

The Systems Approach: A Biblical Integration

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I. INTRODUCTION

The foundation upon which much of systems theory is based has been drawn from two works: *General Systems Theory: A New Approach to Unity of Science* (Bertalanffy et al., 1951) and *General Systems Theory—The Skeleton of Science* (Boulding, 1956). The ambition of early systems theorists was to integrate the theoretical constructs derived from separate disciplines. The various disciplines, Physics, Chemistry, Biology, Psychology, Sociology, Economics and others develop theories and understandings of only certain segments of the empirical world. Therefore, systems theory has tried to glean new understanding by taking a more global, cross-disciplinary approach. The idea postulated by these early thinkers is that a system may be defined as a set of interrelated parts that function as a whole to achieve a common purpose.

Early on, researchers in management have tried to ascertain the usefulness of a systems theory approach to management. Though a systems theory has been lauded by many, “a systems viewpoint is almost always beneficial in decision making,” (Stevenson, 1999) it is not without its difficulties and critics. For example, it is recognized that whenever one takes a more macro perspective, such as advocated with systems theory, performance results are often unable to be measured. In this paper, we hope to contribute to the systems theory debate by approaching the concept from a biblical perspective. We will first provide a brief overview of systems theory. The second half of the paper will identify and discuss several biblical passages as they relate to systems theory. Our ultimate goal is exploratory in nature and hopes to provide some insights into how a

“fuller” understanding of systems theory in light of scripture may aid in the practice of managing organizations.

II. THE SYSTEMS APPROACH

C. West Churchman provides an excellent discussion of the systems approach in his text, *The Systems Approach* (1968). Churchman begins by defining systems as, “sets of components that work together for the overall objective of the whole.” (Churchman, p. 11) Another way to define system is a group of component parts with mutual dependencies and functional interrelationships working together to accomplish a common goal. These definitions stress the concept of synergy.

Key Concepts of the Systems Approach

Perhaps the most important idea related to the systems view is that of total system optimization. This means that accomplishing one overall goal for the entire system will dictate action and decision-making for all sub-systems or component parts. This often means sub-optimization for some components (or sub-parts) of the system. It is unlikely that all of the component parts of a system are optimized individually in order for the total (overall) system to be optimized. Often some components must be “sacrificed” (or be less than optimal) for the sake of the whole. The critical assumption behind this idea is that optimization of local areas does not automatically, and in fact rarely, leads to global system optimization.

A second important concept in systems thinking is that of a trade-off analysis. This means that we can adjust, change, modify or alter one part or sub-system and see how this change impacts the total system. After making the change, we can see if the

total system is better or worse off as a result of the change. This concept also assumes that systems are flexible rather than rigid.

A third major issue in systems theory is the contrast between an open system and a closed system. An open system considers the external environment and its impacts of the system. Examples in the business world of external considerations include unions, suppliers, customers, economic conditions and government regulations. A closed system on the other hand ignores the external environment. It acts as if the system or organization is self-contained or in a vacuum. This, of course, is a very naive or simplistic view. Most systems do have exchanges or contact with external environments. Depending upon the level of analysis, systems theory tries to incorporate as many external considerations as possible. This leads to a fourth concept in systems theory—the level of analysis.

The level of analysis deals with the complexity of the system under analysis. Is it a relatively simple system (micro-level) or one that is very complex (macro-level)? An example would help illustrate this point. At the most elementary or micro level of a firm we could look at an inventory control system, e.g. and EOQ System (Economic Order Quantity). It is very easy to optimize this sub-system.

However, the inventory system is only one sub-system or component of the next level system--the logistics system. The logistics manager must consider other factors such as transportation, warehousing, packaging and purchasing. What was optimal from an inventory point is tempered or modified by these other parts.

The logistics department is but a sub-set of the firm (Firm A). Top-level executives must also consider other components of the firm such as marketing,

production, finance and HRM. What was optimal from a logistics perspective may no longer be optimal for the total firm. Classic trade-offs include length of lead times and production runs and levels of inventory and safety stocks.

The next level of system is the industry level. Firm A is only one firm in the industry. Firms B, C, D, etc. compete directly with Firm A. Therefore, what was optimal for Firm A must be modified by forces from the external environment, namely competitors. The U.S. auto industry would be an example in which Ford must compete against GM and Chrysler.

The highest-level (or macro) system in this illustration is the global market. Foreign competitors, suppliers and customers have major influences in the industry. The U.S. auto manufacturers face strong competition from Europe and Asian manufacturers and cannot optimize from an U.S. domestic perspective.

The above illustration demonstrates that it is easy to optimize at the micro levels but becomes increasingly more difficult at the macro levels. The reasons for this are summarized below.

MICRO SYSTEMS

few variables
high degree of control
short-run time horizon
high degree of certainty
less complexity

MACRO SYSTEMS

many variables
low degree of control
long-run time horizon
high degree of uncertainty
highly complex

Requirements in Order to Analyze a System

Churchman provides some helpful suggestions to aid in the study of systems. (Churchman, 1968, pp. 28-31, 64-66) In order to fully understand the system under consideration we must know:

1. Total System Objectives/Goals
It is imperative to have specific performance measures of the whole system. We must avoid having vague objectives, which are difficult to measure. Too often in academia we use vague goals such as maximize profits or minimize costs.
2. Constraints on the System
These are the rules, regulations, policies and resources (e.g. money, materials and personnel) that exist in the organization. Other constraints could be customer service levels or minimum wage levels. As the number of constraints increase, system flexibility decreases.
3. Parts of the System and Their Interrelationships
One must be aware of the parts of the system that are being analyzed and how they interact.
4. Information Requirements
Specific data must be available for each sub-system in order to make a good analysis.
5. Flexibility
Changes made to one part of the system have ramifications on the total system. This enables us to see how the change or modification will impact the other system parts.
6. Management of the System
Mangers must insure that plans for the system are carried out as planned. It becomes more difficult to manage the macro systems.

Limits to Systems Thinking

While the systems approach has a lot of intuitive appeal and is very logical, it is often difficult to totally implement. Four major limitations to the systems view are presented below.

First of all, systems thinking assumes a God-like view. This is in the traditional Jewish, Christian and Islamic views of God as being unbiased, neutral loving and all knowing. God can stand back and take a detached, neutral view of the situation. He is capable of looking at the largest possible system, seeing all the variables and how they

interact, and putting them together in the optimal manner. An example would be creating the universe and the solar or tidal systems.

In contrast we are finite, biased humans with very limited abilities. We can handle relatively few variables or parts and often cannot see the whole picture. We settle for smaller systems and are content with satisfying solutions. We are not capable of seeing the total system, especially when dealing with macro systems.

Second, data manipulation becomes very difficult and unwieldy when we analyze macro systems. Often we use simulation models in evaluating changes to a part. For large systems we often have incomplete data and resort to simplifying assumptions (e.g. 0 or 1 variables) which limit the value of the models.

Third, sub-unit loyalties exist in all organizations. It is extremely difficult to get away from the idea that it is acceptable to do less than optimal for our sub-unit for the sake of the whole. Very few individuals are prepared to sacrifice for the well being of the total organization. Most firms encourage sub-system optimization.

Finally, the systems approach is counter to traditional bottom-up management-by-objective (MBO) systems and performance evaluation practices. We generally have across the board type requirements such as cutting costs by ten percent for all departments. This, in fact, may be sub-optimal for the whole firm. For example, firms often experience periods in which some departments show cost reductions and other experience cost increases, yet the firm as a whole is better off. Tradition dictates that pay raises and bonuses are given to those managers who reduce costs and none are given to those who show increased costs (which in fact result in better total firm performance.) It

is hard to implement total systems thinking to managers and subordinates where traditional processes have ingrained a certain type of thinking and expectation level.

III. A SCRIPTURAL PERSPECTIVE

One is able to find scripture passages that are consistent with a *systems perspective* for Christians and Christian living. As with both the early and recent systems thinkers (e.g., Bertalanffy et al., Boulding, and Churchman), scripture is also concerned with the whole and how each individual part supports the larger community. On the surface, it may appear that systems theory employs a strong biblical foundation for many of its concepts and ideas. With this in mind, several scripture passages will be examined in light of systems theory and their potential application to management practice.

One Body

Though possibly not aware of its biblical roots, Bertalanffy et al. (1951) and Boulding's (1956) proposition that *a system may be defined as a set of interrelated parts that function as a whole to achieve a common purpose*, is scriptural at heart. Many passages in the Bible echo such sentiment; two of the most vivid are recorded in the gospel of Matthew and I Corinthians. Christ beautifully describes the importance of not allowing even a single member of a large body to suffer in his portrayal of the one lost sheep among 100.

What do you think? If a man owns a hundred sheep, and one of them wanders away, will he not leave the ninety-nine on the hills and go to look for the one that wandered off? And if he finds it, I tell you the truth, he is happier about that one sheep than about the ninety-nine that did not wander off. (Matthew 18:12-13).

Paul's letter to the Corinthians similarly describes a type of system theory (though much more poetically than present day writers!) as it applies to the Christian Church and the body of believers.

The body is a unit, though it is made up of many parts; and though all its parts are many, they form one body. So it is with Christ...

Now the body is not made up of one part but of many. If the foot should say, "Because I am not a hand, I do not belong to the body," it would not for that reason cease to be part of the body...If the whole body were an eye, where would the sense of hearing be?...But in fact God has arranged the parts in the body, every one of them, just as he wanted them to be...

The eye cannot say to the hand, "I don't need you!"...On the contrary, those parts of the body that seem to be weaker are indispensable, and the parts that we think are less honorable we treat with special honor...God has combined the body...so that there should be no division in the body, but that its parts should have equal concern for each other. If one part suffers, every part suffers with it; if one part is honored, every part rejoices with it. (1 Corinthians 12:12-26)

Most theologians concur that, in these passages, the theme is that everyone is necessary in the body of Christ. Not one person is without a purpose. To ignore a member, or should a member not perform his or her appointed task, the whole suffers and does not function properly. Further, in both the teachings of Christ and Paul, the emphasis is not only that each member is vital, but that no member is of greater or lesser importance.

These are not isolated teachings. Romans 12:5-6 teaches that "...so in Christ we who are many form one body, and each member belongs to all the others. We have different gifts according to the grace given us..." Again, in this passage, Paul is instructing that, in the body of Christ, no member is isolated, all members impact or are *impacted by* others. In verses 7 and 8, Paul goes on to describe different roles or gifts (e.g., prophesying, serving, teaching, etc.) that a member may possess. No where,

however, does Paul state that one of these roles or gifts is of greater importance. In Ephesians 4, Paul again writes of the unity of the body, "There is one body and one Spirit" (Ephesians 4:4). In verse 16 Paul beautifully describes the interconnectedness of the body, "...the whole body joined and held together by every supporting ligament, grows and builds itself up in love, as each part does its work" (Ephesians 4:16).

The human body, a miraculous and intricate creation, whose functioning is so complex it is yet to be fully understood, serves as a beautiful analogy. Though one may, from time to time, understandably focus on one specific aspect of the body, the whole must always be maintained. For example, a specialist (e.g., a cardiologist) may be sought to treat an ailing part of the body (e.g., the heart), but other members must also remain healthy (e.g., liver, brain, lungs). A strong and healthy heart is of little value if the lungs or brain do not function. It is almost impossible not to take a *systems approach* to the human body.

In light of this analogy, and in the similar vocabulary often used by business organizations, it seems that the integration of this biblical teaching of the systems approach is very common in business. Most business managers (owners, executives, leaders, etc.), regardless of their religious belief, proclaim that every worker is vital and important. Just as with the human body, where all parts must function properly, so to with a business. Take for example a manufacturer of parts for the automobile industry. The research and development people must stay one-step-ahead, creating new products that are marketable. The marketing people must make the automobile industry aware of these products, creating a demand. The manufacturing people must build quality products on time, satisfying the customer's demands. The accounting people must

determine proper pricing and collect money that has been earned. The human resource people must serve and maintain all employees as well as outside regulators. Should even one of these members neglect or not fulfill its duty, the company, as a whole, would fail, resulting in all members suffering. A business is similar to the human body, all parts are dependent on other parts, either indirectly or directly.

An analysis beyond the superficial level reveals that, though most businesses assert the importance of all members, employees are seldom treated equally nor are they always properly nurtured and cared for. In fact, implementing a biblical systems approach, similar to Christ and Paul's teaching, is complex and raises many questions. Such management issues include employee compensation, job elimination, and merit and performance appraisal systems.

Employee Compensation

If indeed all members of a business are of equal importance, should all members be compensated equally? Ironically, the United States, a country with a high population of professing Christians, has one of the greatest differences in the world separating the highest and lowest paid workers. In the 19th century, J.P. Morgan believed that the differential between the highest and lowest paid worker should not exceed 20 times. This is but wishful thinking as we pass into the 21st century. In the sixteen year span from 1974 to the 1990, the typical CEO's compensation, relative to the average manufacturing worker, increased from 34 times greater to 150 times greater (Crystal, 1991). This trend of inequality is continuing. According to recent data, in 1999 the typical CEO compensation is 419 times that of the average line worker (Mander and Cavanaugh, 1999).

One might legitimately conjecture that, though J.P. Morgan's limit of 20 times would be a significant improvement, biblical integration of a systems approach would go further, striving to achieve even more equity among all workers. At a minimum, the goal should be to narrow the gap between the lowest and highest wages earners of an organization. Taken to the extreme, and implementing the leadership practice of *servant leadership* (another sound Biblical business concept), any pay differential that does exist, should be reversed. That is, managers would voluntarily request to be paid equal to, or lower than, the workers they lead and supervise, truly exhibiting an act of servant leadership.

Downsizing

Given the premise that a biblical perspective of the systems approach teaches that all members of a business are necessary, should downsizing be nonexistent? Returning to the biblical analogy of the human body, infrequently, if ever, is a member of the human body removed with the purpose being other members will achieve greater benefit. In those rare instances when a member of the human body (e.g., kidney, leg) is removed, it is at a last resort. That is, it is a defensive tactic necessary for the survival of the remaining members and the body as a whole. Further, the other members and the body typically suffer from the removal of the other member. To the contrary, businesses often remove *body members*, not as a last resort option, but as a proactive measure to benefit the remaining body and select individual members.

Though the massive downsizings of the 1990s are less rampant, largely thanks to an unprecedented strong economy; the tortuous practice is still common and as painful. A recent case is Bank of America's announcement to cut 9,000 to 10,000 jobs

(Mollenkamp). This is approximately 7% of Bank of America's workforce, far greater than the mere 1% that Christ deemed significant (one lost sheep out of 100, Matthew 18:12). According to Bank of America, the job elimination is a strategic decision and will further cost savings and stimulate greater growth.

Arguably, Christ had the greatest and largest strategic plan of history, undoubtedly more complex and grand than that of any multinational corporation. Christ's plan spans all time and humankind. Though daunting, Christ worked to accomplish (and succeeded) his *whole* plan by ministering and touching the lives of *individual members*. His concern with individuals, both spiritually and physically, is repeatedly recorded in the Bible. A few instances of Christ's many interactions with people on a personal level include His healing of the sick (Matthew 8:1-4, Matthew 8:5-13, Matthew 8:16-17, Luke 5:20, etc.), His recruiting of the disciples (Mark 2:14), His encounter with the Canaanite woman (Matthew 14:21-28), and His assistance of the adulteress women (John 8:7). Christ's concern for each individual member, as well as the biblical teaching of systems thinking (i.e., that no one is expendable), puts the practice of downsizing in a questionable position.

Insight into the interconnectedness of Christ's compassion, and why downsizing is so brutal, is gained when examining the individual lives that comprise the massive numbers involved in downsizing (e.g., AT&T 123,000 jobs, Sears 50,000 jobs, Delta Airlines 18,800 jobs, and Eastman Kodak 16,800 jobs, etc.). *The New York Times*, in a series of articles entitled "The Downsizing of America," includes a painful report of a 51-year-old former loan officer who was downsized. Now a roadside tourist agent, he travails at a fourth of his previous salary. Most tragic, however, is that the stress and

anguish of the situation has resulted in personal tragedies. He is now divorced from his wife, and he is estranged from his children (Uchitelle and Kleinfeld, 1996).

From a biblical systems perspective, the case can be made that job elimination and downsizing should be implemented only if no, or few, alternatives exist for maintaining an organization's survival. Moreover, if downsizing must be implemented, it should not be to the benefit of the remaining members. They too should share in the sacrifice and share the pain. Even if an organization suffers through difficult periods, (e.g., stagnant revenues, rising costs), downsizing should only be considered under extreme circumstances (e.g., bankruptcy is imminent). Biblical systems thinking suggest that other alternatives are preferable. For example, all workers might take an equal percentage decrease in pay. Even if there are excess workers (i.e., more workers than work to be performed), as is the situation prompting Bank of America's downsizing, there are alternatives. On a volunteer basis, employees might be offered the opportunity to work 10% fewer hours for a 10% reduction in pay. Ideally, a sufficient amount of employees would volunteer for such an arrangement. If not, other innovative solutions would be sought. Contrarily, when times are good (e.g., tremendous growth, revenue, and income) the spoils should be equitably shared among all members (e.g., employees, suppliers, community, customers, etc.) rather than compensating a few executives with bloated multimillion dollar salaries.

Performance Appraisals and Merit Increases

Systems theory proposes that one can not really appreciate the contributions of the parts to the whole system because of the myriad of interactions between the individual parts and those with the surrounding environment. This has major implications for how

we evaluate people, departments, divisions, and even whole organizations. Our current “pay for performance” evaluation programs aim to reward the high achievers, the productive teams, or the high profit divisions. In the meantime, these programs also try to motivate the marginal performers with the incentive that improved performance will lead to higher rewards. This approach is certainly in opposition to the assumptions behind systems theory. It also appears to be in opposition to the verse found in I Corinthians 12:22, “On the contrary, those parts of the body that *seem* to be weaker are *indispensable*.” (emphasis ours) In fact, the entire passage of I Corinthians 12:12-26 seems to discourage the internal competition that is established by pay for performance appraisal systems. Even though this passage was written to believers regarding their communal life within the church body, we believe verses 25-26 provide a powerful message and the proper outcomes and outgrowth for any organizational performance appraisal system.

In Matthew 20:1-16, Jesus provides a wonderful illustration of a manager who employs the concept of “when one member suffers, all members suffer; if one member is glorified, all members rejoice with it.” In this parable, the landowner of a vineyard hires as many workers as he can because he understands and cares about the plight of the unhired workers and the terrible burden that no work, and thus no wages, will place on them and their families. Throughout the day, the landowner realizes his need for more workers, and thus hires additional laborers who end up working for less than the entire day. Imagine the rejoicing of the willing laborers and their families, who in spite of working less than a full day, received an entire day’s wage. The laborers who were selected early were outraged when they also received the same full day wage. It is to our

shame that we so often react as the full day laborers when confronted with a situation in which benevolence and grace is poured out upon others. Is the division and animosity exhibited by the laborers the result of a poorly designed and implemented appraisal, or is it the result of selfishness and internal competition on the part of the laborers? Verses 15-16 certainly provide Jesus' answer to this question. All the laborers were necessary, all were indispensable, all were playing a vital role; in other words, the first shall be last and the last shall be first.

Difficulties: Definition and Perspective

Why is it that there is frequently an inconsistency in organizations pertaining to the integration of biblical systems theory? It is professed that individual members are essential to the whole organization's well being; yet individual members are often treated unequally and certain members are often allowed to suffer to the benefit of others. One possibility might lie with the tension of what members belong to the body or system. Is it stockholders alone or all stakeholders? Stockholder theory suggests that the only members that constitute the body, and need to be cared for, are owners of the organization (i.e., stockholders), and as such, profitability is the sole consideration. Stakeholder theory accords more with systems theory. It suggests that organizations should consider the interests of all individuals that have a moral claim on behalf of their needs and interests. The list of potential stakeholders is wide ranging, including suppliers, customers, competitors, government, shareholders, and employees. Unfortunately, according to some, stockholder theory is winning out over stakeholder theory. That is, it is reasonable to fear that return on investment to stockholders may

trump all other considerations, including employee wages and security, community well-being, and so on (Childs, 2000).

Organizations may have difficulty embracing stakeholder theory for the same reason systems theory is difficult to implement. It assumes a godlike perspective and is difficult to evaluate. Stockholder theory is much more myopic and easy to measure. Simply look at the price of the stock. An increased stock price (i.e., all else being the same) indicates a proper decision. In 1993, three large corporations--Boeing, IBM, and United Technologies--realized a rise in stock price of more than 30 percent within six to eight months of laying off between 10,500 (United Technologies) and 60,000 (IBM) employees (Downs, 1995). Stakeholder theory, similar to biblical systems theory, requires much more effort in decision making and its results are tremendously difficult to assess. It requires weighing and balancing all of the competing moral demands on a firm by each of those who have a claim on it, in order to arrive at the firm's moral obligation in any particular case (George, 1990).

The difficulty in implementing a biblical approach to systems theory calls to mind the difficult passage in James 1:21-25.

Therefore, putting aside all filthiness and all that remains of wickedness, in humility receive the word implanted, which is able to save your souls. But prove yourselves doers of the word, and not merely hearers who delude themselves. For if any one is a hearer of the word and not a doer, he is like a man who looks at his natural face in a mirror; for once he has looked at himself and gone away, he has immediately forgotten what kind of person he was. But one who looks intently at the perfect law, the law of liberty and abides by it, not having become a forgetful hearer but an effectual doer, this man shall be blessed in what he does.

As with a mirror, the perfect Torah reflects our ungroomed (sinful) condition. When used properly, a mirror can assess our condition and help us groom our appearance. The

Torah can assess our spiritual condition to correct and groom our behavior. We certainly do not possess the godlike qualities of total objectivity and eternal perspective required for perfect implementation of systems theory, but we do possess a blueprint for right and proper living. It does not appear that God excuses us from only hearing His word and not doing it simply because it is difficult or we don't have the proper abilities.

IV. CONCLUSION

The preceding discussion has tried to raise some relevant concerns regarding the traditional practice of management in light of both systems theory and a biblical perspective. Our attempt has been exploratory in nature and our hope is that it may begin a further and deeper discussion concerning the management profession in light of the entire council of God. Based on this preliminary exposition, we believe that an organization, particularly one managed by Christians, is not justified in avoiding the integration of biblical systems theory. Albeit difficult to implement and assess, Christian business people should work towards greater integration of biblical systems theory. After all, the road to life, rather than destruction, is not the path of least resistance (Matthew 7:13-14).

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