ETM 522 Communication and Team Building

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HOW TEAMS OVERCOME THE NOT-INVENTED-HERE SYNDROME

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The Not-Invented-Here (NIH)syndrome is the way people in organizations refuse external knowledge or technologies that may shorten development times and lower costs.NIH is a “negative attitude to knowledge that originates from a source outside the one’s own institution”. This attitude can be observed on the individual level but can also be found in groups.

A study by Katz and Allen found that groups can peak over time before falling into NIH. A literature review in 2006shows the antecedents and consequences of NIH. A real case of overcoming NIH syndrome is examined in this research. Based on the literature review and the case study an interrelationship diagram (ID) is created by team brain storm. ID allowsteams to systematically identify, analyzes, and classify causes and effects existing among critical issues, so key drivers or outcomes can become an effective solution.An ID is used to identify the causes and outcomes of the NIH syndrome and hence provided the count measurements.

The countermeasuresinclude limiting the tenure period of team members to 2 to 4 years,regular communication with external knowledge sources, rewarding system taking the external R&D process into consideration and giving the employees the job security when external solution is adopted. At last, the research points out that the NIH is not a negative decision in several circumstances, such as, when the core competency of a company lies in the knowledge being developed internally, the revelation of trade secrets during cooperation with other partners is concerned, and the process or time control of external development could be lost. So the decision of internal or external development should be made not only to avoid NIH but also to avoid over emphasis of external development.

Introduction

In a fast-paced business today, knowledge management in organizations is important to create innovations to compete in markets. Developing internal knowledge and technologies is beneficial to enhance capability of employees but it may take long times and high budget. Therefore, the theory of “spillovers”[1]or external knowledge and technologies plays an important role in creating innovation today by helping shorten development time and lower cost. The external knowledge and technologies could be adapted and implemented in an appropriate direction.

However, an adoption of external knowledge and technologies is not easy for some organizations that always refuse achievement from internal development. Furthermore, they strongly believe that their internal knowledge or technologies are superior to others. This attitude is mortally harmful to the future of the organization, especially when the individual attitudedilates to the organizational attitude.

The Not-Invented-Here (NIH) syndrome is the way that people in organizations refuse external knowledge or technologies; it makes an organization lack of new ideas and could keep them from being world class competitors. This is based on the companies belief that no one other company could overcome their organization [2]. Generally, the NIH syndrome is the rejection of external influence on internal change.

A definition of NIH is a“negative attitude to knowledge that originates from a source outside one’s own institution”. This attitude can be observed on the individual level but can also be found in groups. In a psychological viewpoint, NIH is a prejudice against external knowledge or technologies from outside[3].

Knowledge management consists of three “knowledge management cycles”: knowledge acquisition, knowledge accumulation and knowledge exploitation[4]. The goal of management is to implement internal and external knowledge into each cycle. The myopic of knowledge management, which has a negative attitude towards the external knowledge, under-evaluation of external knowledge and also naively thinking those knowledge could not be implemented in an organization, is the critical obstacle to knowledge development in the organization and lead to the slowness of development.

This paper is based on the literature research conducted by Lichtenthaler and Ernstto[3]which identifies the antecedents and consequences of the NIH syndrome and a case study of overcoming NIH syndrome. The Interrelationship Diagram (ID) is produced through brainstorming and the countermeasures to NIH are induced though the ID chart.

Literature Review

The first frequently cited research that refers to NIH syndrome is by Clagett[5] in 1967. This research is based on interview data, eight case studies ofsuccessful andunsuccessfulimplementations ofprocess innovationsdeveloped in thecentral R&D unit of alarge US-based firm atdifferent productionsites. “Not invented here (NIH)has been used amongtechnical organizationsas a shorthand todescribe the attitude(often spoken of as if itwere a disease) oftechnical organizationswho resist adoption ofan innovationproposed from a sourceoutside of theorganization.”[6]

Another early research about NIH syndrome is in1982. Katz and Allen[7] defined the NIH syndrome as “the tendency of a project group of stable composition to believe it possesses a monopoly of knowledge of its field”, which leads it to “reject new ideas from outsiders to the likely detriment of its performance”The study investigated all 345 R&D professionals in the R&D facility in a major company. Each staff member was assigned to and stayed with one of the 61 projects for the duration of the study. The completed data were taken from 50 project groups. They derived a curve peaking at a mean tenure time of project team members of2 to 4 years. NIH syndrome had been used to refer to the decline in performance brought about by the length of service of project members. The paper concludes that although a team-building component increases with the mean tenure and it should raise performance, at a certain point project performance will reach a peak and begin to decline because a Not-Invented-Here component also occurs at the same time.[8]

The NIH Syndrome is a social phenomenon, which individually develops over time and experiences, not inherited by birth. Kathoefer and Leker[1]entailed precedents of NIH into three major reasons: Firstly, human beings need for security. Any changes from outside increases the uncertainty and leads to uncomfortable feeling. Therefore, rejection of external knowledge or technologies helps them maintain their comfort zones. Secondly, working routinely provides

security to employees, when external knowledge or technologies disturb routinely works so they oppose changes. Lastly, the adoption of external knowledge or technologies may decrease the research group's pride. These all factors are main reasons to create the NIH attitude.

HussingerandWastynIn[4] mentioned that the NIH syndromein 2 levels, the individual level and the organizational level. To our understanding, the two levels are explained as follows.

- ✧ **The individual level:**When people work in an organization or a team routinely over a long period of time, e.g. 10 years, it is hard for them to change and accept innovation from the external origins because that they attach to "path-dependence". Path-dependence facilitates routine tasks but also it set barriers to adaption of new and especially external knowledge. For instance, an engineer working as a programmer in Nokia who is familiar with Symbian operation system is reluctant to accept other platform such as iPhone OS, Android or Microsoft. This individual effect can limit the information flow across boundaries and prevent an opportunity to develop from the external knowledge. Individuals strive for a positive social identity within their organization, which leads to in-group favoritism.
- ✧ **The organizational level:** When path-dependence triggered by a community with common beliefs and behaviors, then it creates powerful path-dependence and becomes the group attitude. The more successful a group isthe more arrogant the team members are and consequently the more opposed to external knowledge they become. They criticize external knowledge and technologies in negative ways and tend to neglect external knowledge, which could lead to under-performance of the team and delay of project in the future. This effect in the organizational level is important to the success and development of the organization.

From 1980s to 2006, several researchers contributed to the study of the NIH syndrome. In 2006, Lichtenthaler and Ernstto[3]reviewed the prior research about NIH, especially, they made a summery about the viewpoints for the antecedents and consequences of NIH. Their review can be summed up as Table 1.

Table 1. The Antecedents and Consequences of NIH

Authors	Antecedents of NIH	Consequences of NIH
Clagett (1967)[5]	Resistance to externaltechnology due toviolation of the identityof the ownorganizational unit Resistance to any changein the familiar workingsituation	Ultimate failure of theimplementation ofexternal technologies
Katz and Allen(1982)[7]	The aim to reduce stressand insecurity in theworking environmentleads to routines andrelatively rigid roles instable project teams The confrontation withexternal knowledgesources disturbs theintended routines	Forms of communicationthat are critical forproject performanceare used less often inteams that collaboratein stable compositionlonger than 2.5 years inaverage The project performanceof teams thatcollaborate in stablecomposition longerthan 5 years in averagediminishes
de Pay (1989&1995) [9],[10],[11]	Problems inintra-organizationalcommunication Reward and incentivesystems in Germanyand in the US reinforcethe culture-basedindividualist attitude	Project delays as a resultof longer time intervalsneeded for theacquisition of externalknowledge
Mehrwald (1999)[6]	Striving for cognitiveorganization andreduction of insecurity Striving for positiveindividual and socialidentity Negative experiences withexternal technologies No experience at all withexternal technologies Motivation and incentivesystems that focus oninternal technologydevelopment Set of beliefs that supportsnegative attitudes toexternal knowledge Social environment of anindividual	Wrong evaluations ofexternal technology Neglect or suboptimal useof external technology Generalization aboutdifferent externaltechnologies Accentuation of thegeneralized differencesbetween internal andexternal technologies
Menon and Pfeffer(2003)[12]	Contrasting statusimplications oflearning from internalvs. externalcompetitors External knowledge ismore scarce, whichmakes it appear morespecial and unique	Wrong evaluations ofexternal knowledge Under-emphasis on tacit,detailed internalknowledge Negative impact on afirm's capability toinnovate, implementknowledge andmaintain employeemorale

A Real Case about Overcoming NIH Syndrome

Innovative companies usually encounter "Not-Invented-Here" syndrome especially in the R&D department. Some of them are successfully overcome the syndrome and become successful and some of them are unsuccessful and failed bankruptcy.

P&G is one of the companies that succeed to encounter the “Not-Invented-Here” syndrome. P&G is American multinational company that found in 1837 Cincinnati, Ohio. They produce pet food and cleaning agent and personal care product. P&G had the strong internal R&D team and they believed in their own potential, so it is not surprising why the internal R&D team had resisted to the adoption of external knowledge for a long time. In 2000, P&G was squeezed by other company, Flattering Sales, and was lackluster in launching new products and missed the quarterly earnings; they lost more than half their market stock value from $118 to $52[14].

The management team found thatP&G had not changed its own business model because that the business model was successful in the past and it solely rely on its own R&D team to cover all internal innovations. This made R&Dcosts climb faster and flattened down the rate of innovation. In 2002, the R&D team developed the printed potato chip and expected this product to boost the company’s performance, traditionally the team would try to print chip by an inkjet printers itself. The team attempted to find both team and individual connection to find the appropriate technology through external research and finally, they could make the edible printed potato chip which could score double-digit growth [15]. From this first start, they realized the innovation they neededwas beyond their own R&D capabilities so the management team created “Connect and Develop Innovation Model”.

The company identified promisingexternal ideas that could apply to their R&D to create better, cheaper and more efficient process and products. To avoid the moral issue due to outsourcing, P&G today, has establisheda reward system to recognize their valuable invention in order to prevent and eliminate the anxious internal R&D teams. This isbecause ofthey feel that the external R&D input would contributed more than they could to the company[14][15]. The objectives of this reward can be divided into 2 main issues:

- ✧ Ensure that excellent ideas could be realized no matter they come from internal or external R&D;
- ✧ Exert employees reducingresistance to NIHs by putting a steady pressure through a reward program.

The management team has to communicate with their team that the “Connect and Develop” program would not decrease the importance of R&D job, but it would help the team develop to new skills[6]. This reward system ensured thatinternal R&D and external R&D were treated equally so that they lowered the cost from 4.8% to 3.4%.[14]

One critical issue to shift the employees’ mind-set is that the top management should clarifyto the employees that they won’t lose their pride and importance. Generally, some companies will send the internal R&D teams to work with other teams as external R&D staff which is called “technology scout” [6] in order to blend the knowledge with the external sources. The other solution is to have the cross-functional teams that are assembled for a project and then get dismissed periodically together with the project. In these cases, the team members who have common belief are separated periodically. Thus it will decrease the strong bond of their path dependence using external environment to change the individual attitude. And finally it will trigger the change in team attitude.

Interrelationship Diagram (ID) of the NIH Syndrome

Based on the literatures of NIH syndrome, the authors depicted the interrelationship diagram of NIH syndrome as Appendix 1. The interrelationship diagram allows a team to systematically identify, analyze, and classify the cause and effect relationships that exist among all critical issues, so that key drivers or outcomes can become the heart of an effective solution. It helps team members to explore the cause and effect relationships among all the issues. An interrelationship diagram allows key issues to emerge naturally, systematically surfaces the basic assumptions and reasons, allows a team to identify root cause(s). In this way, it facilitates system thinking and organizational learning.[13]

The number of outcome and then the causes deducts the number of input of each node and outcomes related to NIH syndrome are shown as follows:

Causes:

1. Past successful experiences of internal development:-7
2. Effort needed to adopt external knowledge:-5
3. Loss of control to external knowledge: -5
4. Ignorance of external knowledge:-3
5. Credibility for the job: -2
6. Security of job position: 0

Outcome:

1. NIH syndrome: 6
2. Lack of confidence to adopt external knowledge:6
3. Resistant to change: 6
4. Slowness of technology development: 5
5. Comfort zone: 4
6. Habit/routine: 2
7. Failure of adoption of external knowledge:1

Obviously, the ID chart shows the roots of NIH syndrome and its outcomes.

Countermeasures to the NIH Syndrome

Based on the above analysis, the following countermeasures are put forward:

1. Limit the tenure period of team members to 2 to 4 years [7], using job rotation or cross-functional team to eliminate the path-dependency of team members. The regular liquidity of personnel would bring team members out of their comfort zone, but it also give them fresh environment and adaptability to external knowledge, urge them to learn new knowledge and skills and to stay innovative.
2. Regular communication with external knowledge sources is important for team members, it broaden their visions and inspire them to come up with innovative ideas through interaction with external experts, technologies. The measurement would facilitate them to adopt external knowledge, enable them to have control to the process of cooperation with external R&D.
3. Rewarding system should take the external R&D process into consideration. A successful external R&D program should be given the equivalent credibility to job as the successful internal development.
4. When the external knowledge development is adopted, the prior team should be given different job to do in order to eliminate their worry about losing the job. If the security of job position is guaranteed, the resistance to external development (NIH syndrome) would be much easier to overcome.

Lastly, the decision of internal or external should be carefully examined. Although the NIH syndrome is discussed as a negative attitude, over emphasis to external knowledge development could be a bias also. When making the decision, fully consideration of the aspects related is recommended, such as, when the core competency of a company lies in the knowledge being developed internally, the revelation of trade secrets during cooperation with other partners is concerned, and the process or time control of external development could be lost. If external R&D is chosen, the decision could be wrong,under these circumstances, NIH is not a negative decision to take.

Conclusion

Through various literatures reviewed, case study, NIH can be found to exist in an organization at the individual, team, and the corporate levels. By brainstorming, an Interrelationship Diagram(ID) is constructed and it has been found that the Not-Invented-Here syndrome can be attributed to several fundamental root causes. A few of these root causes are past successful experiences of internal development, effort needed to adopt external knowledge, loss of control and ignorance to external knowledge credibility for the job of internal development and job position security. And the outcome are NIH syndrome, lack of confidence to adopt external knowledge, resistant to change, slowness of technology development, comfort zone, habit/routine and failure of adoption of external knowledge.

Finally using the resources found, based on the causes and effects related to the NIH syndrome, in this study we've put together countermeasures that can help recognize, avoid or correct NIH syndrome. There are certain steps that companies can use to either avoid or correct NIH syndrome. These steps include limiting the tenure period of team members to 2 to 4 years,regular communication with external knowledge sources, rewarding system taking the external R&D process into consideration and giving the employees the job security when external solution is adopted.

Ultimately, the research points out that the NIH is not a negative decision in several circumstances, such as, when the core competency of a company lies in the knowledge being developed internally, the revelation of trade secrets during cooperation with other partners is concerned, and the process or time control of external development could be lost. So the decision of internal or external development should be made not only to avoid NIH but also to avoid over emphasis of external development.

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Appendix 1. The Interrelationship Diagram of NIH Syndrome