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Team for Biotechnology Organization

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Abstract:- For a biotechnology organization, "teamwork" is as important as its technological product or market value. Good teamwork will produce the best possible results for a company. To succeed, every worker must understand the role of teamwork and their unique role and duties. If someone is in the incorrect role or does not properly understand the vision and duties of that role, the company may fail. In this study, we are going to discuss stages of development, cooperation, how to identify biotechnology firms with significant potential, and how to lead the company to success by building and sustaining entrepreneurial culture within the company.

The leader of the biotechnology company should recognize the contributions of outstanding members of the organization, such as advisors, board members and employees. Leaders should acknowledge that their company runs smoothly because of the excellent work from these individuals. Additionally, the leader should encourage employees to be devoted to the success of the company. For example, employees should have access to company stock, and the leader should foster a sense of belonging among employees. Innovation is an important characteristic of a successful biotechnology company. In an innovative environment, an entrepreneur can build and expand their industry contacts and relationships within the entire biotechnology industry.Interconnected partnerships and personal networks all over the world will comprehensively support the organization and provide diversified knowledge to the company. Leaders have many responsibilities: in addition to fostering innovation and a sense of community among employees, leaders have to solve many challenges, such as how to build the team, communicate effectively with partners, and monitor individual performance.

Keywords:- *Entrepreneurial teams; organizational culture; team motivation; open-innovation networks.*

I. INTRODUCTION

Biotechnology companies must be market-driven and exploit underserved market needs. A good product is crucial to the company's success. However, the success of the company also depends on the team. In this study, we will discuss how to build a team that is diversified yet cohesive within a biotechnology company. The company leaders must focus on building and guiding a professional team with multiple responsibilities. A good leader will help individuals in different positions within the company collaborate. The main focus of this study will be teams in the biotechnology field, but some of the rules can be applied to other industries thatare dominated by technology.

Due to the characteristics of the industry, the leaders of biotechnology companies may face more complications than leaders of other industries. For example, there can be extremely long product development time. In addition, biotechnology is a high-risk and high-cost investment, and all processes are strictly monitored by the government. Moreover, profitability is also affected by various factors, including government, market, and regulatory factors, which causes a lot of industry, profit, and regulatory pressure. Therefore reducing risks, balancing science and business, and effectively communicating with partners, investors and others are crucial skills for leaders of a start-up biotechnology company. A diversified team which includes individuals who are experienced in each of these different arenas is required to make a productive company in the face of these complications.

When you are managing a team in a knowledge-based industry, you need to pay attention to the entrepreneurial culture and employee motivation. Leaders can make a reward scheme to let employees build a sense of belonging in a company and to let them feel that they are an important part of the company, which can motivate them to perform well. The reward could be access to company stock, which is profit distribution-related.Leaders have to realize thatthe employee's sense of belonging to the company is important.

Although a bio technology company is originally established by founders, employees, and investors, eventually the organizational makeup will change as the start-up goes through different stages. The work culture within the company may change, and different problems may be characteristic of different developmental stages of the company. The entry and exit of different important team members will also be a challenge that leaders may encounter.

This study combines the experience from individuals and various biotechnology start-ups to describe the establishment and development of biotechnology companies. We will discuss the entrepreneurial process of biotechnology companies and summarize the reason why high-performance teams are crucial to the establishment and development of organizations. A strong organization needs to establish and maintain a culture that encourages cross-domain collaboration. The principles discussed in this study apply to both startup and established companies, as well as organizations that believe in the "open-innovation networks" business model. The "open innovation networks" business model often outsources different aspects of the business, including product development. This study will discuss the elementary problems that have to be solved when building a team from an academic and empirical perspective, such as tasks that must be done, talents and skills that a start-up needs,and specifications and processes that are needed in different development stages of the organization.

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II. LITERATURE DISCUSSION

A. *Entrepreneurship culture*

It is necessary to maintain the vision and culture established by the founder in all different development stages of the company. Although every company will have their own culture and vision, allfounders will face similar challenges. These challenges can be summarized in Boni's review [1] of the book written by Amgen and Binder's CEO, George Rathmann [2].

The first requirement of a biotechnology company leader is tobuild a talented management team that performs well and is loyal to the company. Next, the leader must encourage and reward performance. Third, the leader must develop an environment that embraces independence and innovation, and finally they must be able to handle risk and learn from previous failures.

AmgenInc. is a successful company which is relatively new.This company demonstrates that building a team is paramount to the success of the company. An article by Steve Prokesch[3]entitled "How GE Teaches Teams to Lead" in the *Harvard Business Review* describes the basic elements required of a successful team: challenge; involvement; freedom; trust and openness; encouragement of new ideas; playfulness and humor; productive conflict; debate; and risk-taking. In addition, successful organization needs to know their customers' needs and know how to work with people outside the organization.

In an article describing the experience of building a team and the lesson learned when founding the company Neoforma Inc.,McVicker [4]enumerates the practical requirements for team building for biotech companies or any other technology-based and market-led companies. He described both the good and bad in "Starting Something: An Entrepreneur's Tale of Control, Confrontation & Corporate Culture". In the final chapter "Afterthoughts", he mentioned the following points that leaders have to remember.

- Be yourself, otherwise the company's culture and you will be affected.
- When recruiting employees, culture comes first and experience comes second.
- Fully empower employees to achieve their potential.
- Learn delegate responsibilities while maintaining oversight;let employees do things independently but monitor progress.
- Decisions have to be communicated clearly.
- Focus on doing one thing well, then do it better.
- Reviewcustomers' needs regularly
- Dissatisfied customers are the most important customers.
- Listen to customers' opinions and ideas.
- Keep a long-term perspective.
- Heed all suggestions.
- Enjoy the fruits of creation.

B. *Entrepreneurship process*

Timmons [5] pointed out that it is very challenging to build an entrepreneurial team for a biotechnology company. The entrepreneurial process, or development of the product,is based on the following three parts:

- Recognize opportunities and establish sustainable competitive advantage strategies.
- After obtaining resources, confirm and develop market value, such as market access, finance and cooperation, and customer relations.
- Build a team. For a science-based company, the team must have expertise in science, technology, business, and other areas, such as product development, laboratory operations, and clinical testing.

Excellent leaders also need to balance of interests of all people involved in the company and fully utilize the strongest team members and the company resources.During the entrepreneurial period the leading team needs to constantly change and adapt to new challenges. At different developmentalstages of the company, new team members will contribute new ideas and visionsto the company, and leaders have to retain the founding values.

Company leaders should not dictate orders that lower levels of the company must follow. Communication should rather involve exchange of opinions and ideas within the company, including between different ranks. This sharing style of leadership should draw on the influence and initiative from multiple levels of the organization [6]. This is a new form of leadership style in which leaders and team members allocate dominance and influence to each other [7]. Krieger [8] conducted a study on 166 start-ups and found that only 12% of start-ups had all decisions made by one person, whereas 72% of start-ups had decisions made by two or three partnerstogether. Shared leadership can improve team performance. A diversified entrepreneurial team emphasizes "associative thinking". It is beneficial for people in different fields to voice their professional insights.

Compared with other industries, the leaders of biotechnology companies will face many additional challenges, including complicatedproduct pipelines, government supervision, and lack of funds.Start-up teams need to use "open innovation networks" to obtain professional knowledge to simplify the process of technology commercialization and to retain a certain amount of capitalin order to reduce financial hardship. Moreover, leaders have toensure that the distribution of rewards, including ownership of equity,is fair to everyone. The rewards should be given to those whomake significant contributions to the company and those who took risks for the company in order to motivate team members.

The Kaufman Foundation has a study on the operation of cooperative companies from 2004 to 2007 [9]. The results show that 25% of competitive advantage comes from cooperation with another company and 8% of competitive advantage comes from cooperation with government laboratories or the cooperation of universities.These numbers maybe even higher in the biotechnology industry. For biotechnology companies, gaining a competitive advantage is very important to profit. Although Kauffman discussed open innovation business models, the study did not discuss in detail how "sharing mode" is used in entrepreneurial teams. Open innovation [10, 11] companies use networked management and communication, these companies focus on exchanging ideas and technologies with external parties, such as other

companies, non-profit universities, or government entities. Using open innovation,they push new products to market. Although the shared model enhances innovation [12,13], this kind of cooperation will also increase the difficulty ofteam management.

C. How to form a team

Thompson [14] summarized three stages of team formation, and the leaders need to pay attention to the following:

a) The first stage: task analysing
Leaders must have a strong understanding of the task that the team is designed to execute. Once it is understood, the leader can develop the team's focus, limits of authority, autonomy,and the level of interdependence between members. Leaders have to decide whether working style should becooperative or competitive.

b) The second stage: staff recruitment
Leaders must then recruit staff for these teams. They must have a good understanding of the skills required of the staff, and they must think about the integration of technology and task management.

c) The third stage: Define processes and procedures.
Leaders must clearly define the processes and procedures they expect from the team in order to have a good understanding of norms and expectations. Using contracts as the framework in order to have better control of the team's output and input is recommended.

These are three parts of the entrepreneurial start-up journey. There are different characteristics at different development stages. The above guidelines help leaders to pick suitable talent and make suitable procedures for the company on different stages. Like most other industrial companies that focus on technology, start-up biotechnology companies are first founded by people with enthusiasm and vision. They use their professional knowledge, skills, and contacts to develop technologies. They will play a key role in leadership. At the early development stage of the company, the focus will be on task analysis and staff recruitment. At this time, developing technology and expanding the market are the basic tasks. Such an initial team will develop through the first and second stages mentioned by Thompson[14].

D. Factors that motivate the team

From an academic vantage point, three key factors need to be addressed: (1) the structure of the team, including the roles and behaviours; (2) effective management of diversity; (3) clear specifications, including team goals and coordination, communication, conflict resolution, decision-making, meeting and implementation of standardized procedures.

Larson and LaFasto [15] listed the important conditions for effective teamwork as follows:

- Clear, common and upward goals
- Results-oriented structure
- Clear roles and responsibilities
- Effective communication system
- Fact-based guidelines to monitor individual performance and provide feedback
- Team members who are competent in technology and interpersonal relationships
- Unified commitment
- Cooperativeenvironment
- High standards
- External support and recognition
- Principled leading style

In order to work more efficiently, the team should be seen as a small group of people who complement each other, have a common goal and are responsible for each other. Billington[16] mentioned that blaming others for problems will split the team. Once the organization succeeds, everyone should be rewarded in proportion to their contribution: this is very important in any start-up organization. Kotter [17] pointed out inresearch that fast adaptation is the first step and an essential step in leadership style changing.

III. CASES OF OPEN MANAGEMENT IN THE FIELD OF BIOTECHNOLOGY

In the past, most biotechnology companies established and developed organizations as a vertically integrated company. Most of the departments of the organization were internal teams. Now that more companies see the benefits of open collaboration and innovation, as well as the newer development of virtual companies, a new company operating model has been developed. The efficiency of the innovation process of biotechnology companies has increased through deeper participation and exchange of ideas, technologies, resources and capabilities. Collaboration across organizations and locations is expected to improve capital efficiency, shorten the product development time, and increase the rate of new products being approved for use.

There are some case studies that operate with this new model. Enlight Bio Sciences, Druid Bio Ventures and Bio Motiv LLC accelerated the commercialization process of their biotechnology products using this model [18]. They illustrate the value of organizing a company that emphasizes inter-company collaboration as they have demonstrated phenomenal technology procurement, commercialization expertise, and market sale.

(1) The first organization with outstanding performance is Enlight Bio Sciences. Enlight Bio Sciences is a Boston-based company founded in 2007 by the life science venture capital firm PureTech Ventures and a group of industry leaders and academic celebrities [19]. Enlight and Pure Tech provides leaders and early financial support to new start-ups to ensure that new technologies meet specific market needs. Then they developed a scientific leadership team to form a dedicated new company to commercialize technologies or products in several key areas. Investment funds were provided by PureTech and some pharmaceutical partners, including Abbott, Johnson & Johnson, Eli Lilly, Merck, Novartis, and Pfizer. The investment and leader team provided Endra Holdings, LLC with US$78 million in initial funding and practical professional knowledge, and then invested in Endra, Inc. as a commercial entity company. These companies are expected to seek specific commercialization opportunities in a

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series of potential areas identified by the Enlight Bio Sciences team and its partners.

Endra, Inc. has an experienced management team assigned from Enlight, plus laboratory workers, including a team of scientists recruited from universities or government laboratories, as part of the founding team. In this case, you can see team interaction, multiple levels of cooperation, and "cross-border activities", including interactions with the management team of Enlight, PureTech Ventures, partners and advisory committees, as well as the initial scientific team and a team supported by investors and corporate partners.

(2) Recently, the virtual organization model has caught attention, including the attention of two businesses initiated by SmithKline Beecham (now GlaxoSmithKline) and David U' Prichard, the former global R&D chairman of ICI/Zeneca [20, 21]. In the early development and clinical validation period, due to the lack of innovation funds, it is necessary to improve capital efficiency. For a fully integrated product company (FIPCO) to transform into a network innovation model where the founder controls the entire drug development process from synthesis to marketing, the company will become a fully integrated pharmaceutical company (FIPNet). FIP Nets engage all major stakeholders involved in the drug development process and integrate everyone's core capabilities to improve efficiency and increase productivity.

The Harrington Institute is a national program that costs hundreds of millions of dollars and aims to accelerate breakthrough drug discovery. A national alliance of academic medical centers (Harrington Discovery Institute and Innovation Center) brings potential discoveries to Bio Motiv. Bio Motiv is a holding company that invests in and manages a portfolio of early-stage projects. Each project is constructed as a virtual single-asset development company. BioMotiv absorbs the most promising technologies or products across the U.S.A. It uses non-profit assets and an experienced and interconnected consultant team to accelerate development through cooperation with pharmaceutical companies. The CSO and chairman of BioMotiv is Dr. David Pritchard, and the CEO is Baiju Shah, theformer president and CEO of Cleveland BioEnterprise. A strong advisory team has been formed. It is to reduce the risk in the early development stage and accelerate the development of the breakthrough drug discovery and work with partners to overcome the early development and clinical verification period.

These two cases demonstrate the advantages of using open management to better integrate financial, development, and knowledge to provide novel biotechnology companies with a strong foundation for future development. These organizations are much more complex than previous industry standards, it is necessary to understand how to best manage investments to make the company more profitable. Special attention should be paid to the sense of belonging of employees to the company. If employees have a high level of sense of belonging to the company, they will be more productive, which will result in a successful company.

IV. CONCLUSION

This research discusses the importance of establishing collaborative, cross-disciplinary teams in order to discover potential biotechnology innovation organizations for commercialization and eventually develop into a successful company. An important conclusion from this research is that the team plays a key role in the success of biotech companies. If the leader can establish and maintain an entrepreneurial culture, the organization is likely to succeed. The leader must recognize and reward the teams that contributes to the company. It is also very important to encourage employees and to give employees a sense of belonging to the company.

The basic principles of establishing and developing high-performance teams apply to traditional and new model organizational structures. New organizational forms are constantly evolving. These partnerships that require collaboration and networking have a great impact and challenge on team development, management, performance, and human resource management.

“No data are associated with this article.”

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