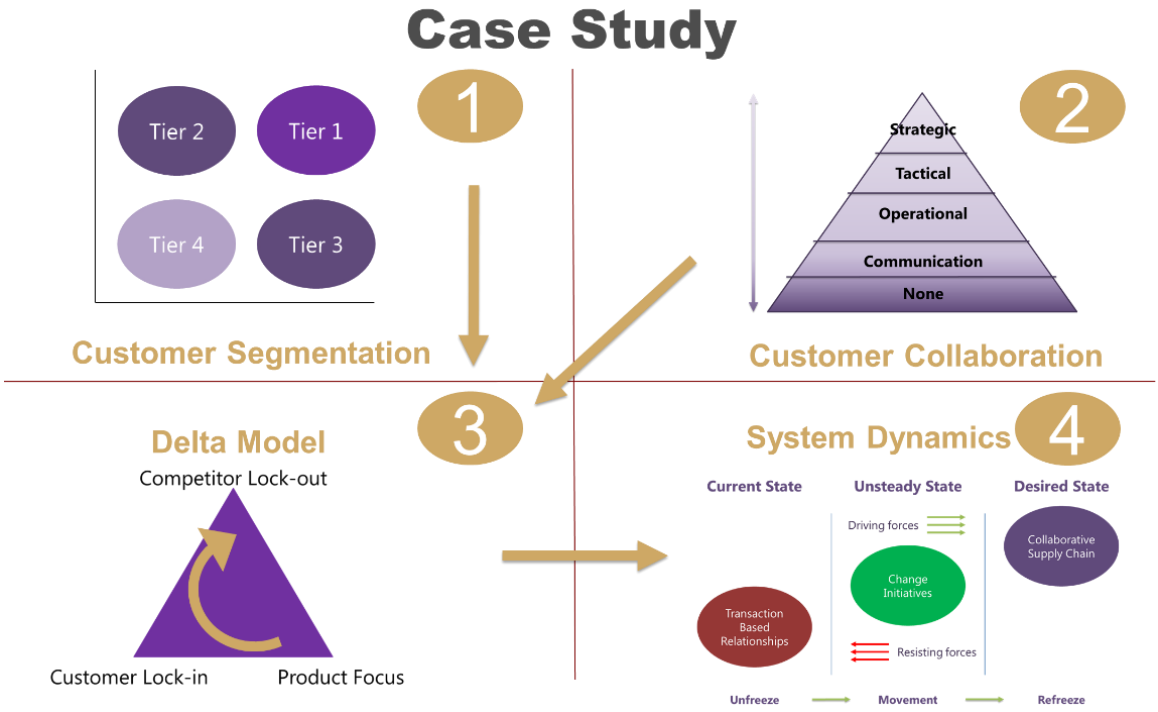

Figure 1: Summary of methodology

Segmentation (1)

The firm has limited resources and collaboration efforts may require significant time, skills, and monetary investment. As such, engaging with all customers at the highest levels is not an option. The aim of customer segmentation is to develop an understanding of customers from both financial and supply chain viewpoints so that customers can be engaged at the right levels. Ideally more profitable / higher volume customers will be locked in to preserve profitability and requirements of customers with higher service expectations will be fulfilled better through closer collaboration. To achieve this, a multi-step approach was developed which incorporates both financial and supply chain related information. Customer segmentation is conducted based on:

I. Financial criteria: Revenue vs. Margin

II. Non-financial criteria: Chocolate Co. bargaining power over customer vs. customer service level expectations

III. Other relevant data: strategic relevance, management style, existing relationships, demand variability, complexity of serving, delivery locations

First, segments candidates for financial and non-financial segments were determined. Then, to finalize segments the following decision rule was used:

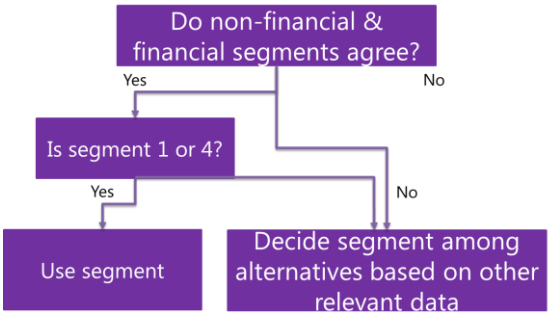

Figure 2: Segmentation rule

Customer Collaboration (2)

With a comprehensive literature review, the following collaboration levels were identified:

I. None

II. Communication: information exchange only; shortest horizon. Quick Response (QR) scheme

III. Operational: supplier replenishes customer inventory. Continuous Replenishment (CR) or Vendor Managed Inventory (VMI)

IV. Tactical: supplier and customer forecasts demand and plans promotions together. (Continuous Forecasting & Replenishment (CFR) or Continuous Planning Forecasting & Replenishment (CPFR)

V. Strategic: joint strategic planning, product planning; longest horizon. Strategic Collaboration (SC)

The figure below summarizes the levels and methods

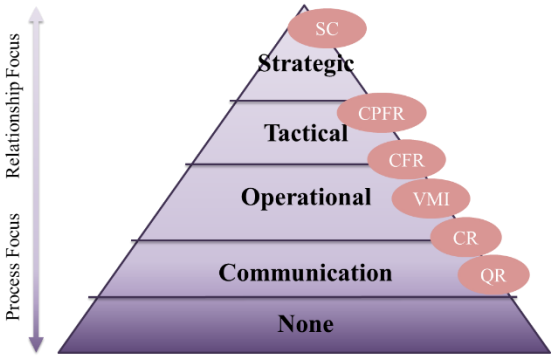

Figure 3: Collaboration framework

Delta Model (3)

Delta model is a strategy framework that places customer rather than the product at the center. 3 possible positionings:

I. Best Product: cost leadership or differentiation

II. Customer Lock-in: aim to bond with customer by offering integrated solutions for the critical needs of customer

III. Competitor Lock-out: most profitable position. Achieved by owning the standards of the industry (Windows and Intel), becoming an exclusive interface between suppliers and customers (ITunes), or restricting competitor access

Each position is represented as a corner of a triangle and customers are placed on the triangle as per their positionings. Below is a visual representation:

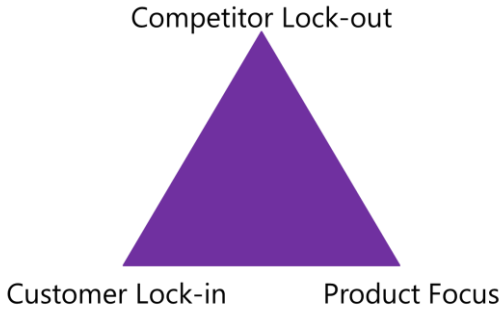

Figure 4: Delta Model

In Delta Model, introduction of complementors is key in moving customers towards customer lock-in and competitor lock-out positions.

<u>Complementor suggestions:</u>

I. Bank to improve Credit

II. Media provider for advertising support

III. Non-competitive suppliers to decrease costs

IV. Non-competitive sourcing support

V. Provide consumer insight

Matching Segments with Collaboration Levels (3)

Least important or un-actionable customers are placed in Tier 4 with product focus. QR may be attempted for them. More of the important customers will be placed on customer lock-in or competitor lock-out positions to secure long lasting and profitable relationships. Ultimate competition is on locking competitors out

of shelf space and full CPFR and SC will be aimed with Tier 1 customers to focus on that goal. Below in Figure 5 is a visual representation of matching customer tiers and collaboration levels on a Delta Model.

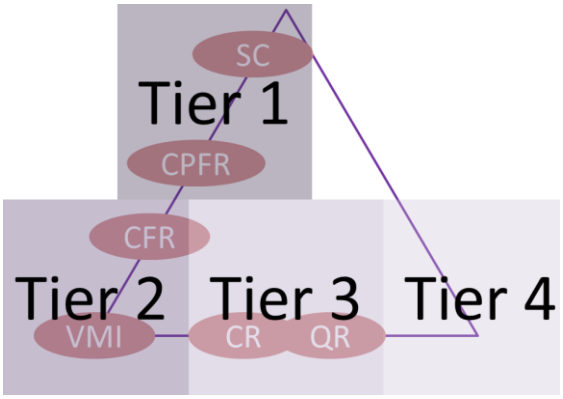

Figure 5: Matching segments with collaboration levels

Creating Customer Buy-in (4)

In order to tackle the question of how to create customer buy-in, Fawcett et al.[1]'s force field approach was adopted. According to his approach, an entity must be first unfrozen from its existing state to initiate change. When the entity is unfrozen, the balance of driving and resisting forces will determine whether a change will take place. If the desired change takes place, the entity is refrozen in that state.

System Dynamics

A system dynamics approach is used to analyze and explain the model. System dynamics was chosen since it gives us a visual presentation of interplay of driving and resisting forces.
System Dynamics models are useful in picturing interaction between variables in analysis of complex systems. The approach provides holistic insights into complex mechanisms and problems.

Below is a visual representation of two sets of variables and their meaning:

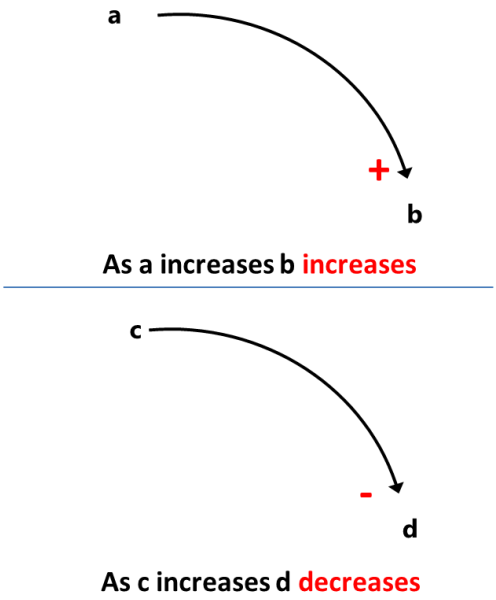

Figure 6: System dynamic representation

In a typical system dynamic analysis, variables form loops with each other. These loops are called causal loops or feedback loops. A typical system contains numerous loops.

Main variables

Below is a visualization of the main variables and their interactions. The arrows, '+' and '-' signs have meanings explained in previous section:

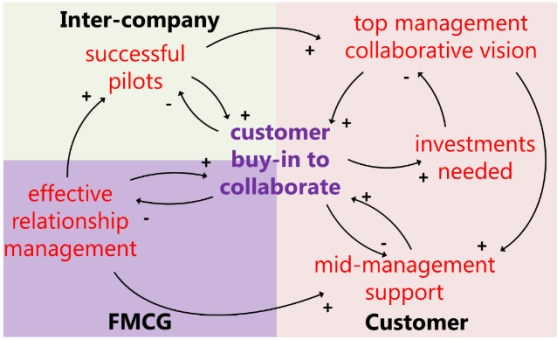

Figure 7: Creating customer buy-in model summary

[1] Fawcett, S. E., Magnan, G. M., & McCarter, M. W. (2008). A Three-Stage Implementation Model for Supply Chain Collaboration. JOURNAL OF BUSINESS LOGISTICS, 93-112.

Customer buy-in to collaborate is the main variable that the model focuses on. Creating customer buy-in is defined as convincing both mid-management and senior management of customer to adopt desired collaborative practices.
From literature and meetings with Chocolate Co.'s representatives five main variables influencing customer buy-in in three mediums are identified and the model is established around those.

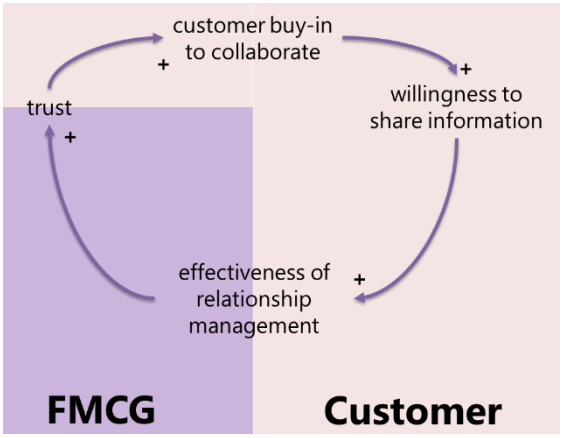

Figure 8: Main reinforcing loop of creating buy-in to collaborate

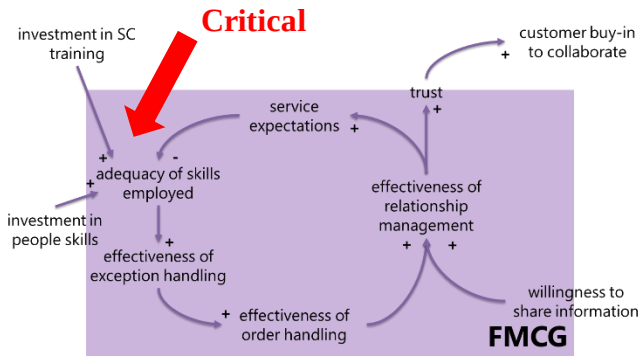

Figure 9: CLD at Chocolate Co.'s side

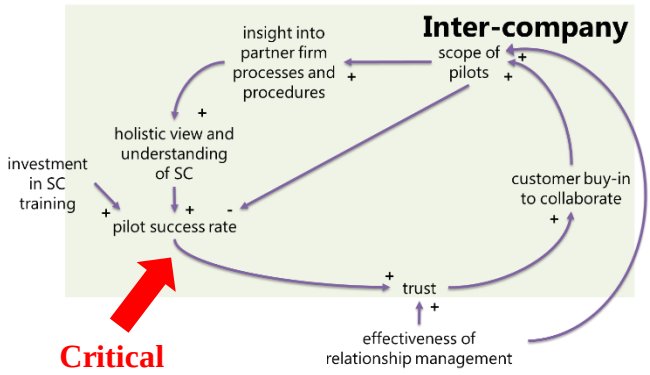

Figure 10: CLDs at inter-company

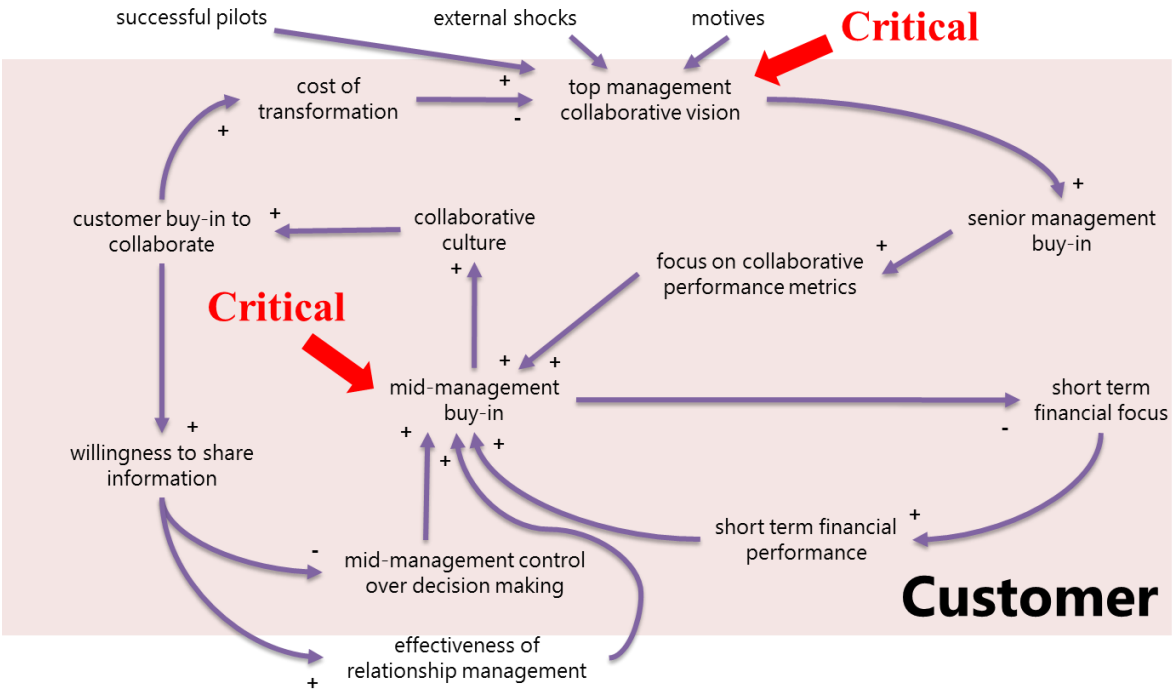

Figure 11: CLDs at customer side

The model suggests the following:

I. Chocolate Co. must have a benefits case at hand and support the benefits case with pilot projects.

II. Customer buy-in and change is not achieved through one big step but in incremental steps via pilots.

III. As pilots become more successful, the persuasiveness of benefits case will increase and ultimately lead to customer buy-in.

IV. Degrading mid-management support in the process can be supported with effective relationship management.

Proposed Simulation Methodology (4)

In order to simulate the model the causal loops identified need to be translated into stock and flows.

Description of stock and flows

The figure below sketches a typical stock and flow diagram:

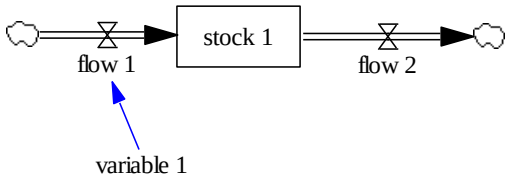

Figure 12: Stock and flow diagram

In System Dynamics analysis, once the causal loop diagrams are identified, they can be translated into stock and flows so that the model can be simulated. In a stock and flow diagram, certain variables are called stocks, certain variables are called flows and certain variables help determine value of these. Stocks can be considered as pools where flows accumulate. Stocks are usually represented as framed boxes in stock and flow diagrams whereas flows are represented as thick black arrows going into stocks or getting out of stocks. Other auxiliary variables can be used to drive values of stocks and flows. A thin arrow between any two variables indicates a causal relationship.

Proposed methodology

Since the resulting model is highly qualitative in nature, a conventional System Dynamics analysis based on measurable stocks and flows wasn't possible. To be able to analyze the variables of interest an approach was proposed that would enable comparison of patterns of behaviour rather than quantitative values of stocks. The following approach gives indications of the signs of stocks (i.e. whether a variable is constantly increasing or decreasing or changing behaviour between the two) and deemed as satisfactory for the purpose of the thesis.

I. Represent all variables as stocks with inflows. Each stock will represent the time rate of change in the underlying variable.

II. Replace each arrow in the causal loop diagrams with two auxiliary variables and two delays.

III. Connect input variables to inflows of relevant variables

Below figure gives a visual representation:

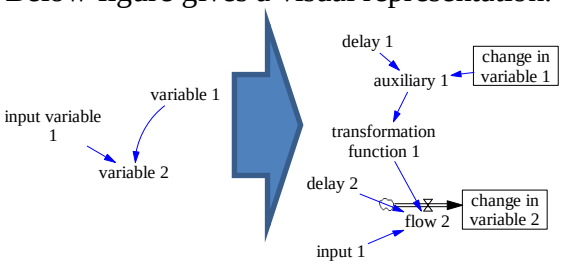

Figure 13: Transforming causal loop diagram into stock and flows

Auxiliary 1: stock delayed by delay 1

Auxiliary 2: a transformation function determined by relative behaviour of stocks

Delay 1&2: determined by literature review & case study

Simulation and Results (4)

Six input variables were identified:
I1: Investment in training and people skills
I2: Investment in training for pilots
I3: Complementor benefits
I4: Internal motives
I5: External shocks
I6: Bargaining power
The effect of these variables on creating customer buy-in was assessed. Two important results were reached:

I. Investment in supply chain training and people skills are the most influential inputs to achieve customer buy-in.
II. Complementor benefits emerged as adequate to bridge the gap to achieve customer buy-in when inputs not under control of Chocolate Co. (I4, I5, I6) are at adverse levels.

External Validity

The customer segmentation approach detailed in the thesis can be applied to any manufacturer looking to collaborate with customers. It can be utilized for suppliers as well. For a supplier collaboration case, the non-financial segmentation criteria will have less importance since customer buy-in will already be present and bargaining power will be less important. Nevertheless, service level requirements (service level expectations in the model) will still be important, given different service levels are required from different suppliers.
The proposed causal loop diagram for creating customer buy-in isn't specific to an FMCG manufacturer looking to collaborate with customers. It can be applied to any case of a company convincing another company to collaborate.

Future Research

The approach proposed to translate causal loops into stock and flows and simulate can be adopted in a number of settings where the variables are qualitative in nature and a binary answer is sought. In this thesis, the question was whether customer buy-in is achieved or not given a set of input variables and the causal loop diagrams. Some other occasions where the method can be applied is listed below:
I. Customer satisfaction studies given the effect of various service factors and occasions
II. Effect of political campaigns on public
III. Reputation of a company given various events / publicities
IV. Employee morale given various company policies
As an alternative path, quantitative measures can be attempted that can capture the variables in question and a more rigorous stock and flow diagram can be built. However the success of the attempts will be limited since the model contains variables such as trust.
Another approach would be to replace transformation functions with actual variables that form the function. For instance when the link between willingness to share information and effectiveness of relationship management is examined, it can be concluded that the transformation function used represents two additional stocks: effectiveness of information systems and information sharing. By replacing the transformation function with these two stocks, a finer model can be created and simulated. This process can be repeated until a comfortable level of detail is achieved. For this thesis, the proposed variables were deemed satisfactory.
Lastly, an expansion would be on developing success measures for customer collaboration.