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Open Innovation Collaboration: *The Invisible Side of Implementation*

The case first introduces the main character, Jennifer who has the assignment of rolling out a new business concept called Open Innovation. The case walks the reader through several challenges and issues she faces as she tries to understand reactions and current activities within her company regarding this new concept. The case presents the challenges and issues in a story like setting. Included in the case are a brief history of R&D development, the concept of Open Innovation and background information on the company, Modal.

This case was developed based on personal experiences and research. The company name, related information and characters in the story have been changed.

Introduction

As the conversations around her ends and people start to leave for the day, the office begins to quiet down. Silence quickly settles over the office and is broken only by the “white noise” of air flow from the air conditioning system. Jennifer stares at her computer screen and reflects on her work over the last 3 months. She has put so much time into this “open innovation” activity and wonders if she is making any real progress. She believes this new way of doing business will help the company compete and be successful especially in light of the dynamic market conditions. However, not everyone in the organization sees it the way she does.

Jennifer knows she does her best thinking when the office is quiet, so she pulls out the apple left over from her lunch, takes a bite and begins to work. She must develop a status report for the first quarter’s open innovation activities. “Okay”, she mumbles out loud, “where to begin?”

Open Innovation (OI)

As she wrestles with where to begin, she thinks “Open innovation sounds like such a “common sense” approach to product and technology development. Who would have thought that I would have run into so many roadblocks? Looking back, I wonder if we made the right implementation decisions”.she laughs out loud and says “road blocks, lots of road blocks”.

She lets out a sigh, puts her elbows on the desk and folds her hands. Resting her chin on her folded hands, she smiles as her mind goes back to her first presentation on Open Innovation. What a day! She recalls that presentation and discussion.....

“In our current business situation with resource reductions, fierce competition, the pace of innovation is accelerating, while the cost of development is increasing and speed to market is

critical, we are being challenged to develop new and innovative products and technologies. One technique being used in several industries is Open Innovation. P&G, HP and Unilever are successfully utilizing this technique. Open Innovation is designed to enhance new product development. If we implement this correctly we can expect to develop more new products/ technologies and get them to market faster with fewer resources. Open innovation requires developing with others outside the company and/or utilizing existing technologies/ products already developed by others.

Innovation is about ideas and the transformation of those ideas into value creating products, processes and services. It is an ever evolving process designed to implement new ideas to create value. If we think about it, invention may belong to R&D, but innovation does not..... everyone can do it!!!!. We also need to recognize that there are lots of smart people who are thinking of the same things at the same time as we areso the challenge is to tap into those resources and leverage them so that we get great products to market faster.

Open innovation has the ability to improve both the top and bottom line growth by expanding our innovation capabilities with “win – win” external collaborations. We should be using open innovation as a key growth strategy.

We can think about open innovation as an approach and a mindset as to how we innovate. It should be integrated into our product / technology development processes. And to do all this we will need to change our behaviors, attitudes and culture.” Jennifer ends her presentation with Modal’s management team.

Thinking back on the weeks following this presentation, she recalls her meeting with the R&D engineering groups. She shakes her head and recalls the conversation with Fred.

At the meeting, Fred Sharp stands up and states, “I was hired to create, but this Open Innovation approach appears to me to be the outsourcing of our R&D efforts.”

“Fred,” Jennifer starts, “certainly what you create *is* important but equally as important are the innovations you develop by working with others outside the company as well as with those you know. Open Innovation is about connecting and leveraging outside of the company *and not* just those you know. We need to create win-win working relationships. By that I mean understanding what we are, what our core competencies are and what business models will align us with our vision and strategies. These business models will be different for each open innovation activity but are critical for the overall success of collaboration activities.”

“I understand that,” Fred counters, “but we can do the R&D ourselves. We do not need others. We have a great engineering team that can reverse engineer and design workarounds on any competitors’ patents.”

Jennifer tries to convince Fred that he is not looking at the benefits of open innovation activities, “Fred, if we partner with others we will gain access to innovations quicker and that will get us to market faster. By getting to market faster, we can reap the benefits and add to our revenue and profit margins.”

Thinking out loud Jennifer says, “Boy that was some day! I felt like we were talking about closing the company down by the reaction of some the engineers. Of course, that was not as bad as the discussion with the executive staff.” She recalls the conversation with CEO, Wade Henderson.

“Jennifer,” Wade starts out, “how do you see this executive team supporting OI?” Jennifer had anticipated this type of question and she was prepared. “Well Wade, ultimately success will depend on supportive leadership. I will need this executive team to demonstrate their belief in Open Innovation.”

“OK” Wade responds, “We can do that.”

Jennifer thinks about Wade’s commitment to support OI. She smiles. “So,” she thinks, “Just where *is* this support? I should have been very specific about what *support* I need.”

Her mind drifts to the two major teams she is dealing with these days. Owen’s team seems to be doing just fine with their OI efforts. It is actually a great story, but Glenn’s team Well, they are the poster child for “*what not to do*”.

“So, how do I take lessons learned from both of these teams to continue moving Open Innovation activities forward within the company?” Jennifer thinks, “Maybe to take each team and go back through the steps they have taken might give me some insights on key activities that I can use in this report.”

About Glenn and his team.....

Glenn, a tall engineer and PhD who has worked in the Powertrain Energy Division for his 20 plus years with Modal speaks up and tells Jennifer, “You know we are already doing Open Innovation. We may not call it that, but we have been doing it. I have found that we do just as well developing everything in house. During an advanced development project we contract for services when we can not find a solution in house. We pay the research lab for their services to solve the problem. *And, we never give up IP rights.*”

Jennifer glances around the room at the team members and inquires, “Do projects fall behind on their timelines? How do you know that the project will meet the market / consumer requirements and timing?”

One engineer sitting in the back of the room speaks up, “We follow our product development process. If we miss passing a gate during a project review then sometimes the timeline does slip, but our engineers are dedicated and work to resolve the roadblocks. I do not think that we should be considering outsourcing our R&D work. That is the key to our competitiveness....our core competencies.”

“I just do not know what or how to change the thinking these guys have.” Jennifer thinks as she starts to put her notes together.

Glenn’s team is comprised of experts located in the US and India. The team’s collaborative partner is located in Europe. This collaboration started with a non disclosure agreement (NDA) after which the two companies discussed results of a joint R&D effort. Jennifer wonders if Glenn challenged his team to determine a collaborative business model prior to the NDA.

And then there is Owens’s team.....

Owen, a young engineer who has been with Modal’s Global Aftermarket Division for 5 years took on his assignment with real zest. To Jennifer, he seems to be a natural at negotiations and collaboration. He has a real knack at negotiating “win-win” deals with collaborative partners. This is his third collaborative R&D work assignment. “He has learned from his previous work, I’m sure.” Jennifer continues thinking out loud, “It would be good if I could understand what those skill sets are that make him different from the others and such a good negotiator”.

“Owens’s team members seem different somehow.” she thinks. “They are all US based.” She thinks about how his team seems to have a different view about OI. They view OI as complementing R&D and view it as a way to extend development and innovation beyond the company’s four walls.

During one of Owen’s negotiations, he found a clever way to license IP rather than insisting on owning it. That made a great business model! Those IP royalties hit the bottom line while the revenues from the sale of the products hit the top line. “Can’t ask for a better deal than that.” Jennifer thinks.

Owen also came up with a unique way to recognize his team for their OI efforts. He has the CEO and the Chief Technology Officer (CTO) send a congratulatory message to his team members as well as publishing an article in the company news paper, pictures and all! In addition, the article is posted on the corporate intranet web page. “The guys seem to “beam” with pride so it does seem to work.” she thinks.

Decision to shadow Glenn and Owen’s teams.....

Jennifer takes in a breath and lets out a long slow sigh and mumbles, “Glenn’s team is not going to be able to articulate what their roadblocks to successful collaboration are let alone lessons learned. So, how do I go about getting this type of information? Ah, I know, I’ll just sit in on a few meetings to watch and listen. I should be able to better understand how these guys are operating as a collaborative team.”

Jennifer picks up the phone and dials Glenn’s number. “Hey, Glenn. How are you?” Jennifer starts out the conversation knowing that her request is out of the ordinary and Glenn may not agree to her attending one of his team meetings.

“OK.” he responds and waits for the reason for her call.

“Glenn”, Jennifer continues, “I am working on the Open Innovation project and would like to understand how our teams are managing with this new collaborative effort. Is there a chance that I could attend one of your team meetings to better understand for myself how you guys are doing it?”

“Well”, Glenn hesitates “I guess it would be okay.”

“Great!” Jennifer responds and then quickly asks “When is the next meeting?”

“Thursday.” He responds, “I will send you a meeting notice with all the information you will need.”

“Thanks.” Jennifer responds and then quickly adds, “So I will see you then.” and hangs up the phone.

Jennifer immediately dials Owen’s phone number and waits for him to answer. “Owen, good morning. How are things going?” Jennifer starts out.

“Great, Jennifer. Just great. How are things with you?” Owens responds in his normal highly energetic voice.

“Fine.” She responds. “Owen, I was wondering if I could sit in on your next OI team meeting. I would like to understand how you and your team operate. I think there is a great deal you guys could teach the rest of the organization about doing OI well.”

“That would be great, Jennifer. My next team meeting is Friday. I will forward a meeting notice. Is there anything else you needed?” Owen asks.

“No. Thank you for allowing me to sit in on your Friday meeting. See you then.” Jennifer hangs up the phone and thinks she always likes talking with Owen. He has so much enthusiasm in his voice. He makes you feel like you want to get started on something just to get that great energy level he always seems to have.

Thursday – Glenn’s Team Meeting

Times: 8:30AM (Michigan, USA); 6:00PM (India); 2:30PM (France); 2:30 PM (Germany)

Jennifer walks into a small conference room with no windows and sees Glenn sitting at the conference room table, “Good morning, Glenn.”

“Good morning, Jennifer. How are you this morning?” Glenn asks while getting the conference call line open.

Two of Glenn's engineers walk quietly into the room with coffee cups in hand and sit opposite Glenn. Glenn just launched the software for the meeting network and is beginning to project onto the screen located at one end of the conference room. Jennifer can see those who are joining the meeting through the software projection and the phone clicks when someone new joins the phone line.

"Well", Glenn's starts out, "Let's get started. I would like to find out who is on the line now."

"Good afternoon, Marc LeBeau, France." Marc announces.

"Dietmar Brandt, Germany." Dietmar chimes in.

Glenn smiles. "You guys are already half way through your day. Hope it is going well."

"Greetings from India." Sandip Gupta announces for his team.

"Good evening, Sandip", Glenn greets the engineers in India. "I hope your day went well today. Here in the room we have Jun Shi, Dennis Robinson, Roberto Hernandez, Bryan Young, and Jennifer who is joining us today as part of her overall Open Innovation activities.

Well, first on our agenda today is our discussion of the progress on phase one of our project. Marc, I am going to turn it over to you for your status report."

"Thanks, Glenn." Marc starts his progress update. "We have been able to resolve our materials issue and it is now able to withstand the extreme temperatures set for the material in the material requirements."

Bryan jumps into the conversation. "We now have to figure out who will file the patent and own the IP for the material. In looking over the agreement, it is not clear as to who owns this."

Marc responds in English with his very heavy French accent, "No. It is clear as to who owns the IP with respect to the material, we believe we do!"

"I disagree." Roberto responds.

"Why do you believe that this discovery does not belong to us? The agreement clearly indicates that it does." Marc quickly responds back.

"Guys" Glenn cuts in, "Let's look into this outside of today's meeting. We should focus on the actions and next steps related to the project."

The team acknowledges his request, but it appears to Jennifer that this group will not figure out how to resolve this issue outside of this meeting without better direction and leadership.

Glenn's team continues to discuss the project. "I have not received the necessary reports from the US." Sandip states.

Glenn inquires, “Guys, what is the problem?”

Dennis answers, “We are caught up in an internal review with Fran Harrison and his staff as our technology development process indicates and can not proceed until we get the *green light*. Due to schedules, we were not able to have a meeting with them for three weeks. It is the best we can do.”

“OK.” Glenn responds, shaking his head. “So, what does this do to our project timing?”

“Puts us about a month behind due to the fact that we can not move further until we get a sign-off from this group.” Dennis responds.

Jennifer can see that Glenn is very frustrated. She thinks, “He is responsible for this project, but clearly not fully in control of all aspects of it.”

“Has there been any progress in the other areas?” Glenn asks.

Marc responds, “No, not from this end. We are still working out the details on which software package we should communize to for drawings, etc. It seems that your software is very complex and costly. Another challenge we have not resolved yet is where the new work should be located and stored. Seems that to put information on your server, we are not able to access it and if we use something on the internet our IT folks are concerned about knowledge theft from “hackers”. Considering all our issues perhaps we should resolve the IP issue before we conduct any more work.”

Jun suggests, “Glenn, since it looks like we are waiting for the approval to move forward and the IP issue still needs to be resolved, I suggest we adjourn this meeting.”

“I agree.” Sandip chimes in.

“I agree too.” Dietmar supports Sandip’s recommendation.

“OK.” Glenn acknowledges the teams request and adjourns the meeting.

Glenn looks at his watch and then at Jennifer, “Well, Jennifer did you learn what you wanted?”

“Frankly, Glenn,” Jennifer continues, “I am not sure. You certainly have your hands full with this project. Seems like your team was very focused on the IP issue.”

“Yes.” Glenn responds. “But you must remember that ownership is very important to the company as well as the inventors. Inventors get recognition from several areas, their peers, coworkers, management and also they receive a monetary award. So, you can see that this is a primary driver on this project.”

“I suppose.” Jennifer thinks. “Is there a way you are going to be able to get this project back on its proposed timeline?”

“Not unless we get these guys to move things on their calendars. We are stuck with this date.” Glenn adds.

“Well, thanks Glenn. I appreciate the opportunity to sit in on this meeting.”

Friday– Owen’s Open Innovation Team Meeting

Time: 10:00AM (Michigan, USA)

Jennifer walks into the room and sees that almost everyone is already here. She had thought if she arrived early she would go unnoticed until Owen had a chance to introduce her and her reason for being there today.

The room was far from quiet. Lots of chatter and discussion about what they were planning on doing this weekend. Seems these guys know each other or at least what is going on in each others lives. “Good morning everyone.” Owen starts out. “Okay... here is the agenda for today’s meeting.” Owen projects the agenda onto the screen and the meeting begins.

“First, let me introduce Jennifer who is here to learn how this team is utilizing the Open Innovation model. Let me go quickly around the table and introduce everyone. Owen starts to his right and introduces everyone, “This is Brenda Thomas, Jose Rodriquez, Aaron Scott, Alex Turner, Carlos Sanchez, and Miles Richardson.”

“Thanks. Now let’s start out with an update on who we have decided to continue to pursue as a possible collaborative partner.” Owen kicks off the meeting.

“I have looked at Triotec and set up a meeting with them for us to discuss further possible collaborative efforts in the area of composite material for heat exchangers.” Brenda proudly states.

“And I have set up a meeting with Flobab for possible collaborative efforts to resolve our manufacturing precision issue related to the injectors. My preliminary discussions with these guys lead me to believe they are working on a very similar type project so it appears like it might be a good match for a collaborative project with us.” Aaron shares.

“I have heard of these guys. Although they are small, they have a very good reputation as an innovative company. Since they are out of Europe, we will need to do our homework to understand their vision, how they are structured, what types of software they use in modeling, who else they have collaborated with, what they are currently working on you guys know the drill.”

Jennifer notes the high energy level and enthusiasm that both Brenda and Aaron have as they provide the team with the status update on their activities.

“Great job!” Owen beams. “This is very exciting. Now, both of you now need to put a value proposition and business case together so that we understand what is of value to us from a commercial aspect. This is the only way we will be able to figure out how to negotiate a win-win collaboration deal. When you get a draft put together, set up a meeting with me so that we can review and discuss. I want to be involved in every step. I just love this stuff!”

Jennifer leans back in her chair and thinks, “Boy this is something. Imagine working for someone who is excited about what you are doing. These guys seem to be very relaxed and comfortable working for Owen. Almost like they are all equal! What a concept for Modal which is so hierarchically structured.

“Okay, unless someone else has something else to report, this meeting is adjourned. No sense taking any longer than necessary to report on the weeks activities. So, until next Friday.... Have a good weekend and come back on Monday ready to go!” Owen closes the meeting.

Jennifer waits for the others to leave the room and then turns to Owen. “Thanks, Owen. I learned a great deal today.”

“Great.” Owen responds with a big smile. “Not sure exactly what you learned with such a short meeting, but glad we could help.”

Making a good deal.....

Jennifer recalls the conversation she had with Thomas Morris, VP of Legal. Patents require a strategy and that is what we have focused on.” Thomas starts. “As far as development or idea generation outside the company, we have not operated with an Open Business Model. In fact, to date we have not had any outside ideas or products/ technologies which were not invented in house. Our engineering groups believe that our Intellectual Property remains with us no matter what.

I am not saying this is the best approach, but it is the one that our engineering management believes will serve them the best so all the development contracts require the IP remaining with us. What I would like to see is that everyone who works on contract discussions understands how to create a “win-win” deal where both parties benefit. It also requires them to think beyond product development and develop a business model which includes the commercial aspects so that we make money at the end of the project. Too many times I see that the engineers want to “get on with their development work” so they do not look at the commercial side of the contract and so in the end, we loose money!” Thomas smiles slightly and in his legalese continues, “The engineers need to be able to identify what we have that is of value to the other party. So for instance, we are in the auto industry and have many OEMs we do business with and we are well respected. If there is a supplier or small company who is currently not in the auto industry, we offer a very smooth easy way for them to enter this market if they do development work with us.

It is something of value we can bring to the negotiation table which would be viewed as adding value for the other party rather than money.... which we have so little of at this time.”

“So if I understand what you are saying, we need to educate our engineers so that they understand and can determine what we have that is of value to the other partner. Is that right?” Jennifer asks.

“Absolutely!” Thomas responds. “The challenge is who will develop and design a training program and how will it get rolled out and to whom? In our current environment, I do not have the staff or the funding to develop and train our engineers and others who would be involved in developing these deals. We might be able to engage the purchasing group who handles the supply base to determine if there are suppliers who would be willing to work with us on a development project. It’s just a thought.”

“Thanks Thomas. I appreciate you taking time out of your day to discuss this with me.” Jennifer concludes her meeting and stands to leave.

“Jennifer, let me know if there is anything we here in legal can do to help you with this undertaking. It is a giant!” Thomas smiles and looks back at his computer and the long list of unopened emails that require his attention today.

“Okay, I will remember the offer” Jennifer smiles and leaves Thomas’s office. “Nice guy” she thinks, “but I am not sure what to ask them to help me with!”

Keeping the pipeline flowing.....

Jennifer reflects on the discussion she had with the engineering directors regarding the advanced development work. She remembers her statement, “In normal times, our revenues would be adequate to support in-house product development, however with the declining volumes, increasing gas prices and new regulations we need to look at our fixed costs. Although our regional sales performances need to be reassessed along with our regional presence, we must also review the need to keep our product development pipeline full.”

She walks into Edward Mitchell’s office and smiles and greets Edward, “Good morning Ed.”

“Good morning, Jennifer. How are thing going?” Ed asks.

Jennifer notices that he looks distracted and decides to get right to the point, “I think that Modal should not stop or slow down new product / technology development if we are to continue to support Modal’s mission/vision. However, having eliminated 4,000 positions this last quarter and consolidated 12 technical centers and with our product line budget reductions we will need to utilize new techniques to work with companies, suppliers and others who are outside the company as well as those inside the company for new product/technology ideas and innovation development.”

“Jennifer, I am not sure I understand exactly what or how we would work on new products/technologies with folks outside our company. Can you bring us back some examples of who is using this technique and how it works?” Engineering Director, Edward Mitchell asks.

“Sure.” Jennifer replies nodding her head and collects her presentation materials and walks slowly out of the conference room. At the end of the hallway, she stops, letting her arms fall to her sides. Discouraged and wondering where to start she thinks “this is like finding a needle in a hay stack or one unique rock on the shore line filled with rocks....what could others be doing that could help bridge this gap?”

Getting back to business.....

“So, where to go from here?” Jennifer asks herself. “Where do we find partners who want to collaborate on product development? How can we determine who is the right partner? What are the factors that make a successful open innovation R&D working relationships? How do we measure the OI successes? How do we convince our employees/management that this concept is a good thing and it is not outsourcing R&D? How do we go about embedding this concept into our culture? Where and how do we start to ensure it will be part of how we do business going forward and not just a *program of the day*?”

Case Study Questions

1. *Do you think Modal should adopt OI? Explain.*
2. *What do you think are Modal’s challenges in implementing Open Innovation? Explain.*
3. *What advantages does Modal have in moving towards an Open Innovation Model? Explain.*
4. *What elements and actions should Jennifer include in her OI implementation plan/strategy? Explain.*
5. *Compare and contrast Glenn’s and Owen’s teams utilizing the diffusion of innovation theory. Do you expect the teams to succeed? Are there any actions that either team could undertake to assure a successful project?*

APPENDIX A – The Birth of Open Innovation Activities

Early R&D activities were the direct result of a company's need to maintain and improve production activities which were unique to each individual company. As the R&D organization within a company grew over time, the knowledge and expertise also developed providing each company with the ability to develop new products and processes which resulted in added revenue and profit. As these areas of expertise grew many companies grew as well, leveraging the economies of scale for a competitive advantage. Continuing with internal R&D gave rise to vertically integrated company structures with a focus on proprietary knowledge. To perpetuate this knowledge, companies sought to hire the "most knowledgeable" to assure continued internal R&D would generate new products and technologies bringing value to market and ultimately improving revenue and profits. We can recall several examples of this type of company R&D philosophy such as ATT&T, Bell Labs, and Xerox's PARC to site a few. This model brought with it many inventions and innovations as well as the concept of the "not invented here" syndrome. With this closed innovation model, there were inventions and innovations that did not fit a company's strategy and that were put "on the shelf". The cost of doing business with this model and putting an innovation on the shelf is that it does not allow a company to recover the development costs. In 1996, Rosenbloom and Spencer wrote that they believed industrial labs were in trouble and concluded that the innovation model currently being used was no longer working.

During this time, however, there were companies who elected to take "shelved innovations" and spin them off to further advance the innovation. The advantage for those who elected to follow this action was that they did not have to spend the large development costs and reduced their risk in taking the innovation to market.

In the early 1980's companies were beginning to look outside the company R&D structure and in 1990 the phrase "two faces" of R&D - "inside and outside the company" was coined by Cohen and Levinthal. They observed that companies were realizing the importance of investing in internal R&D as well as utilizing the external innovations that were occurring. From this point, companies also began the early steps of recognizing the value that external knowledge can bring to their R&D activities and began identifying those sources of knowledge, such as suppliers, customers, government, universities, private labs, etc. This utilization of external knowledge was for the sole purpose of supporting the internal R&D work, which aligned with a company's business strategies.

Strategic alliances began to become more common, recognized as a way to tap into and utilize knowledge of others. One example in the auto industry was the formation of the Keiretsu in Japan.

In 2003, Chesbrough introduced the concept of the Open Innovation model. Chesbrough describes Open Innovation as a model in which all innovation does not need to be developed within the company. He identifies a new R&D model in which knowledge flows into and out of a company. Both inflow and outflow leverages resources to provide value for the company. In this new model, external and internal knowledge are viewed as equal in the creation of value. The "on the shelf" products/technologies which were shelved because they did not fit the current business direction, can find opportunity to generate value utilizing the new OI model. The OI

model allows for the "on the shelf" products/technologies to flow out of the company to generate value. Another important area of OI is the concept that knowledge is distributed everywhere and companies must stay connected to these external sources. The model also provides for expanded IP management.

With these types of subtle differences, the company's environment, processes, culture and leadership are being challenged.

APPENDIX B – Open Innovation

Henry Chesbrough's definition of open innovation is "the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation respectively." (Chesbrough, Vanhaverbeke and West, *Open Innovation Researching the New Paradigm*, 2006, pg 1)

Open innovation is often thought of as a business model or way to conduct new product development. This new model deals with external information brought into the company as well as internal information taken outside of the company. Open innovation requires a different mindset and company culture than traditional or closed innovation models

It has been suggested that 75-90% of all projects entering into a development process will not be successful products in the market place. Companies must therefore put a large number of product ideas into the product development pipeline to assure that they maintain an adequate number of new products entering the market to ensure they remain competitive. The challenge for companies becomes where to get robust ideas. It has been suggested that for every idea that an engineer is thinking about or working on there many others somewhere in the world thinking or working on the same thing.

Open Innovation allows for many more ideas to be generated (Chesbrough, 2005) within a company's product development process. From the Fuzzy Front End, where ideas are created to fully developed products.

Further, open innovation encourages those who have a common interest to work together towards a common goal while leveraging resources. The collaboration can get a product to market faster allowing all development partners to reap the rewards.

Product development collaboration may however require a contract between parties in which all parties involved will benefit in some fashion. In other words, they will create value and receive value in return. Therefore, all parties involved need to determine the value they bring as well as where the commercial benefits (value return) will be for their respective companies.

Generally environments in which companies operate do not change quickly. However, change is always occurring, and as we see today, those changes are having a major impact on industries/organizations/companies. For instance, the internet has created a global communication network. Competition has become more global in nature creating a very competitive and fast paced market place in which companies must incorporate quickly to survive.

In addition to these external or environmental changes companies are also facing internal changes such as limited resources and pressure to decrease the time to market for new products and technologies.

So as companies seek new and better ways to operate within this new environment, new tools and views need to be adopted. One such “new” way companies have found is what has been called “open innovation”. Open Innovation was discussed by Chesbrough who brought to light the concept that all innovation does not need to be developed within the company. He identified new approaches for ideas flowing into the company as well as for outflows. Both have the characteristic of leveraging and providing value for a company.

APPENDIX C – Modal’s Business Environment

The manufacture of motor vehicles and parts declined 10.6 percent in the first three months of 2008 compared to the same period in the previous year. New orders for motor vehicles and parts fell 11.2 percent. Shipments and orders are being impacted by high fuel prices and a sluggish US economy. Consumers are choosing either to postpone purchases or select more fuel-efficient models, of which US manufacturers have fewer models as compared to overseas competitors.

Demand for auto parts is driven by new car sales and affected by interest rates. The profitability of a company in this industry depends partly on how difficult it is to manufacture its products and partly on the volume of demand, since many costs are fixed.

The decline in U.S. auto sales in 2008, higher raw materials costs, and the credit crisis are all impacting U.S. based auto parts makers. Annual vehicle sales are expected to fall to 14.2 million units, the lowest since 1993.

In addition, emission and fuel economy regulations are defining standards which are challenging the auto industry. As automakers and suppliers continue to develop global footprints, other countries as well as the US also are adopting emission and fuel economy standards. These regulations differ by country regarding standards and implementation timing, but all are challenging the technology of the auto industry. Both auto manufacturers as well as suppliers are challenged to develop cost effective technologies to address these regulations.

APPENDIX D – Modal Background

Modal was founded in Detroit in 1902. The company is headquartered in Detroit, Michigan, and employs approximately 65,000 people in 35 countries.

Modal Corporation is a global supplier of powertrain and safety technologies, serving original equipment manufacturers (OEMs) of automotive, light commercial, heavy-duty and off-highway vehicles, as well as in power generation, aerospace, marine, rail, industrial, and the worldwide aftermarket.

In 2001, Modal Corporation and its U.S. subsidiaries voluntarily filed for financial restructuring under Chapter 11 of the U.S. Bankruptcy Code in the United States Bankruptcy Court in the District of Delaware.

The company entered Chapter 11 in late 2001 as a result of environmental claims related to its acquisition of ACTURE. Modal made the decision to reorganize under Chapter 11 in order to resolve excessive litigation faced because of environmental liabilities. Although the parent company's exposure to environmental litigation was limited, many of the companies they had acquired over the years had much deeper environmental liability issues. The then CEO, Charles Morris, stated that the filing was "an important step to ensure the long-term viability" of the company.

In 2007, Modal emerged from Chapter 11 after spending six years in bankruptcy protection. The plan of reorganization covered Modal Corporation and 51 of its United States affiliates.

Joint Ventures/Divestitures/Acquisitions

The company has a history of acquisitions and joint ventures as well as the ability to divest those product lines that no longer are profitable or do not align with its long term strategy.

Divestitures

Modal has evaluated their product lines relative to market needs/trends and business needs and divested product lines or businesses as appropriate. From 2001 to 2007 Modal divested 19 product lines/businesses including those in the US and Turkey.

Joint Ventures

Modal has 31 joint ventures in 13 countries, including China, Turkey, and Russia. These joint ventures assist in positioning Modal globally.

Acquisitions

Between 1997 and 2002, the group made approximately 14 acquisitions, which helped to make it a global technology leader in its core business areas of powertrain systems, brake systems, and sealing systems. The acquisitions were also designed to help widen the company's global presence. Modal utilized the technique of acquisitions to build their portfolio over time.

Financials

Modal found their environment to be challenging. The auto industry had changed drastically with decreases in volumes and models along with gas price increases. At the end of 2008 Modal announced a decrease in their workforce of approximately 8% or 5,000 positions.

Revenue - Quarterly Results (in Millions)			
	FY (12/08)	FY (12/07)	FY (12/06)
1st Qtr	1,872.20	1,720.50	1,600.30
2nd Qtr	1,993.20	1,753.40	1,631.60
3rd Qtr	1,865.10	1,685.50	1,548.60
4th Qtr	2003.10	1,748.50	1,545.90
Total	7733.60	6907.90	6,326.40

Table 1 – Quarterly Revenue

Earnings Per Share - Quarterly Results			
	FY (12/08)	FY (12/07)	FY (12/06)
1st Qtr	(\$0.32)	\$0.05	(\$0.77)
2nd Qtr	\$0.90	\$0.04	(\$0.19)
3rd Qtr	\$0.89	\$0.15	\$0.03
4th Qtr	\$0.92	\$15.51	(\$5.21)
Total	\$2.39	\$15.75	(\$6.14)

Table 2 – Quarterly Earnings Per Share

Modal continues to improve their performance as demonstrated in their Q3 2008 net income was over \$10 million vs. \$4 million in 2007 Q3.

APPENDIX E – Modal’s Divisions

Sales by Division

Modal’s 2007 sales by division are depicted in Figure 1. The largest division, Global Aftermarket experienced a decrease between 2007 and 2008 of 3%; the Vehicle Safety and Performance division also experienced a decrease in sales of 12%. Whereas the Powertrain Energy and Powertrain Sealing and Bearings had an increase of 5% & 6% respectively, and Auto Products which is the smallest division had an increase of 12%.

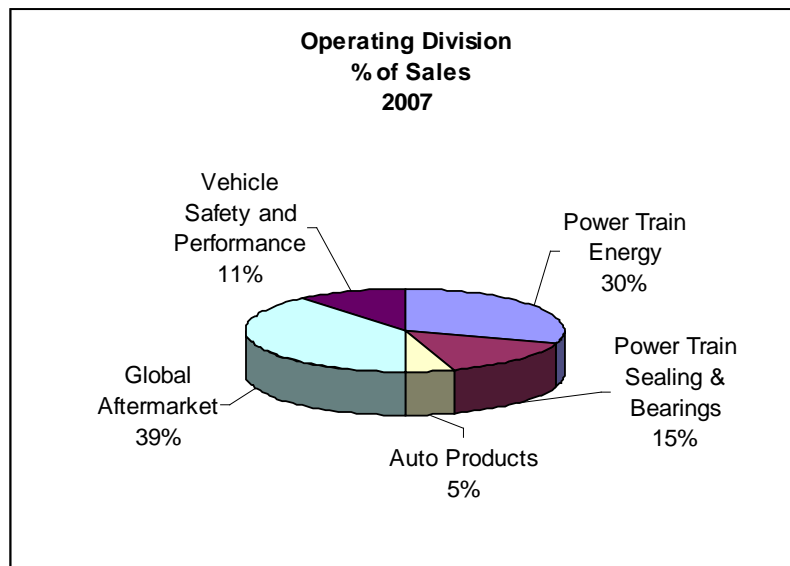


Figure 1 - 2007 Percent Sales by Division

Divisional Organization/Product Lines

Modal reorganized its reporting segments in 2007. The company’s business is now categorized into five operating divisions: Powertrain Energy, Powertrain Sealing & Bearings, Vehicle Safety & Performance and Global Aftermarket. Figure 5 compares divisional sales by region for 2007 and 2008 through Q3. There is an overall increase in sales in ROW (rest of the world) and a decrease in sales in NA (North America). Details for each division are as follows:

Powertrain Energy

The Powertrain Energy division manufactures pistons, piston rings, piston pins, cylinder liners, valve seats and guides, and transmission components used in automotive, commercial, and off-the-road vehicles.

- The division operates 32 manufacturing facilities in 15 countries.
- It accounted for 30% of the 2007 sales revenue (See Figure 1)

Powertrain Sealing & Bearings

The Powertrain Sealing & Bearings division is one of the major suppliers of bearings and sealing solutions. The division manufactures dynamic seals, bonded piston seals, combustion and exhaust gaskets, static gaskets and seals, heat seals, engine bearings, bronze engine bearings, aluminum engine bearings and bushings and washers.

- The division operates 27 manufacturing facilities in 12 countries.
- It accounted for 15% of 2007 sales revenues (See Figure 1)

Vehicle Safety and Performance

Modal is one of the world's largest independent suppliers of friction materials, for use in the automotive, heavy-duty, aerospace, and railway markets. Primary products include brake disc pads, brake shoes, brake linings and blocks, and element-resistant sleeving products.

- The Vehicle Safety and Performance division operates 22 manufacturing facilities in 13 countries.
- It accounted for 11% of 2007 sales (See Figure 1)

Automotive Products

The Automotive Product division is engaged in the production of ignition, lighting, fuel, brake and steering, and wiper products for both the original equipment (OE) market and the replacement market.

- The division operates 25 manufacturing facilities in 11 countries.
- It generated 5% of 2007 sales (See Figure 1)

Global Aftermarket

Global Aftermarket division distributes products manufactured by four operating divisions mentioned above, to the independent automotive, heavy-duty, and industrial aftermarket.

- Aftermarket operated 25 distribution centers in 14 countries, serving a diverse base of distributors and retail customers around the world.
- It accounted for 39% of 2007 sales (See Figure 1)

APPENDIX F – Modal’s Manufacturing and Technical Centers

Manufacturing/Technical Center Sites

As of December 2007 the company had a total of 205 manufacturing/technical centers, distribution & sales and administration office facilities worldwide. The number of manufacturing/technical centers was 120, with 47 located in North America, 49 in Europe, and 24 in the rest of the world. Around 46% of facilities are leased, the majority of which are distribution, warehouse, sales and administration offices, while the remaining is owned by the company.

Division	# Manuf. Sites	# Countries
Power Train Energy	32	15
Power Train Sealing & Bearings	27	12
Auto Products	25	11
Global Aftermarket	25	14
Vehicle Safety and Performance	22	13

Table 3 – Modal Manufacturing Sites with Locations by Division

Modal has mapped their technical centers to their sales revenues by regions. For 2007, Sales in NA was 43% of the total revenue and their manufacturing and technical centers are at 39%, Sales Revenue for Europe was 44% and the % of manufacturing and technical sites is 41%, and ROW sales at 13% are mirrored by the manufacturing and technical center sites of 20%. See Table 3.

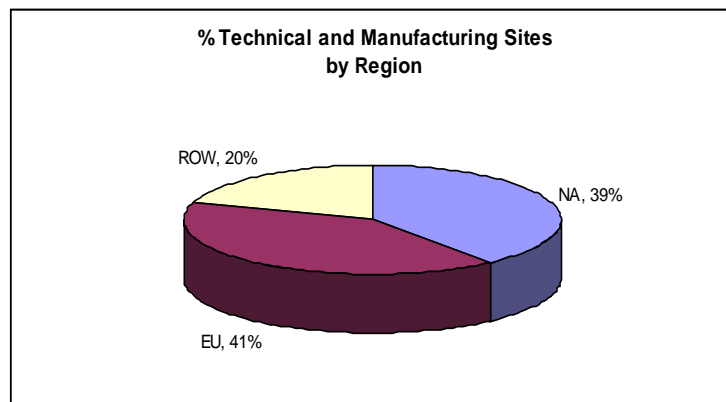


Figure 2 – Percent Technical and Manufacturing Sites by Regions

Modal also has invested in new manufacturing sites to continue to enhance their global manufacturing footprint in countries such as China, Brazil, Thailand, Hungary, US, Japan and Poland. In response to market conditions Modal has recently (between 2004 and 2007) closed four US manufacturing sites and one in Turkey.

APPENDIX G – Modal’s Markets/Key Competitors/Key Customers

Markets and Market Share

The Company has operations in established markets including Canada, France, Germany, Italy, Japan, Spain, the United Kingdom and the United States, and emerging markets including Brazil, China, Czech Republic, Hungary, India, Korea, Mexico, Poland, Russia, Thailand and Turkey. The risks for the Company's international operations are primarily related to currency fluctuations, changes in local economic and political conditions, and changes in laws and regulations. Ninety percent of the company's products hold No. 1 or No. 2 market share positions.

Major Competitors

Major competitors for Modal are Dana Corporation located in Toledo, Ohio; Delphi Corporation located in Detroit, Michigan; Federal Mogul located in Southfield, Michigan; GKN located in Redditch, United Kingdom; and Mahle International located in Stuttgart, Germany. Although Magna International Inc. is the largest North American auto supplier, it has no significant aftermarket business. Tenneco Inc., the second largest U.S. based supplier received about 18 percent of its revenue from their aftermarket business in 2007.

Key Customers

Modal's primary customers include BMW, Caterpillar, Cummins, Chrysler, Daimler, Fiat, Ford, General Motors, PSA Peugeot-Citroën, Renault-Nissan, and Volkswagen. Modal also distributes auto parts to aftermarket customers.

APPENDIX H – R&D/Innovation/ Patents/Recognition & Rewards

Research and Development

In general, R&D spending for auto suppliers is higher than for automakers as seen in Figure 3. This is not unexpected as the suppliers are expected to bring new technology in products, components and subsystems to the automakers. Many of these products, systems, etc. are required to meet regulations ranging from safety, fuel economy and recycle/reuse. These requirements continue to drive innovations and cost reductions for the auto suppliers, which in turn drive their R&D spending. (Source: R&D Ratios & Budgets, 2006).

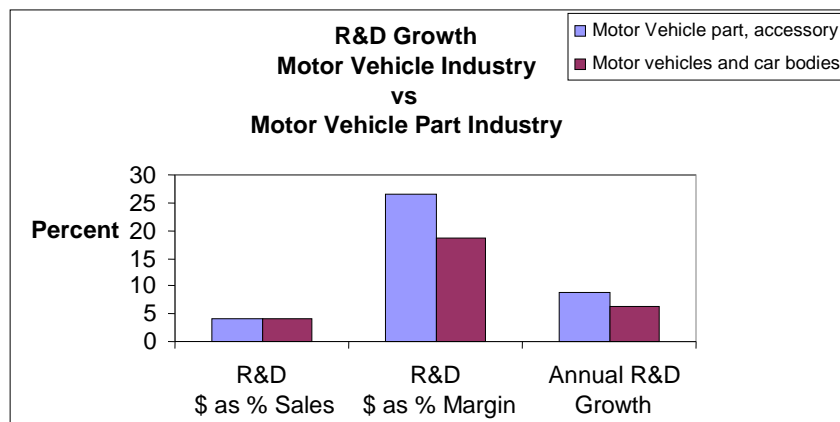


Figure 3 – 2006 R&D Growth Comparison between Motor Vehicle Industry and Motor Vehicle Part Industry

Development activities are undertaken at Modal's major research centers in Burscheid, Nuremberg, Wiesbaden, and Bad Camberg (Germany); Chapel (United Kingdom); Yokohama (Japan); and Plymouth, Michigan; Skokie, Illinois; and Ann Arbor, Michigan (United States). Each business unit is engaged in various engineering, and research and development (R&D) efforts working with customers. As a percentage of OE sales, R&D was 4% for the quarter ending September 30, 2008.

Technology and Innovation

As stated in Modal's strategic plan, Modal's vision is to create value through technology and innovation in products, processes and services making them a preferred supplier to the original equipment market worldwide. Providing solutions to the automotive, light commercial, heavy-duty truck, off-highway, agricultural, marine, rail, industrial and aerospace industries.

Modal's product development reflects the original equipment manufacturer's (OEM's) heightened interest in new product and technology modules and systems. The company has

worked to ensure that its ability to design, manufacture, and supply complete systems also incorporates a reduction of energy consumption and noise pollution.

Modal claims a leadership position in technology and innovation which creates a differentiator between Modal and their competitors. Modal states that they are committed to keeping their pipeline of leading technology and innovation while restructuring their operating capacity towards best cost manufacturing. In the third quarter of 2008, they were awarded major business contracts that will help meet customer challenges related to fuel efficiency and CO2 emission reductions.

Modal continued to file patents even while in bankruptcy as a demonstration of their technical innovative capabilities. (See Figures 4 and 5). Modal did however utilize a patent strategy which enabled them to keep costs down while protecting their intellectual property. The patent strategy was not to patent everything developed or discovered, but rather to spend on patenting activities that would generate the most value for the company. So, even though the number of patents had decreased, Modal’s intellectual property strength increased. As part of the patent strategy, Modal continues to file in growth countries outside the US and Europe.

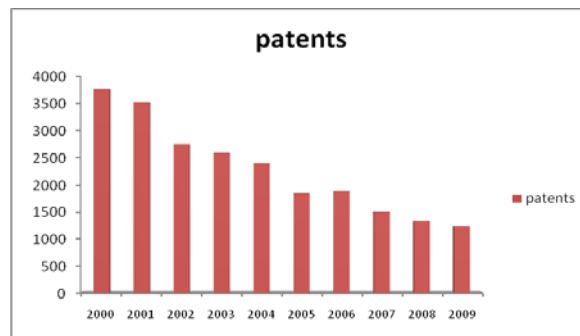


Figure 4 – Number of Patents by Year

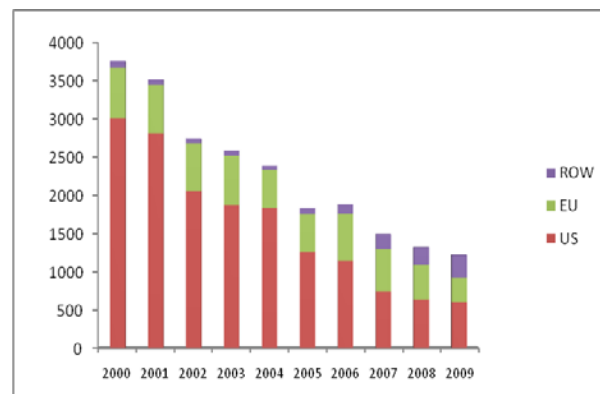


Figure 5 – Number of Patents for US, Europe(EU) and Rest of World (ROW)

Modal rewards engineers who receive patents for their inventions with a monetary award. In addition, these engineers who receive 15 patents become recognized as “technology fellows” and are held in high regard within the company.

APPENDIX I – Modal’s Strategy and Plan

Modal’s Proposed Strategy and Plan

In 2008, Modal Corporation announced a restructuring plan designed to improve operating performance and respond to increasingly challenging conditions in the global automotive market. The plan, when combined with other workforce adjustments, reduced the company’s global workforce by approximately 8% or 8,000 positions. Several initiatives in the plan were designed to streamline business processes, consolidate or close selected locations, and reduce general and administrative staffing. The restructuring initiatives began in the latter half of 2008 and continued into 2009 with several phases of implementation. Cost estimates of the restructuring program were in the range of \$90-\$110 million through 2009.

Modal stated that these actions were in response to a downturn in regional markets and global industry outlook. The measures were required to prepare the company for the increasingly challenging automotive environment. The efficiencies gained as a result of these initiatives strengthen Modal’s competitive position and helped assure the company’s future as they continue to implement their sustainable global profitable growth strategy.

Modal’s plan was to offset the auto market industry environment by supporting their top and bottom lines by competing aggressively to increase volumes of new business with customers. They proactively worked to offset the impact of the high cost materials through price recovery together with developmental alternative materials and improved designs. They continue to leverage the strong diversification within their markets, customers and products. This diversification not only provides an extensive global presence, but also helped to mitigate industry and regional downturns. And, they maintained their commitment to research and development of leading technology and innovation in vehicle and industrial products for:

- fuel economy
- alternative energies
- environmental and safety systems

Innovation combined with competitive costs base manufacturing footprint was their strategy to successfully compete for future business and continuous growth.

Cost reduction plans

The restructuring program identified streamlining management layers, consolidating structure, consolidating or closing locations and implementing other management improvements to lower operating costs. The plan’s cost reduction initiatives began with the reduction of approximately 5,000 positions or 8% of the workforce plus closure of a number of facilities before the end of 2009.

Reducing the SG&A expenses by \$32 million was part of the global cost reduction effort. At the same time, Modal implemented programs to reduce material costs, professional services and other expense categories to reduce spending.

The company targeted revenue development through strengthening of existing and new customer relationships and expanding Modal's presence in developing markets. Modal continues the implementation of several initiatives to develop their revenue base.

1. Pursuing global development of Modal's market share on existing vehicle platforms and on Powertrain programs to compensate for the reduction in production volumes made by customers in response to the weaker market environment.
2. Restructuring global operations towards best cost manufacturing in order to optimize competitive costs to capture global customers and market opportunities. They continue to invest in future product portfolios while maintaining focus and commitment to the development of leading technology and innovation for fuel economy, alternative energies, emission technologies and vehicle safety products to support their customers' immediate and future requirements.
3. Implementing new programs in the global aftermarket organization to boost sales on seasonal replacement parts and other consumable products.
4. Evaluating strategic opportunities to grow organically or through external organizations in order to strengthen their competitive position. Modal continues to benefit from its leading technology and innovation, by winning major business awards related to fuel efficiency, emission reductions vehicle safety with the leading automakers.