Successful Biopharmaceutical Firms in California: A Multiple Case Analysis of Leadership Qualities and Practices

Abstract

Medical and technological advancements have undeniably increased at accelerated rates within the last decade, calling into question how leadership has adjusted and is able to support this relatively sudden growth. A wide body of past and recent research has established that leadership is a major factor in innovation centered firms. Literature also suggests that transformational leadership has historically been an overarching trend high performing firms exhibit, while transformational leadership tends to dominate in stagnating firms. In an environment where most organizational structures are dependent on research-oriented innovations (drug development & production), which can take over a decade to finalize and reach the market, biopharmaceutical firms and most importantly leaders must learn to champion behaviors and practices that can overcome unexpected shifts and challenges. Despite these confirmatory findings, there has been a gap in research in how successful leadership traits actually apply to the unique nature of research and development and operations departments within biopharmaceutical firms, and how they translate in regards to specific behaviors and practices conducted by leaders. Through the use of surveying, the Multifactor Leadership Questionnaire (MLQ) and interview style questions, this study aims to address the lack of established knowledge about group leaders and their daily work environments and their individual actions towards associates in the context of successful biopharmaceutical firms.

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Introduction

Biopharmaceutics is the subdivision within biotechnology in which living organisms and structures are used to create medicine for specific needs, improving not only the treatment of disease but the quality of living. The process firms undertake in order to produce these life-changing drugs is a time and resource expensive task, involving years of research, testing and approvals. In 2018, more than five hundred Phase III clinical trials were ongoing for biotechnological products worldwide, indicating that a multi-decade surge in new biopharmaceutical approvals is "likely to continue and even accelerate, in the decade ahead" (Tufts Center for the Study of Drug Development). The biopharmaceutical industry is one of the most lucrative and impactful in the United States. Biopharmaceutical firms in the U.S. strive to deliver treatments and cures to meet demands for the latest medicines, vaccines and therapies. But the process from beginning to end is daunting, with only 14 percent of all drugs in clinical trials getting approval from the Food and Drug Administration (FDA).

As a result of the lengthy process required to bring a drug to market, firms, leaders, and associates must constantly reinvent themselves. Different stages within a drug's development require different means of managerial and technical capabilities. Even more important, successfully transitioning and transferring scientific discovery to commercialization calls for additional emphasis on championing effective leadership qualities, rather than other areas of operation in the workplace (Langer, 2008). Leaders within each level of operation must be able to build teams that are able to withstand volatility, change, and competition, all while satisfying employees. Because firms are so specialized, traditional systems of organization are often redefined and diverse practices of personalized management are likely to be implemented. Although research has indicated which leadership style is most effective in innovative environments, there has been relatively little research pertaining to the biopharmaceutical industry specifically, in spite of the comparatively explosive yet consistent 12 percent annual growth (Rader & Langer., 2018).

Methods

This paper defines successful biopharmaceutical firms under three categories: surviving, operating, and innovating. Because the firms selected by their nature hold all of these factors, all firms used in this study are determined successful. Firms were also only selected if three or more leaders responded to the survey.

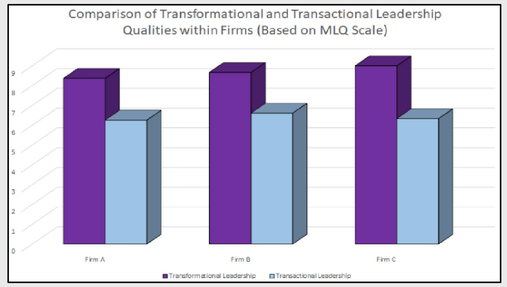
With surveying, a larger sample of participants could be reached, while ensuring enough room for exception i.e. non-respondents. Knowing high-level leaders in the biopharmaceutical industry would often be occupied with work, surveys would be the most efficient method in order to minimize the completion time. Working with an industry professional who has major operational/supply chain roles in numerous firms, surveys were distributed to co-workers holding leadership positions. Survey participants were selected based on the responsibility of the individual. Likert scale questions were also chosen to be included in the survey. After an interview with the mentioned consultant, it was articulated that interview style questions would yield the most unique and sought after data. Interview style questions were used to measure more nuanced factors such as demographic information, leadership histories and personalities, and objectives in the future.

Although only one measurement of growth, employee growth can indicate expansion within departments, showing that innovation and progress are occuring, despite the absence of fiscal gain. To calculate percentage of employee change within firms, participants provided how many employees were in their department when they were first employed, and how many employees were currently in their department. Percentages were then averaged based on which firm participants belonged to.

Leadership qualities were collected and measured using the Multifactor Leadership Questionnaire (MLQ). The MLQ consists of 21 questions measuring the spectrum of leadership styles, transformational and transactional, as shown in Appendix D. Within each style, different degrees were measured using seven separate factors including idealized or charismatic influence, inspirational motivation, intellectual stimulation, and individualized consideration, management by exception scale, and avoidant/laissez-faire leadership. All questions comprised of answers from "Frequently, if not always," to "Not at all," which were then translated and evaluated on a 0-5 point scale. These points were then summed during data analysis and categorically compared and interpreted.

Results

Firm (Transformational leadership score):	A (8.37)	B (8.66)	C (9)
Firm age (months):	468	12	42
Average length of employment (months):	126.44	8.43	27
Employee Change (%):	-15.73	228.87	292.71
Funding over lifetime (millions):	N/A	120	114
Has had formal leadership training (%):	88.89	100	50.00



Quantitative Data

Data from the MLQ Questionnaire ultimately confirmed our hypothesis. To universally compare transformational and transactional values across firms, the four factors of transformational leadership and the three factors of transactional leadership. Figure 1. visualizes the overall totaled and averaged scores of participants within each firm. Firm A had the lowest transformational value at 8.37, Firm B had a value of 8.67, and Firm C had the highest value at 9. Transactional values, however, were significantly lower across all three firms. Firm A also had the lowest transactional value at 6.26, Firm B had the highest value at 6.61, and Firm C had a value of 6.33. All firms unanimously exhibited higher transformational values, detailing that transformational actions are preferred in biopharmaceutical context.

Qualitative Data

Our data shows that leaders within firms exhibiting such attention and effort towards employees, encouraging "a dynamic environment, and emphasizing initiative and maintaining loose methods of control," create the ideal environment for an innovating group (Barczak & Wilemon 1989). In regards to Firm C, our hypothesis of a more "casual, laid back, and flexible" workplace environment was also supported. Responses recorded via survey questions support the importance of communication, and ultimately establish a connection back to idealized influence within transformational leadership.

Interview Data

1. *Since the time you first began your current position at your company, how have your leadership styles/strategies differed from the previous management's?*
   - *"I felt I owned the responsibility for my staff's development. I push them as much as possible. Now I let my staff hold the responsibility of their growth, and match the best opportunity for them." (Firm A)*
   - *"Previous management focused primarily on individual results where I find my leadership goals to be more oriented toward staff personal leadership (team results through individual motivation)." (Firm A)*
   - *"...I've always been casual, laid back, and flexible in my dealings with my colleagues. I value personal relationships and use those relationships to achieve desired performance." (Firm C)*
2. *What do you as an individual to make your team the most productive?*
   - *"Work hard and build strong team, be clear with company's development strategy. Self-development to meet the dynamic environment." (Firm A)*
   - *"Be prepared when leading discussions requiring team decision; For my staff: provide clear training, coach and encourage, show respect and appreciation for individual and team support." (Firm B)*
   - *"...I value personal relationships with open lines of communication. We set high standards, expect involvement/engagement from our partners, and try our best to have some fun in the process." (Firm C)*
3. *How have you and your team specifically, contributed to the growth/scalability of your business since the time you first took your position?*
   - *"Our department has been dramatically downsized over the past years due in part to its high productivity." (Firm A)*
   - *We've established the foundational processes by which to run our area of responsibility, and established forward-looking plans to be ready for future goals/objectives." (Firm B)*
   - *"We've readied the relevant contract manufacturing partners for commercialization of the product. This required investments in process development, technical understanding, infrastructure, etc." (Firm C)*
   - *"Ability to produce a safe, effective product for clinical supply has been key to the success of the company. For small businesses, a delay in supply can sink the company." (Firm C)*

Conclusion

Leaders within successful firms demonstrate higher levels of transformational tendencies as opposed to transactional. Despite this, leaders still exhibit a balance between the two, showing that although transformational behaviors are favored and provide more value for the research-driven context of biopharmaceutical firms, transactional behaviors cannot be dismissed as they are still necessary for the workplace and help improve interpersonal relationships. However, it is clear that transformational leadership compliments a more lenient, constructive and communal workplace environment, as identified by leaders. With the future in mind, methodologies similar to this study could be used on larger sample sizes, to draw more significant and substantial claims.

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