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Dilemmas in Not Invented Here Syndrome

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Chanamolu, Surekha; Hanayneh, Shihab; Misiewicz, Lennae; Mohammed, Marthed; and Nayame, Jacqueline, "Dilemmas in Not Invented Here Syndrome" (2017). *Engineering and Technology Management Student Projects*. 1148.

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Dilemmas in Not Invented Here Syndrome

Course Title: Communication and Team Building

Course Number: ETM 522

Instructor: Dr. Charles Weber

Term: Fall 2017

Team 4

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I. Abstract

Not Invented Here syndrome has many negative effects on the performance of companies. However, there are several ways companies can work to overcome NIH syndrome. Some of the most important aspects when it comes to identifying and overcoming NIH syndrome include performance and communication, optimal performance and tenure, the absorptive capacity paradox, intra-organizational communication, experience with external knowledge, and poorly balanced incentive systems. NIH syndrome typically begins when a company feels that their identity is threatened and therefore they reject information from other companies or organizations. The focus of this paper is to address the manifestations, causes, and consequences of NIH syndrome.

II. Introduction

Knowledge and technology advancement are the main indicators of economic growth. However, most companies face the question of where this knowledge should come from and how to best absorb this external knowledge in order to make the firm more innovative and increase firm performance as well as economic growth. Previous research has shown that the management of incoming knowledge from external sources can be complex and challenging (Antons & Piller, 2015; Hussinger and Wastyn, 2011). This leads to a bias against ideas and innovations that originate externally, thereby creating the Not Invented Here (NIH) syndrome. Katz and Allen (1982) define NIH as the tendency of a group to believe it possesses the monopoly of knowledge of its field, which leads to a rejection of new ideas from outsiders. The result of this bias is often poor performance and redundant efforts (i.e reinventing the wheel). Others have argued that having the ability to access open innovation benefits the group and that free exchange of external knowledge is a critical component of innovative capabilities. Accordingly, the skill and the capacity to assess and benefit from outside knowledge is recognized as possessing a comparable level of related knowledge, shared skill level and overall culture (Cohen and Levinthal 1990).

The best way to address NIH prevention is to rotate and cross-pollinate team members on a project by project basis. Engaging outsiders in both the strategy and the evaluation stages of the design process ensures fresh perspectives and new thinking. Encouraging team members to regularly interact with the wider community (e.g., conferences) and formalizing regular competitor reviews and environmental scanning to stay up to speed with the activities of competitors and the industry in general are also good strategies. Considering open innovation models, competitions (e.g., Netflix Prize), and outside collaborations can help institutionalize a meritocratic approach to new ideas. Lastly, teaching team members about the causes, costs, and remedies for NIH, as recognition is the first step to prevention and recovery (Lidwell et.al., 2003).

The purpose of this paper is to make the case against NIH and identify the traits of this syndrome. The objective is to encourage individuals and organizations to collaborate, and to deepen knowledge sharing across think tank research houses, academia and corporations to create a wider network of knowledge based cross-pollination of ideas and innovate products. The focus of this paper is to discuss how NIH syndrome manifests itself through research and development (R&D) teams in multiple ways. This paper attempts to analyze and identify the root causes of NIH as a strategy.

III. Research Question

What is Not Invented Here Syndrome? What are the manifestations, causes and consequences of NIH syndrome. In addition, what are some effective strategies to overcome NIH syndrome?

IV. Research Design

This paper is secondary in nature and draws references from current research and this team's reflections on the reviewed material. The team completed a literature review based on articles, journals and team discussions on the subject of NIH syndrome. Team members discussed and interpreted their findings during several team meetings. Each team member's findings were presented for feedback prior to being incorporated in this paper.

V. Literature Review

The concept of NIH is widely discussed in innovation research (Burcharth et al., 2014), organization strategy (Laursen & Salter, 2006), human resource management (McKinlay & Starkey, 1992) and marketing (Hauser, Tellis, & Griffin, 2006). In 2015 (Antons & Piller, 2015) concluded that NIH was either examined, explored, studied, analyzed, or discussed in about 700 scholarly papers that were published across several management disciplines. This team identified about 329 scholar papers on Google Scholar that discussed the subject of NIH syndrome during 2017 alone.

Furthermore, NIH focuses on "the negatively shaped attitude towards knowledge that has to cross a contextual, spatial, or organizational boundary, resulting in either its suboptimal utilization or its rejection" (Antons & Piller, 2015). Thus, NIH is analyzed in academic literature as way to deepen understanding between organizational behavior and innovation context (Antons et, al., 2017). This team identified the following traits as key characteristics that gravitate around the NIH syndrome.

Performance and Communication

Rejection to accept and implement new ideas and innovations have negatively affected performance. Clagett (1967) argued that lack of receptivity to external ideas, even within the same organization, contributed to a decline in innovation. Clagett pointed out that there is positive relationship between adaptivity and ability to implement changes internally. He asserted that introducing and implementing change within technical and non-technical groups is met with similar resistance level; however, technical groups hold a subject expertise that allows them to better resist change.

Moreover, research recognized that long tenures in R&D tend to allow members to believe that they possess a knowledge level in their area of specialization; causing members to regard outsiders as lacking ideas or information of relevant significance to the group or may benefit performance (Katz & Allen, 1982). Consequently, stable team tenure reduces internal and external communication and tend to isolate members among themselves from beneficial evaluations and feedback.

Optimal Performance and Tenure

As tenure longevity increases, research concluded that NIH syndrome heighten and amplify lack of positive engagement among team members, causing performance to dwindle and diminish with time. Significant research evidence established a nonlinear relationship between group's mean tenure and R&D results. Research suggests that performance improves up to 1.3 years average tenure of the group (Shepard, H. 1956). Furthermore, research demonstrates that optimum group tenure and technical performance within R&D peaks at three to four years (Pelz & Andrews 1976).

In spite the fact that findings concur on the nonlinearity curvature between R&D optimality and group tenure; research suggests (Marquis and Straight, 1965) that considerable results lend itself to indicate that there is a difference between functional and focus specific groups. Findings indicate that single discipline or technical specialty groups tend to coordinate and keep members in tight connection with developments within speciality teams.

NIH and Absorptive Capacity Paradox

NIH as a syndrome became an inevitable trap within the R&D community; however, Cohen and Levinthal (1990) contested the such a paradox by suggesting that ensuring that the tenets of absorptive capacity are essential to counter the NIH syndrome. They argued prior R&D group knowledge and diversity of background are crucial to enhance absorptive capacity to fortify and strengthen innovative performance. Furthermore, they concluded that R&D team prior knowledge plays a key role in assimilating the use of new knowledge and without such a prism teams are not able to experience internal growth that positively contributes to positive overall of performance. Cohen and Levinthal suggested three critical effective components to absorptive capacity that include enhancing team's general knowledge, improving problem solving skills and reinforcing continuous learning skills.

Intra-Organizational Communication

De Pay (1989; 1995a;b) argues that poor communication within teams and organizations and inconvenient reward systems could lead the organizations to NIH syndrome. In 1999 Mehrwald provided a large study after surveying 50 R&D managers 89 scientists in over 50 of Germany's companies. He suggested that adding team experience with external knowledge could help avoid sliding into NIH syndrome. Moreover, he confirms what De Pay had found when he argues that inconvenient incentive system is very dangerous and increases the intolerance against external advices.

Experience with External Knowledge

Lichtenthaler and Ernst (2006) extend the theory by considering external visions in innovation processes by studying different levels of organization. They divide knowledge management to three cycle group: knowledge acquisition, knowledge accumulation and knowledge exploitation (Hall and Andriani, 2003; Argote et al., 2003). The managers have to decide the type of innovation. Is it externally or internally at each cycle? At each cycle, positive and negative attitudes can occur towards external opinions. In any case, both of these attitudes can be detrimental for management knowledge. They suggested framework in each cycle of innovation and conflict solutions.

We believe that this syndrome positioned in knowledge acquisition cycle is caused by inexperience of team members or bad experience in specific external information, poor communication system in organizations or bureaucratic communication organizations(Allen, 1977). Moreover, NIH syndrome is a social habit that does not support any external knowledge and try to resist that opinions and changes as can as possible (Mehrwald, 1999).In consequence, external information can be biased evaluated, infected researcher slow down knowledge papers. In the context of project work, the project may be delayed or stopped. Additionally, lower levels of motivation in work routines can be caused by untrusting external knowledge.

Poorly Balanced Incentive Systems

Group tenure and lack of clear incentive plan heighten poor communication among team members which both deepen the signs of NIH syndrome at the organization level (De Pay 1989a, 1995b). In 1999 Mehrwald conducted an extensive study based on surveying 50 R&D managers and 89 scientists in over 50 German companies. He concluded that adding team experience with external knowledge help avoid falling into the NIH syndrome. Moreover, Mehrwald concurred with De Pay's finding that non-transparent incentive system tend to increases intolerance towards external knowledge.

VI. Framework Development

Research and Development (R&D) in dynamic organizations can take various approaches. Traditionally, organizations create a division between functional teams and R&D. However, research from Ford & Randolph suggests that cross functional teams are more valuable for organizations as they rapidly enhance and improve coordination and integration (Ford & Randolph 1992). Simultaneously, several studies (Katz & Allen 1982) have found that there is an association between performance, tenure and communication patterns. Thus, reduced levels of NIH is found to increase performance by up to 1.5 years of tenure.

VI. Results and discussion

The inflow of external knowledge into an organization can be perceived as having both positive and negative effects on an organization. There is usually a resistance to inflow of external knowledge into an organization and this phenomenon is known as Not Invented Here syndrome (NIH). The general thinking by most companies regarding this phenomenon is that if the improvements or technologies (achieved by others) were valuable, then we would have thought of them already. Past research has identified a number of important antecedents for the occurrence of NIH syndrome such as group tenure (Katz and Allen, 1982) , inappropriate incentive systems (De Pay, 1989), negative group experience with external knowledge (Mehrwald, 1999), sources of external knowledge (Hussinger and Wastyn, 2011), firm success (Hussinger and Wastyn, 2011), culture (Albach, Pay, & amp; Rojas, 1991; Pay, 1989), social identities of groups and organizations (Agrawal et al., 2010; Allen, Katz, Grady, & amp; Slavin, 1988; Mehrwald, 1999), established routines (Kathoefer & amp; Leker, 2012; Katz & amp; Allen, 1982), and human tendency to strive for security and stability (Kathoefer & amp; Leker, 2012).

NIH leads to a biased evaluation of external knowledge. Individuals within the group might diminish external ideas because of group pride (Kathoefer and Leker, 2012). Hussinger and Wastyn (2011) argue that internal resistance to knowledge is expected to be strongest if the source from which the knowledge is acquired is similar to the company acquiring the knowledge. This is because individuals in the group feel their group identity is threatened, therefore they tend to put up boundaries as a defensive mechanism against these threats. The knowledge most likely to face a lot of resistance is knowledge from competitors rather than knowledge from customers and suppliers. The success of a firm also leads to internal resistance of external knowledge. Successful companies reject external knowledge from competitors as a way for individuals and group members to maintain the group's distinctiveness and self-esteem (Hussinger and Wastyn, 2011).

One of the consequences of NIH is its effect on a company's performance. The rejection of new ideas and innovation can have negative impacts to an organization. A good example of this is Kodak's refusal to address the rise of digital technology over film which to decline of the company.

In most cases, internal and external communication decreases as a group's tenure increase. NIH has important implications not only to teams but also to management. This is because it's not just team-related factors and miscommunication that ease the occurrence of NIH, but also the source of this external knowledge is also important. Therefore, it is important for managers to take into account the source of the external knowledge before they decide on whether or not it should be integrated into their knowledge integration strategies. Moreover, managers should take the personalities of team member to create a success model to integrate and include external idea without any conflicts. For example, the employees who are responsible for introducing external knowledge have a big impact on the success of external knowledge acquisitions (Clagett, 1967; Allen, 1977), therefore they should be informed about potential conflicts associated with particular innovation projects. The question then becomes how can we prevent the NIH syndrome? Our understanding is should be worked out by the senior levels, the person responsible for the external knowledge and with the team members involved before the project is started. Furthermore, the management should set up the communication plan in a way that ensures that all team members clearly know the plan as well as the incentives involved.

We also argue that a team's identification is one of the biggest implications of the disapproval of external knowledge. Members appear aggressive when they see their group identity under threat from external knowledge. Firms can try to avoid these situations by underlining the experience of teams and the organization as a whole and making sure the organization is uniquely distinguished and superior. One way of overcoming NIH within an organization is by offering incentives such as an awards for recognizing the successful transfer of external knowledge (Antons and Piller, 2015). The use of specific training programs by management can also help in diminishing NIH and its negative impacts on the adoption of open innovation.

VII. Conclusion

Knowledge and technological advancements are the main indicators of economic growth. One of the barriers to knowledge transfer is Not Invented Here syndrome. This paper looked at the causes and consequences of NIH syndrome. One of the biggest things that contributes to NIH syndrome is a long tenure. Long group tenures can cause members to believe that they have a higher expertise in a certain area than others and therefore are not willing to accept new information from other sources. This issue can be addressed by rotating group members on a project by project basis.

Another method for overcoming NIH syndrome is by using incentive systems to encourage the use of external knowledge. However, it is important that these incentive systems are transparent, as non-transparent incentive systems cause members to reject external knowledge. In order to avoid NIH syndrome, companies should do all that they can to encourage communication between group members and encourage the use of outside knowledge. Although group members may feel that it is important for their company to keep their identity, we have found that it is even more important for a company to be willing to learn and evolve.

VIII. Further Research

For further research we can do some analysis of how receptive companies are to open innovation and how open innovation helps companies overcome Not Invented Here Syndrome. We can also look at how we can turn the negatives of NIH into positives to be more innovative. In this report we generally discuss NIH syndrome and how companies should deal with it from different perspective. However, in future research our plan is work on how we can deal with this syndrome to open companies up to being more innovative. It would be interesting to figure out the negative and positive implications of NIH on the innovation processes.

IX. Reference

- [1] Katz, R., & Allen, T.J. (1982). Investigating the Not Invented Here (NIH) Syndrome: A Look at the Performance, Tenure, and Communication Patterns of 50 R & D Project Groups. *R & D Management*, 12, 7-19.
- [2] Antons, D., Declerck, M., Diener, K., Koch, I., & Piller, F. T. (2017). Assessing the not-invented-here syndrome: Development and validation of implicit and explicit measurements. *Journal of Organizational Behavior*.
- [3] de Araújo Burcharth, A. L., Knudsen, M. P., & Søndergaard, H. A. (2014). Neither invented nor shared here: The impact and management of attitudes for the adoption of open innovation practices. *Technovation*, 34(3), 149-161.
- [4] Agrawal, A., Cockburn, I., & Rosell, C. (2010). Not invented here? Innovation in company towns. *Journal of Urban Economics*, 67(1), 78-89.
- [5] Antons, D., & Piller, F. T. (2015). Opening the black box of “Not Invented Here”: attitudes, decision biases, and behavioral consequences. *The Academy of Management Perspectives*, 29(2), 193-217.
- [6] Gassmann, O., Enkel, E., & Chesbrough, H. (2010). The future of open innovation. *R&d Management*, 40(3), 213-221.
- [7] Chesbrough, H., & Crowther, A. K. (2006). Beyond high tech: early adopters of open innovation in other industries. *R&d Management*, 36(3), 229-236.
- [8] Beersma, B., Hollenbeck, J. R., Humphrey, S. E., Moon, H., Conlon, D. E., & Ilgen, D. R. (2003). Cooperation, competition, and team performance: Toward a contingency approach. *Academy of Management Journal*, 46(5), 572-590.
- [9] Fehr, E., & Fischbacher, U. (2002). Why social preferences matter—the impact of non-selfish motives on competition, cooperation and incentives. *The economic journal*, 112(478).
- [10] Clark, R. E. (2003) Fostering the work motivation of individuals and teams. *Performance Improvement*, 42(3), p21. [Online]. Available at: http://www.usc.edu/dept/education/cogtech/publications/clark_fostering.pdf
- [11] Katz, R., & Tushman, M. L. (1981). An investigation into the managerial roles and career paths of gatekeepers and project supervisors in a major R & D facility. *R&D Management*, 11(3), 103–110.
- [12] Allen, T.J. (1977). *Managing the Flow of Technology*. Cambridge: MIT Press.
- [13] Clagett, R.P. (1967). *Receptivity to Innovation – Overcoming N.I.H.* Master thesis, MIT
- [14] Kathoefter, D. G., & Leker, J. (2012). Knowledge transfer in academia: an exploratory study on the Not-Invented-Here Syndrome. *The Journal of Technology Transfer*, 37(5), 658-675.
- [15] Lidwell, William, Kritina Holden, and Jill Butler, “Universal Principles of Design”, Gloucester, Mass: Rockport, 2003.
- [16] Hussinger, K., & Wastyn, A. (2011). In search for the not-invented-here syndrome: The role of knowledge sources and firm success (ZEW Discussion Paper No.11-048). Mannheim, Germany: Zentrum für Europäische Wirtschaftsforschung/Center for European Economic Research.
- [17] Laursen, K., & Salter, A. (2006). Open for innovation: the role of openness in explaining innovation performance among UK manufacturing firms. *Strategic management journal*, 27(2), 131-150.
- [18] McKinlay, A., & Starkey, K. (1992). Strategy and human resource management. *International Journal of Human Resource Management*, 3(3), 435-450.
- [19] Hauser, J., Tellis, G.J. and Griffin, A. (2006) Research on Innovation: A Review and Agenda for Marketing. *Marketing Science*, 25, 687-717

- [20] Pelz, D. C., & Andrews, F. M. (1976). *Scientists in organizations*. Institute for Social Research, University of Michigan.
- [21] Samuel H. SHEPPARD, Petitioner, v. The STATE OF OHIO. No. 352. Supreme Court of the United States, November 13, 1956
- [22] Marquis, D. G., & Straight, D. M. (1965). Organizational factors in project performance.
- [23] Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative science quarterly*, 128-152.
- [24] Hall, R., & Andriani, P. (2002). Managing knowledge for innovation. *Long Range Planning*, 35(1), pp. 29-48.
- [25] Mehrwald, H. (1999). Das 'Not Invented Here'-syndrom in Forschung und Entwicklung. Deutscher Universitaetsverlag, Wiesbaden.
- [26] Antons, D., & Piller, F. T. (2015). Opening the black box of "Not Invented Here": attitudes, decision biases, and behavioral consequences. *The Academy of Management Perspectives*, 29(2), 193-217.
- [27] Argote, L., McEvily, B., & Reagans, R. (2003). Managing knowledge in organizations: An integrative framework and review of emerging themes. *Management science*, 49(4), 571-582.
- [28] Hall, R., & Andriani, P. (2003). Managing knowledge associated with innovation. *Journal of business Research*, 56(2), 145-152.
- [29] Allen, T., Katz, R., Grady, J. J., & Slavin, N. (1988). Project team aging and performance: The roles of project and functional managers. *R&D Management*, 18(4), 295-308.