

Development and Testing of a Gainsharing Formula
in a Mid-Size Manufacturing Company
in Northwest Wisconsin

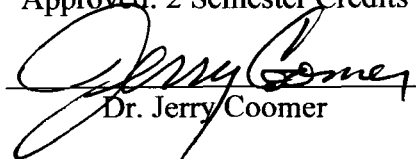
by

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ABSTRACT

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If organizations are to not only survive, but thrive in the changing world of global competition they must find a way to utilize their greatest resource- their people. The old command and control management model and information on a need to know basis is no longer effective in today's changing environment. Organizations must become more efficient and have everyone working towards a common goal and treating the business as if it were their own. By implementing gainsharing, a team-based reward system, organizations will be able to push knowledge and power to the lowest levels possible allowing employees to manage the business and managers to lead.

The purpose of this study was to research what is required for a successful gainsharing plan, define an implementation procedure, and develop and test a gainsharing formula specifically for XYZ Corporation, Inc. Through a process of elimination one measure from XYZ Corporation was chosen to be used in a gainsharing formula. As a result, two formulas were created and various scenarios tested using historical data from

2005. Upon completion of the study, conclusions were drawn regarding the validity of the formulas and the feasibility of implementing gainsharing at XYZ Corporation at this time. Also included are recommendations pertaining to future steps XYZ Corporation may take under consideration before implementing gainsharing. This study will benefit anyone who is interested in improving productivity, employee morale, job satisfaction, and employee involvement. An executive summary has been included in Appendix S of the study.

The Graduate School
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Chapter I: Introduction

Setting

XYZ Corporation, Inc. is a mid-size manufacturer of classroom computer furniture and point-of-purchase displays located in Northwest Wisconsin. There are two buildings encompassing three separate plants. Plant 1 is a metal fabrication shop consisting of sheet metal, tube punching and drilling, welding, and powder coating capabilities. Plant 2 includes a rough mill, finishing, product assembly, packaging, and a finished goods warehouse. Plant 3 is a panel fabrication shop with panel lay-up, panel saw, Computer Numeric Controlled (CNC) router equipment, edge banding technologies, and small assembly functions. Recently a new building was purchased with the intent of moving Plant 1 and product assembly of Plant 2 into the new facility. Once the move is complete the buildings will total approximately 300,000 square feet.

XYZ Corporation's business flow is heavily seasonal in the months of June, July, and August with 40 – 45% of deliveries occurring in these three months. Make to stock items and modified products account for approximately 85% of sales. These are spread over 2000 end items with 75% of sales coming from the top 100 products. However, monthly sales of each of the top 100 vary considerably from month to month. Over the past four years sales have continued to grow to a total of \$21 million this past year. Conversely, the net profit has continued to decline over the same four years. In addition, to meet the demands for the summer an extraordinary amount of overtime was put in by the workforce. Even with this overtime, XYZ Corporation failed to meet the delivery date on numerous occasions. To support the sales volume XYZ Corporation employs a total of

180 full-time employees, which includes 80 direct labor employees and 20 crew-leaders on the production floor.

Problem

XYZ Corporation is a functionally structured organization and experiences many of the difficulties associated with that structure. Each plant, and each department within that plant, is more concerned with getting the job out of their area and passing it along to the next plant/department with little concern of the affect on the overall job. Currently, XYZ Corporation has no formal incentive system and limited measures are visible to the employees. Suggestion programs are in place, but they are loosely structured, tracked, and maintained. The two main vehicles for an employee to get their suggestion heard are the Engineering Change Request (ECR) and an Employee Suggestion form. Both forms must be passed through various departments for approval with limited involvement from the employee who filled out the form. The forms may take days, weeks, or even months to make their way through the various departments before any action, if any, is taken on the suggestion. This has created a culture in which the employees show low morale, a lack of motivation, and no risk taking. Many employees do not know the direction or objectives of the organization and therefore, do not know where and how improvements should be made.

The nature of business has changed; it has become one of ongoing and heightened levels of competition, which demands flexibility, delivery speed, and innovation (Brown & Bessant, 2003). If XYZ Corporation is to remain competitive in these changing times they must be able to unleash the power of their workforce in hopes of not only surviving, but thriving. It is what people throughout the organization do on a daily basis that

determines how successful the organization can be (Wilson, 1995). In order to utilize the talents of its workforce, management must believe that the success of the organization lies with their people. Ultimately, management must work towards creating conditions that utilize the workforce by valuing, empowering, and allowing them to share in the success of the organization. Gainsharing is one philosophy that sets out to achieve these goals.

Statement of the Problem

Given the above setting and problem, the purpose of this study is to determine what is required for a successful gainsharing plan, define an implementation procedure, and develop and test a gainsharing formula specifically for XYZ Corporation, Inc.

Purpose of the Study

The objectives of this study are to:

1. Review gainsharing plans and formulas through literature review
2. Define the characteristics of a successful gainsharing program
3. Provide an implementation procedure for a gainsharing program
4. Develop a gainsharing formula for XYZ Corporation, Inc.
5. Test a gainsharing plan for XYZ Corporation, Inc.

Assumptions of the Study

The assumptions of the study are:

1. That gainsharing and the management philosophy associated with it are vital to an organizations success.
2. The results of this study can be used by companies of different sizes, industries, and regions.

3. That XYZ Corporation, Inc. will provide the necessary information required to complete the study.

Definition of Terms

Maslow's Model of Progressive Human Needs. Psychologist Abraham H. Maslow developed a model depicting five progressive levels of human needs that motivate behavior (Doyle & Doyle, 1992).

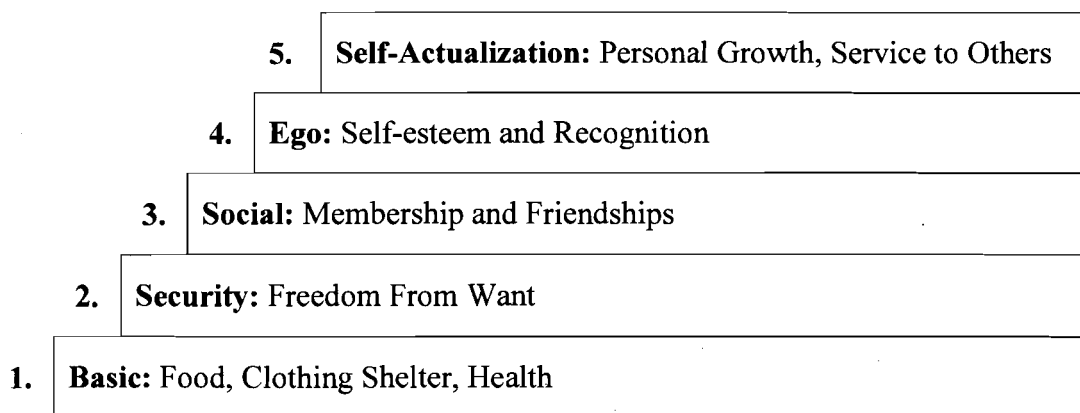


Figure 1: Maslow's Model of Progressive Human Needs

Source: Doyle & Doyle, 1992. (pg 16)

Limitations of the Study

The limitations of the study are:

1. The study is limited to a mid-size computer furniture and Point-of-Purchase manufacturer in Northwest Wisconsin
2. The amount of measurements at XYZ Corporation, Inc. is limited.
3. With limited measurements available, only one gainsharing formula will be tested for XYZ Corporation, Inc.

Methodology

The methodology used in this study will include research of literature on gainsharing plans, their successes and failures, management theory, formulas used, and limitations. Once this information has been obtained, a list of measures from XYZ Corporation will be acquired, criteria will be created, and the measures will be pared down to one for use in a gainsharing formula. After a measure has been selected, a formula will be chosen, developed, and tested. A baseline will be created utilizing historical information from the previous twelve months of the organization. Once the baseline has been set, scenarios will be tested to determine the bonus percentage if a gainsharing plan was in place. Finally, conclusions will be drawn about the validity of the formula, future recommendations for further study, and future steps for XYZ Corporation.

Chapter II: Literature Review

The purpose of this study is to determine what is required for a successful gainsharing plan, define an implementation procedure, and develop and test a gainsharing formula specifically for XYZ Corporation, Inc. Through a review of literature this study will provide a definition of gainsharing, the characteristics of a successful gainsharing program, various gainsharing plans, example formulas, and an implementation procedure.

Overview of Gainsharing

Gainsharing Background. Gainsharing is a philosophy of incorporating employee participation, recognition, problem identification, and accountability while improving personal and organizational performance (Band, Scanlan & Tustin, 1994). It is a group incentive bonus plan that requires employee involvement in determining how to improve the performance of the group or organization by better utilizing resources (Thor, 1993). Any gains in productivity and/or cost reductions during a given time period are shared between the organization and the workers (Band, Scanlan & Tustin, 1994). The term “gainsharing” was actually coined by Frederick Taylor, the father of scientific management, who was an advocate of this sharing. Currently, an estimated 26 percent of organizations within the United States use some form of gainsharing with 73 percent being implemented since 1980 (Roy & Dugal, 2005). Management practices, employee involvement, and shared rewards make up the three key components in all gainsharing programs (Doyle & Doyle, 1992).

Profit-sharing plans are the earliest form of a gainsharing program and are solely based on financial incentives (Doyle & Doyle, 1992). Prior to Social Security, profit sharing plans had success meeting Maslow’s level 2 (see Figure 1) by providing the

security that employees required. Once this need was met by Social Security profit-sharing had lost its motivational power for two reasons. First, employees will not be motivated today for a payment that may be months away (O'Dell, 1981). Second, there is no connection between effort and reward making it difficult for an employee to see how their performance can affect the overall profit of an organization. Conversely, profit sharing plans do provide motivation to top managers who have more control over the variables which affect profit. Since gainsharing provides motivation to the employees that have an effect over productivity and profit sharing provides motivation to top managers the plans are able to coexist.

Overall, gainsharing has been instrumental in the evolution of management systems transforming them from individual incentive systems focused on improving output and reducing costs to a system of participative management and shared group incentives (Doyle & Doyle, 1992). While compensation is part of a gainsharing program, the dramatic change will be to a participative and cooperative culture and a focus on processes as much as products (Band, Scanlan & Tustin, 1994). Any reward system is an important tool that can be used to achieve the responses that are rewarded (O'Dell, 1981). Feedback, not the financial aspect, then becomes the primary advantage of the gainsharing plan (Doyle & Doyle, 1992). The size of the bonus indicates how successful the employees were at making improvements, and frequent bonuses will allow for faster responses to improvement ideas. The frequency at which the reward pays varies; most plans will pay monthly, some organizations pay their bonuses on a quarterly basis, while other plans pay on a weekly basis. However, most gainsharing formulas account for a

portion of the bonus to be set-aside for months with losses. Any funds that are remaining at the end of the year are then distributed to the employees.

Management Theory. With increasing global competition, it is becoming progressively more important that American organizations continue to look for ways to improve their productivity (Belcher, Jr, 1993). The traditional way of managing American organizations with an autocratic style and communication on a “need-to-know” basis are no longer effective in the global economy. If an organization is to implement gainsharing, they must look at their management practices to ensure they are supportive of the gainsharing philosophy (O’Dell, 1981). If employees can not have an influence on their area because an autocratic style of management exists the motivational factors of gainsharing will be rendered useless (Belcher, Jr, 1993).

By 1961, Rensis Likert identified four management styles ranging from authoritarian to participative (Doyle & Doyle, 1992). The Authoritarian style is military based style of top-down chain of command. With this style, top management makes the decisions and the workers are expected to carry out the orders; employee ideas and problem solving need not apply. The Paternalistic style is very similar to the top-down Authoritarian style. With this style, there may be some signs of employee involvement, such as suggestion boxes, but they are not very effective. Employees may find this style the most difficult to be creative in. A third style, Consultative, begins to involve employees as managers ask for ideas and opinions, but make the final decision. This style of management can be effective for a time, but as a greater number of workers are striving to reach Maslow’s Levels 4 and 5, a Participative management style is required. A Participative style is characterized by managers actively seeking employee ideas, more

authority delegated to work teams, teamwork, and high performance. In an organization that practices Participative management, employees are better trained and informed on such things as the mission and strategic objectives of the organization and how their work is part of a team and contributes to the organization as a whole. The management philosophy is centered on a feeling of respect and trust in the employees' capabilities and their motivation to contribute towards the good of the organization (Margulies & Kleiner, 1995). Both Douglas McGregor and Rensis Likert regarded the Participative management style as the one best way to manage employees (Collins, 1998). If a gainsharing plan is to be successful management attitudes and behaviors must embrace the participative style (Band, Scanlan & Tustin, 1994).

Role of Teams/Employee Involvement. Employee involvement is an integral part of most gainsharing programs and can take the form of suggestion programs, suggestion committees, quality circles, and work teams (Doyle & Doyle, 1992). It is participative by nature with the overall goal of utilizing the knowledge of the worker and aligning their behavior and actions with organizational goals (Cotton, 1993). Three approaches typically found to gain employee involvement are parallel suggestion programs, job involvement, and high involvement (Lawler III, 1993). All three approaches have varying degrees of moving information, rewards, knowledge, and power to the lowest level possible.

Parallel suggestion involvement programs form problem-solving groups and do the least to move information, rewards, knowledge, and power to the lowest level (Lawler III, 1993). Within these groups the employees may be asked what improvements are needed, but are powerless to implement their suggestions. Quality circles are an example

of parallel suggestion involvement programs and represent a minor change in organizational structure. If the reward structure is not changed to support the parallel suggestion involvement program it may be seen as a program, lose its momentum, and disappear.

Job involvement focuses on ways that will motivate employees to achieve better job performance (Lawler III, 1993). An organization can create job involvement in one of two ways, either through individual job enrichment programs or through creating work groups or teams. Individual job enrichment programs give the employees feedback, increases their influence over how their work is completed, and requires them to use an assortment of skills. Work groups or teams have the same characteristics, but involve a number of people who are all working towards the same goal, hold themselves mutually responsible, and are responsible for their results (Zobal, 1998). In this instance, the group is able to make decisions that individuals cannot (Lawler III, 1993). In order for teams to be successful, a great deal of attention, training, and support must be given to team leaders (Trent, 2003). With employees receiving more information, power, and skills, a significant change in the fundamental operations of an organization is required (Lawler III, 1993).

High involvement is the third approach and entails total employee involvement in which employees acquire a sense of involvement with the organization and how it performs overall (Lawler III, 1993). In the high involvement approach, much of the aspects of the previous two approaches are evident, but employees are also involved in decisions relating to strategy and other major organizational decisions. This type of approach would require a total redesign of the control-oriented organization and proves to

be extremely difficult. Because of this drastic change, this approach is generally seen in new start-up organizations. Gainsharing can be the first step in employee involvement as the organization transforms their level of employee participation from suggestion boxes to work teams (Cotton, 1993).

Benefits of Gainsharing. The benefits realized by implementing a gainsharing program typically fall into the categories of cognitive benefits and affective benefits (Kim, 2005). The cognitive benefits seen from of a gainsharing program relate to productivity improvements. Some organizations report tenfold improvement in their defect rates while reducing their repair costs by half (Band, Scanlan & Tustin, 1994). A typical quality and productivity improvement for a company under \$100 million has averaged 17.3 percent per year (Boyett & Boyett, 2004). Other cognitive benefits realized by the organization include better production processes, new tools and machinery, and significant cost savings (Collins, 1998).

Improving employee morale, increasing job satisfaction, a reduction in disciplinary actions, turnover, and absenteeism are some of the affective benefits realized by an organization and are generally skewed towards benefits related to organizational effectiveness (Kim, 2005). Other affective benefits that organizations generally realize are aligning behaviors with organizational goals and the attraction and retention of employees (Roy & Dugal, 2005). Since the organization may actually benefit from losing poor performing employees the structure of the reward system should be designed to maintain and reward the highly motivated employees. A well-designed gainsharing program should also promote the development of communication and decision making skills and make it easier to identify employees with managerial and leadership potential

(Band, Scanlan & Tustin, 1994). By rewarding improvements, gainsharing plans will still allow organizations to recognize employees with managerial and leadership potential without having to increase their formal status through promotion. By structuring the reward system and measures correctly, an organization can reinforce the message of a participative and cooperative culture while creating alignment to their strategic goals and unleashing the intelligence, creativity, energy, and commitment of their workforce.

Types of Gainsharing Plans

Scanlon Plans. The best-known gainsharing plan was developed by Joseph Scanlon in 1938 at Empire Steel and Tin Plate Company (Doyle & Doyle, 1992). From its inception up until 1960 small, family owned operations implemented the greatest share of Scanlon plans (O'Dell, 1981). During the 1960's organizations moved towards participative management as its own goal and interest in Scanlon plans declined. As international competition grew during the 1970's, and organizations looked to reduce labor costs, interest in gainsharing programs in large companies began to gain momentum (O'Dell, 1993). Though Scanlon plans remained relatively unchanged for the first 20 years, organizations will now typically use different participation systems and additional productivity measures to allow for the best fit for their organization (Doyle & Doyle, 1992).

Even though there are various types of Scanlon plans, all are based on a participative management philosophy, worker involvement, and a group reward system (O'Dell, 1981). According to O'Dell (1981), the basic principles of the Scanlon plan are closely linked to the management philosophy of Douglas McGregor's Theory Y, which are:

- The expenditure of physical and mental effort in work is as natural as play or rest.
- External control and the threat of punishment are not the only means for bringing about effort toward organizational objectives. People will exercise self-direction and self-control in the service of objectives to which they are committed.
- Commitment to objectives is a function of the rewards, tangible and intangible, associated with their achievement.
- The average human being learns under proper conditions, not only to accept responsibility but also to seek it.
- The capacity to exercise a relatively high degree of imagination, ingenuity, and creativity in the solution of organizational problems is widely, not narrowly, distributed in a population. (pgs. 26-27)

The degree to which a gainsharing program is successful is related to the amount of effort an organization puts into formalizing the participative management philosophy (Doyle & Doyle, 1992). Once formalized, management will have moved away from the authoritarian style of control, understand that their employees have good ideas for improving performance, and fully believe in Theory Y principles. Management will also encourage their employees to learn, grow, and develop as human beings (Cotton, 1993). Thus, a Scanlon plan is not only a program, but becomes a way of life within the organization.

Worker involvement is generally formalized through the formation of two committees; a productivity committee and a plant or screening committee (Doyle &

Doyle, 1992). The department supervisor and three to seven non-management employees who are elected by their fellow employees will make up the productivity committee (Collins, 1998). This committee is charged with collecting and evaluating suggestions from other non-management employees regarding improvements in quality, productivity, and quality of work life. A secondary function of the production committee is to analyze any production related problems and communicate any changes that may affect the department (O'Dell, 1981). In order to implement the idea the productivity committee must accept the proposal, have it fall within their allowable budget, and it must not directly affect another department (Collins, 1998). In a majority of organizations the productivity committee meets monthly, however, it may be important to meet on a more frequent basis when the plan is first introduced (O'Dell, 1981). Ideas that are rejected or fall outside the limits of the productivity committee are passed along to the plant committee (Collins, 1998).

The plant committee is typically made up of one elected individual from each of the productivity committees and an equal number of high-level managers as appointed by management (Collins, 1998). The plant committee has two functions; review all suggestions that are forwarded from the productivity committee and communications (Doyle & Doyle, 1992). The review of all rejected ideas creates an automatic appeals process by allowing management to see additional potential in a suggestion that the productivity committee may not have seen. If both committees reject a suggestion the reasons must be explained to the employee. In addition to reviewing the suggestions the plant committee, through the representatives of the productivity committee, also communicates back to the organization issues concerning monthly productivity results,

gainsharing results for the month, and any other relevant information about the business. The reasons a bonus was or was not earned must be communicated back so employees will continue the attitudes and behaviors that resulted in the increased productivity.

In order for a Scanlon plan to function, management must be able to measure productivity, the improvements that are made in productivity, and then calculate a bonus based on those measurements (O'Dell, 1981). The formula is commonly set up to compare the expected costs for the month versus the actual costs for the month (Collins, 1998). In general, the expected costs are determined by performing a historical analysis of the previous three to five years of the organizations performance. A typical Scanlon plan will measure labor costs as a percentage of the sales value of production (Doyle & Doyle, 1992). However, other organizations have made modifications to the measurements in the typical Scanlon plan. Some organizations will also include the cost of tools and materials. Any gains that are seen are split between the employees and the organization at some agreed upon percentage (Collins, 1998). A percentage of the employees share is set-aside in a reserve fund to cover months where actual costs exceeded expected costs. Any money left over in the reserve fund at the end of the year is paid out to the employees. Bonuses of 10% to 15% are not uncommon and it is recommended that all employees, including managers, take part in the same bonus plan (Cotton, 1993).

Rucker Plans. Approximately the same time Joseph Scanlon was developing his gainsharing program Allan Rucker was working on a gainsharing program that was based on the value added by manufacturing (Doyle & Doyle, 1992). Rucker plans use a measure of productivity called production value, which is the difference between the

sales value of goods produced and the costs incurred to manufacture the goods (O'Dell, 1981). This measure is expressed as a ratio and has been determined to remain a constant percentage despite the variations in costs and selling prices (Doyle & Doyle, 1992). In order to obtain this ratio accounting records for the previous three to five years should be studied (O'Dell, 1981). Once this measure is found it becomes the Rucker standard that is used to determine the bonus pool (Doyle & Doyle, 1992). A bonus is paid when employees reduce costs or increase output and their actual costs fall below the Rucker standard. Like the Scanlon plan, the bonus is paid monthly as a percentage of the employee's regular pay and a reserve is set aside to cover months with a loss; whatever remains at the end of the year is paid to the employees. Originally Rucker plans did not include participative management and employee involvement, though these practices were later added and borrowed from Scanlon plans (Cotton, 1993). Overall, compared to a Scanlon plan, the Rucker formula is more difficult for the employees to understand and it must be recalculated every five years to update the standard (Doyle & Doyle, 1992). Even though most new gainsharing plans implemented include the ratio of labor costs to value added they are rarely Rucker plans.

Improshare Plans. A third gainsharing program, Improshare (*Improved Productivity Sharing*), was developed by Mitchell Fein in the mid-1970's and is deeply rooted in industrial engineering practices of standard hours required to produce a product (Doyle & Doyle, 1992). Improshare was created with the purpose of correcting the faults intrinsic in individual incentive systems (O'Dell, 1981). It moves the focus from number of pieces produced by an individual worker at his station to the overall productivity of the work team. Improshare plans base their calculations on standard direct and indirect hours

required to produce a unit of product (Doyle & Doyle, 1992). This type of plan can be aimed at a specific department or at the plant level (Cotton, 1993). As employees make improvements to their throughput of product, the time required to produce a product will drop (Doyle & Doyle, 1992). The difference between the standard and the time it took to produce a product is the bonus, which is split 50-50 between the organization and the employees. The bonus is based on a running four-to-six week average and is paid weekly as a proportion of their hours worked; therefore, no reserve fund is required. The company can buy back the Improshare standard if there are significant improvements made and sustained in productivity. Generally, this is done by paying a substantial bonus. If new equipment is purchased, the organization can only reduce the standard by 80% of the gains made by the equipment purchase. The remaining 20% is split between the organization and the employees. Contrary to Scanlon plans there is no employee involvement program, even though a suggestion system is generally borne out of necessity (O'Dell, 1981).

Implementing Gainsharing

Critical Factors for a Successful Implementation. There are three critical success factors that lead to a successful gainsharing program (Brown, 1995). First, the gainsharing plan must be part of the overall goals and objectives of the organization and not implemented because “everybody else is doing it.” The gainsharing plan should be custom tailored to support the overall objectives of the organization and to ensure that the measurement system is designed to create alignment in achieving the desired culture (Zobal, 1998). In order to create a customized plan the organization must understand their culture, business strategy, and desired behaviors. Once these are understood the

organization can begin designing a reward system that fits their objectives. It is crucial that the reward system be set up so the employees are able to influence the measurements that lead to the reward (Zobal, 1999).

Even if an organization has a plan that is linked with their overall goals and objectives, this alone will not ensure success (Brown, 1995). The second critical factor for success is the employee involvement system. This includes having the employees involved in defining the plan and also having a formal involvement system once the plan has been implemented. The success of the plan is based more on the way the plan is developed, implemented, and operated than the actual design of the plan. Having the employees take part in designing the plan will help create buy-in and ownership of the system. The only way to accomplish this is to have top management initiate and support the involvement process and define the guidelines for empowerment (Margulies & Kleiner, 1995). The employees must be allowed to feel a sense of ownership and be able to make decisions that affect their area.

The third and final critical success factor of a successful gainsharing plan is defining the team and relating the reward to the appropriate level of team (Brown, 1995). In order to form teams successfully they must receive proper training, share a vision and common values, a sense of faith in the employees must be present by management, and the culture needs to be supportive of risk taking and the failures that may coincide with it (Margulies & Kleiner, 1995). When first introducing teams the team may be responsible for developing a limited set of performance standards and the measurements required to determine how well they are meeting their standards (Thorne & Smith, 2000). The team may also set up a process for handling group decisions and elect their team leaders.

Proper training of the team members is an integral part throughout the entire team building process. Once the team has been in place and operating for a period of time, they may have their responsibility increased in collecting data for key performance areas. In order for this to be accomplished the team may require some advanced training in numeric, literacy, and computing skills. The team may also analyze and revise their performance measures, improve their planning skills to include maintenance and production flow issues, increase their knowledge of plant profit, and become empowered to recruit new members into the team.

Once the team demonstrates an understanding of collecting data for their key performance areas their responsibilities may be increased to include more elaborate use of information. Now their responsibilities may include analysis to eliminate quality problems, set weekly production goals, and obtain the information required to understand the resources they control. The team may also take on additional responsibilities related to human resources. At this time the team may be allowed to interview new team members, take initial disciplinary actions, and assist in setting up standardized training for team members. As teams progress, they can be given the responsibility to work with suppliers to eliminate any non-value-added activities in the supply process. The human resource aspect may also be increased to now include performance appraisals of team members and improve safety standards. The fully developed self-directed work team may be responsible for looking after long-term budgets, controlling their spending to meet the budget, seeking any external training, and making decisions related to compensation.

Developing a Successful Gainsharing Plan. There are five phases an organization must go through in order to successfully implement a gainsharing plan (O'Dell, 1981).

The five phases are: Exploration, Diagnosis, Planning and Design, Action, and Evaluation. During the exploration phase an organization must acknowledge a need to change. The need to change could range from the survival of the organization being threatened to top management's belief in the Theory Y form of management. At this time management should be collecting information in order to understand gainsharing and how it can apply to their organization. Once top-level interest has been gained resources should be made available to do a diagnosis or feasibility study of implementing a gainsharing plan (Boyett & Boyett, 2004).

The diagnosis phase will include the formation of a task force to evaluate the organizations culture, business objectives, management philosophy, and perform a costs/benefits analysis (O'Dell, 1981). The president, plant manager, controller, human resources manager, and at least three other representatives from other areas of the company form the best make up of the task force. If the task force decides that the project should move forward a feasibility study needs to be performed. The feasibility study will focus on strategic direction, the potential for gains, top management attitudes, organizational dependencies, and organizational climate (Boyett & Boyett, 2004). By interviewing top management, gainsharing can be evaluated to ensure that it is put in place to achieve the strategic goals of the business. When researching the potential for gains the focus is on identifying critical performance measures that should be emphasized in the gainsharing formula. After the critical performance measures are identified data needs to be gathered about current performance levels, targets, and the potential for any gains. As the feasibility study continues, top management and other key employees' attitudes need to be assessed to ensure they embrace gainsharing and the participative

management philosophy. It is imperative that management has a philosophy consistent with a participative style or, at least, has a strong commitment to gainsharing with managers and supervisors that are willing to try it (O'Dell, 1981). If the plan is to succeed the employees need to be surveyed, be willing to function in a participative environment, and have a level of trust exist with management. In studying the organizational dependencies, the feasibility study will review current operating procedures and process flows (Boyett & Boyett, 2004). This will look at the degree of teamwork and cooperation that exists between functions and how much they are related to performance. It will also assess the manufacturing process to best determine what formula may be used (O'Dell, 1981). The final step in the feasibility study is reviewing the organizational climate (Boyett & Boyett, 2004). The climate assessment will provide a gap analysis between the beliefs required for a successful gainsharing plan versus the current practices and may be expanded to include organizational size (O'Dell, 1981). Large organizations may have to divide their gainsharing schemes by division, while small organizations may be able to implement a plan company wide. In addition, people in small organizations can more easily make a connection between their behaviors and the performance of the organization. Once the feasibility study is complete the task force can make a recommendation to move forward with the plan or postpone it until any corrective actions are completed (Boyett & Boyett, 2004).

Once the task force makes a recommendation to move forward the team then moves into the planning and design phase (O'Dell, 1981). During this phase the task force may grow to include functional managers and possibly some employee representatives. The objectives of this phase are to figure out many of the details and

create a gainsharing design document (Boyett & Boyett, 2004). The purpose of the document is to address the issues of implementation, operation, and maintenance of the system. One of the first steps the task force will focus on will be creating a timeline identifying all of the necessary activities that are required to meet the date set for implementation. It becomes extremely important that the task force concentrate on implementing gainsharing during a period when productivity is most likely to increase. This is done to gain some early wins and build momentum in the system. Some additional details the task force must address in the document will be outlining the objectives of the plan and creating an outline of the function and structure of the teams. The details of the formula, including the eligibility requirements, payout period, and provisions for the reserve fund all need to be defined during this stage. A set timeline, usually one year, is included into the document to allow for a formal review of the plan and to make a decision to continue, modify, or abandon the plan. The final detail to include in the document is a provision for adjustments due to unforeseen events such as new equipment purchases, a change in the product line, or new technologies that have been added. This provision should state how any gains made from these events will be divided between the employees and the organization and what the effect will be on the productivity standard. Once the document is complete the task force must resubmit the document to top management for their final approval.

After the plan has been developed and top management has given their approval, the task force must move into the action phase (O'Dell, 1981). It is in the action phase that the task force must secure employee approval. This can be accomplished utilizing informational programs and meetings explaining the benefits for all involved in the

process (Boyett & Boyett, 2004). It is crucial that the employees understand the productivity-sharing emphasis of the plan and that management will not manipulate the formula for the company's benefit. Including test calculations and a summary of the key features are beneficial. It is recommended that all employees be allowed to vote for the approval of the implementation plan. Once the employees vote and approve the plan, the task force must act quickly to establish the productivity and plant committees.

Since it takes time to establish new processes and attitudes it is a wise decision to evaluate the effectiveness of the program at periodic checkpoints (O'Dell, 1981). The difficulty of this phase is trying to fully ascertain if people are doing or behaving any differently, if the different behaviors have helped, or if the changes are even from the implementation of the program (Gross, 1995). The best way to begin to evaluate the program is by having discussions with the employees to determine if they understand the plan. A second indicator of the plans success is the number of suggestions and suggestion implementations coming from the employees. After a period of six months the task force can check to see if any bonuses have been paid to the employees (O'Dell, 1981). After one year, the task force will then be able to analyze the programs performance in accordance to the gainsharing design document that was created during the planning and design phase (Boyett & Boyett, 2004).

Formulas and Measures. The gainsharing formula must be created with the notion of getting what you measure (Thor, 1999). Organizations will typically know the final results they want to achieve (i.e. increased profits, higher growth, etc.), but these measurements are too far away from the employees to affect. Therefore, the gainsharing formula should consist of measurements that will act as drivers towards the final results.

Performance measures generally make up the gainsharing formula because they are easier for the team to affect and fall within their “line of sight” (Gross, 1995). Some common performance measures consist of labor productivity, customer measures, and process quality (Thor, 1999). Labor productivity, as a relationship of labor input and physical output, was the original measurement in gainsharing formulas and is commonly used today. Some other forms of labor productivity may include material productivity, floor-space productivity, and inventory turnover.

Customer measures can be either gathered internally or collected with the assistance of the customer’s themselves. Some of the internally derived customer measures may include on-time delivery, warranty costs, rejects and returns, and mis-shipments and incompletes. Externally derived customer measures may include satisfaction survey scores, quality ratings and awards, and market share. However, these measures are difficult to gather and even harder for the employees to have a direct impact on.

Process quality measures deal with waste in the manufacturing environment. Unplanned scrap, rework, unplanned machine downtime, and process interruption/delay time are all examples of process quality measures. Working conditions are another performance measurement that could be used in the gainsharing formula. These measurements are difficult to quantify the importance a unit of improvement has and may require some flexibility to include them in the formula. Examples of working conditions measures include safety results, 5S audit results, and team participation rates. Because it is too far away from the employees, profitability is a measure that is rarely used in determining the gainsharing formula. However, net profit or return on investment could

be used to control the distribution of the pool to ensure that a bonus is not paid out in months when the company lost money but gains in the performance measures were realized. Once the measures are in place, an effective gainsharing formula must also meet the following criteria (Boyett & Boyett, 2004):

- The formula must be fair to the company by being a true measure of performance over time and working towards achieving the strategic objectives of the organization. The formula must benefit the company when gains are made and protect the company during a down period.
- The formula must be fair to the employees and they should be able to make a difference by modifying their behavior.
- The employees must be able to understand how the formula works and how their behaviors will affect the outcome of the gains.
- The calculations must be easily made and based on information that is available on a timely basis.
- The formula must be flexible to accommodate changes in company goals, objectives, and priorities.
- The formula should help direct the attention of the employees to problem areas.

To complete the development of the formula a baseline must be established from which to calculate gains. A historical baseline is typically calculated using the average performance from the previous six months to as much as five years. If poor historical data is available, the organization may look at utilizing a rolling average for the gainsharing baseline. This is accomplished by dropping the oldest month and adding a new month to

calculate a new baseline. A second method for calculating a baseline is to utilize a target baseline. When utilizing a target baseline, a bonus is not paid until a certain target level is achieved. Once the baseline is set consideration should be given to keeping the baseline fixed and basing all future gains from the same base, or to utilize a rolling average by allowing the base to change over time.

Examples of Formulas. The single ratio formula (see Table 1) is a simple Scanlon formula that calculates a ratio of labor costs to the sales value of production during a base period (Boyett & Boyett, 2004). This becomes the base ratio which is then used to determine an allowed payroll cost for the current period. In the example, even though the actual payroll costs were higher than the base period labor costs a bonus was still earned. This is accomplished because the allowed payroll costs for the month are 20% of the value of production. The bonus is then calculated by comparing the actual labor costs to the allowed labor cost for the month. The amount of the employee share is 75% of the bonus pool from which 25% is held back for deficit months to protect the company from short-term spikes in productivity. Each employee would then receive a bonus check worth 10.45% of their total wages, including overtime. This formula works best when the base ratio remains constant over long periods of time and sales prices and labor costs do not change at different rates.

A split ratio formula can be used to overcome some of the limitations of the single ratio formula by determining the allowed costs for each product (O'Dell, 1981). The split ratio formula can react to changes across product lines, but organizations have a difficult time allocating indirect costs across the product lines (Boyett & Boyett, 2004). A multi-cost ratio formula (see Table 2) is a third type of Scanlon formula that utilizes a broader

Table 1

Single Ratio Formula

BASE PERIOD CALCULATION

Cost Components:	Amount:
Labor Costs	\$246,000.00
Sales Value of Production	\$1,230,000.00
Base Ratio	20.00%
Company % Share of Bonus Pool	25.00%
Employee % Share of Bonus Pool	75.00%
Holdback Percentage	25.00%

CALCULATION FOR MONTH

Sales for Month	\$1,560,000.00
Minus Returns, Allowances, Discounts, etc	\$35,700.00
Net Sales	\$1,524,300.00
Plus Increase in Inventory at Selling Price	\$178,500
Value of Production	\$1,702,800.00
Allowed Payroll Costs	\$340,560.00
Actual Payroll Costs	\$293,521.00
Bonus Pool	\$47,039.00
Company Share of Bonus Pool	\$11,759.75
Employee Share of Bonus Pool	\$35,279.25
Holdback for Deficit Months	\$8,819.81
Employee Share for Immediate Distribution	\$26,459.44
Total Participating Payroll (W2 Earnings)	\$253,125.00
Bonus Percentage	10.45%

Source: Boyett & Boyett (2004, p. 77)

Table 2

Multicost Ratio Formula

BASE PERIOD CALCULATION

TOTAL COSTS

	Cost Components:	Amount:
	Labor	\$2,952,000.00
	Materials and Supplies	\$7,620,000.00
	Other Costs	\$1,236,000.00
	BASE PERIOD TOTAL COSTS	\$11,808,000.00
	Base Period Value of Production	\$14,760,000.00
	Base Ratio	80.00%
	Company % Share of Bonus Pool	25.00%
	Employee % Share of Bonus Pool	75.00%
	Holdback Percentage	25.00%

CALCULATIONS FOR MONTH

	Sales for Month	\$1,650,000.00
	Minus Returns, Allowances, Discounts, etc.	\$37,500.00
	Net Sales	\$1,612,500.00
	Plus Increase in Inventory at Selling Price	\$187,500.00
	Value of Production	\$1,800,000.00
	ALLOWED EXPENSES	\$1,440,000.00
	ACTUAL EXPENSES	
	Labor	\$315,000.00
	Materials and Supplies	\$756,000.00
	Other Costs	\$324,000.00
	TOTAL ACTUAL EXPENSES	\$1,395,000.00
	BONUS POOL	\$45,000.00
	Company Share of Bonus Pool	\$11,250.00
	Employee Share of Bonus Pool	\$33,750.00
	Holdback for Deficit Months	\$8,437.50
	Employee Share for Immediate Distribution	\$25,312.50
	Total Participating Payroll (W2 Earnings)	\$253,125.00
	BONUS PERCENTAGE	10.00%

Source: Boyett & Boyett (2004, p. 82)

base than the previous two. In this case, the base ratio is calculated by dividing total expenses by total sales value of production. The base ratio is then used to calculate allowed expenses for the current month. Actual expenses for the month are compared to allowed expenses for the month to determine the bonus pool. The bonus percentage is determined in the same manner as in the single ratio model. This formula is more complicated and difficult to understand and is typically installed after a gainsharing plan has been in place for some time (O'Dell, 1981). Further complicating the matter is the fact that companies are often reluctant to reveal all of the information that is used to calculate the base ratio.

A Value-Added formula (see Table 3) is a Rucker Plan calculation that is based on the ratio of labor costs to the sales value of production (Boyett & Boyett, 2004). The Value-Added base ratio differs from the Scanlon base ratio by relating labor costs to value-added production (sales value of production minus outside purchases, including materials) versus relating net sales to labor costs. Since this ratio is based off the previous three to seven years of actual accounting numbers it is considered a stable ratio. The allowed labor costs for the month are calculated by multiplying the value added for the month by the base ratio. The bonus pool is calculated by comparing the allowed labor costs for the month to the actual labor costs for the month. The bonus percentage is determined in the same manner as the previous two examples. This type of formula is successful in manufacturing environments and can be tailored to include plant people, office people, and management (O'Dell, 1981).

Since no single measure can drive all of the behaviors that are desired, utilizing a family of measures, or a balanced scorecard, becomes advantageous (Thor, 1999).

Table 3

Value-Added Formula

BASE PERIOD CALCULATIONS

Cost Components:	Amount:
Sales Value of Production	\$23,400,000.00
Minus Outside Purchases	\$14,040,000.00
BASE PERIOD VALUE ADDED	\$9,360,000.00
BASE PERIOD LABOR COSTS	\$3,744,000.00
Base Ratio	40.00%
Company % Share of Bonus Pool	50.00%
Employee % Share of Bonus Pool	50.00%
Holdback Percentage	20.00%

CALCULATION FOR MONTH

Sales Value of Production	\$2,100,000.00
Minus Outside Purchases	\$1,155,000.00
Value Added	\$945,000.00
Allowed Labor Costs	\$378,000.00
Actual Labor Costs	\$314,732.25
BONUS POOL	\$63,267.75
Company Share of Bonus Pool	\$31,633.88
Employee Share of Bonus Pool	\$31,633.88
Holdback for Deficit Months	\$6,326.78
Employee Share for Immediate Distribution	\$25,307.10
Total Participating Payroll	\$253,125.00
BONUS PERCENTAGE	9.99%

Source: Boyett & Boyett (2004, p. 83)

Normally, an organization will utilize four to six partially offsetting measures to create a wider coverage of drivers without creating a loss of focus for the employees (see Table 4) (Thor, 1993). These measures should include several key factors of production but also consider quality, customer delivery, and other measures that are not considered in the realm of productivity or efficiency. The formula can be balanced and the measures given their proper importance by assigning a relative weight. This helps to prevent employees from speeding up at the end of the month to meet production numbers only to suffer quality and safety issues. The measures should be of local origin, understood by everyone, visible, and be able to be calculated by the employees. The organization must determine the dollar value per point and the base level that needs to be achieved prior to receiving a bonus. In Table 4, the current performance level is scored on a scale of zero to ten. Once the score has been determined, it is multiplied by the weight to give a value to the measure. The values of the measures are totaled and compared to the base value and the difference is multiplied by the dollar value per point to determine the bonus pool.

Limitations of Gainsharing. While there are many benefits to gainsharing there are also some limitations that must be taken into consideration. It is difficult for gainsharing programs to succeed if they are lacking top management support, have inadequate middle management involvement, and provide insufficient training involving first-level supervisors (Collins, 1998). Many managers are unwilling, or unable, to take the risks that are associated with moving towards a participative management style and allowing employees to make mistakes (Doyle & Doyle, 1992). A level of trust must exist between management and the workers to allow a culture conducive to gainsharing to

Table 4

Weighted Family of Measures

Weighted Tests/ Manhour	Zaptest Machine Use: Actual vs. Estimate	Materials Substitutions Accepted (Value Weighted)	On-Time Delivery	Customer Satisfaction Survey	Productivity Criteria
3.43	92	5.8	92	98	Performance
5.00	100	12.0	100	121	10
4.70	99	10.5	99	118	9
4.50	98	9.0	97	115	8
4.30	96	7.5	95	112	7
4.15	94	6.0	93	109	6
4.00	92	5.0	91	106	5
3.85	90	4.0	89	103	4
3.71	88	3.1	87	100	3
3.55	86	2.0	85	97	2
3.40	84	1.0	83	93	1
3.25	82	0	81	90	0
1.2	5.0	5.8	5.5	2.3	Score
40	20	15	15	10	Weight
48	100	87	82	23	Value

Pool Accumulates at \$1,000 per point.

300 Base

340 Current

40 Points x \$1,000 = \$40,000 Pool

Source: Thor (1993, p. 10-8.8)

exist (O'Dell, 1981). Without this trust, management will be unwilling to share the proper operating and financial data required to allow employees to make the proper changes to their performance. It takes strong, competent leadership to provide an undeniable vision of excellence that challenges the employees (Doyle & Doyle, 1992).

Careful consideration must be given to timing the startup of the gainsharing plan (O'Dell, 1981). It is much better to start the plan during a time of increased business than during a down cycle. The bonuses paid during the upswing can carry employee motivation through the downturn. With the increased production coming through the shop floor, it becomes critical that the company is able to sell the additional product. If the market is unable to support the additional product, the organization must find other job duties for any employees that have been freed up or allow the number of employees to self-adjust through attrition.

The last major limitation to gainsharing is a poorly developed formula that is unrewarding, too rewarding, or perceived as unfair by the employees (O'Dell, 1981). The formula must not sacrifice other areas of the business in order for the employees to receive a gain (Thor, 1993). If a plan focuses mainly on labor-cost containment it may fail to focus the employees on broader business issues (Doyle & Doyle, 1992). There is some concern that once employees have been paid a bonus for a task they have completed they will be unwilling to complete the task again if a bonus is unavailable (O'Dell, 1981). Therefore, it is imperative that employees understand the importance of the involvement system and that the bonus is not a reward for doing their job, but only a means of keeping score.

Chapter III: Methodology

The purpose of this study is to determine what is required for a successful gainsharing plan, define an implementation procedure, and develop and test a gainsharing formula specifically for XYZ Corporation, Inc. Through literature review a definition of gainsharing, the characteristics of a successful gainsharing program, various gainsharing plans, example formulas, and an implementation procedure have been provided. From this, a gainsharing formula will be developed and tested utilizing available measures from XYZ Corporation, Inc.

In order to develop a formula, criteria must be established for selecting a measure. Once the criteria have been defined, a matrix will be created to determine the best measure to use in a gainsharing formula. Using this information, a gainsharing formula will be selected and developed for XYZ Corporation, Inc., historical data will be collected, and various scenarios will be tested to determine the effectiveness of the formula.

Criteria for Measurement Selection

When selecting a measure for a gainsharing formula the ability to measure productivity and the improvements in productivity are essential. Therefore, it is beneficial if the measurement has the ability to be measured financially versus a measurement that cannot. A non-financial measurement (example: on-time delivery) may still be used in a gainsharing formula by either attaching a dollar value to a unit of improvement or by utilizing a target baseline in the formula. To maximize the effectiveness of the measurement it must be visible to the employees and they must have the ability to control and affect the measure by modifying their behaviors. In order to benefit the organization

the measurement must also act as a driver towards the strategic objectives. Finally, the measurement should be easy to attain on a regular basis, easily understood by the employees, and available at XYZ Corporation, Inc.

Measurement Selection

In order to select a measure for use in a gainsharing formula a list of measures that are currently available at XYZ Corporation, Inc. has been created (reference Appendix A). Using the above criteria for measurement selection and the available measures at XYZ Corporation, a matrix was created to determine the level of correlation between the available measures and the criteria (reference Appendix B). After the first criterion was applied (employees can affect/control) all measures that had a low correlation were eliminated from future evaluation. The remaining measures were rated based on how they acted as a driver towards the strategic objectives of XYZ Corporation. After applying this criterion, all measures that had a moderate or low correlation were eliminated from future consideration. The same process was applied for the final three criteria, resulting in two possible measures (7r and 7s) that could be used in a gainsharing formula. Since 7r (actual production labor to standard production labor per product) has a higher correlation to the employees affecting/controlling, this measure has been selected for use in developing and testing a gainsharing formula. Because measure 7r is a comparison of two separate measures, data will be collected on the two components that make up the measure to allow for better use in a gainsharing formula.

Selection and Development of a Gainsharing Formula

Based on the available measures and the selected measurement a Simple Scanlon single ratio based formula will be utilized (see Table 1). Since data will be collected on

the two components of 7r, two separate formulas will be developed and tested. XYZ Corporation Test Formula 1 will not include a base ratio, but will instead utilize the allowed payroll expense calculated from the labor standards for the products that were produced for the given month at XYZ Corporation. Given that the standards are based on historical information, the actual payroll expenses for the month were calculated using the payroll information for 80 direct labor employees and 25% of the payroll costs for the crew-leaders. The crew-leader portion of the actual payroll expense is based on a historical average of 25% of their time spent working on production jobs.

In XYZ Corporation Test Formula 1 (see Table 5), net sales are determined by deducting the returns, allowances, discounts, and sales of products not produced by XYZ Corporation from the sales for the month. The increase in inventory at selling price is added to net sales resulting in the value of production for the month. The allowed payroll costs will be compared to the actual payroll expenses for the month with the difference resulting in the available bonus pool. The bonus pool will be split between the company and the employees 50-50, with 25% of the employees' share going into a holdback for deficit months. In the case of a negative bonus pool the company will absorb the loss and transfer 100% of the loss to the holdback for deficit months' account. Any positive variance remaining at the end of the year will be distributed to the employees. The holdback for the month will be deducted from the employees' share of the bonus pool to net the employee share for immediate distribution. The employee share for immediate distribution divided by the total participating payroll will result in a bonus percentage that will be available to all employees who are included in the program. A binary profit gate will be used to determine the bonus percentage that is paid to the employees. If it was a

Table 5

XYZ Corporation Test Formula 1

BASE PERIOD CALCULATION

	Cost Components:	Amount:
	Company % Share of Bonus Pool	50.00%
	Employee % Share of Bonus Pool	50.00%
	Holdback Percentage	25.00%

CALCULATION FOR MONTH

	Sales for Month	\$1,600,000.00
	Minus Returns, Allowances, Discounts, etc	\$45,700.00
	Net Sales	\$1,554,300.00
	Plus Increase in Inventory at Selling Price	\$158,700.00
	Value of Production	\$1,713,000.00
	Allowed Payroll Costs	\$190,560.00
	Actual Payroll Costs	\$173,520.00
	Bonus Pool	\$17,040.00
	Company Share of Bonus Pool	\$8,520.00
	Employee Share of Bonus Pool	\$8,520.00
	Holdback for Deficit Months	\$2,130.00
	Employee Share for Immediate Distribution	\$6,390.00
	Total Participating Payroll (W2 Earnings)	\$145,520.00
	Bonus Percentage (Available)	4.39%
	Profit (Yes or No)	1
	Bonus Percentage (Paid)	4.39%

profitable month 100% of the available bonus will be paid, if not, there will be no bonus for the month. The bonus percentage paid to the employee will be the percentage of their total wages, including overtime, for the period.

The second formula, XYZ Corporation Test Formula 2 (see Table 6), uses a base ratio that was calculated by dividing actual payroll costs for the year by the total sales volume of production for the year. In this instance, the actual payroll costs includes 80 direct labor employees, 20 crew-leaders, and an additional 10 employees in the Maintenance, Shipping and Receiving, Tooling, and Micro-Production shop departments. With this information the base ratio for XYZ Corporation was calculated at 16.35% for 2005. Multiplying this base ratio by the value of production for the month will result in the allowed payroll costs. The remainder of the formula is calculated in the same manner as XYZ Corporation Test Formula 1. Both formulas will be tested using information gathered from XYZ Corporation for the year 2005 with scenarios generated for improvements to the actual payroll costs of 5%, 10%, 15%, and 20%. Each formula will also be used to calculate the improvement percentage to zero out the year-end company share of bonus pool, the year-end holdback for deficit months' account, and the percentage needed for participating employees to receive a total of \$500.00 in bonuses. The bonus calculation includes any positive year-end variance in the holdback for deficit months' account.

Limitations

The following limitations were observed in the methodology:

- The formulas are limited to information gathered from XYZ Corporation for the year 2005.

Table 6

XYZ Corporation Test Formula 2

BASE PERIOD CALCULATION

Cost Components:	Amount:
Labor Costs	\$239,500.00
Sales Value of Production	\$1,464,831.00
Base Ratio	16.35%
Company % Share of Bonus Pool	50.00%
Employee % Share of Bonus Pool	50.00%
Holdback Percentage	25.00%

CALCULATION FOR MONTH

Sales for Month	\$1,600,000.00
Minus Returns, Allowances, Discounts, etc	\$45,700.00
Net Sales	\$1,554,300.00
Plus Increase in Inventory at Selling Price	\$158,700
Value of Production	\$1,713,000.00
Allowed Payroll Costs	\$280,075.50
Actual Payroll Costs	245,160.00
Bonus Pool	\$34,915.50
Company Share of Bonus Pool	\$17,457.75
Employee Share of Bonus Pool	\$17,457.75
Holdback for Deficit Months	\$4,364.44
Employee Share for Immediate Distribution	\$13,093.31
Total Participating Payroll (W2 Earnings)	\$207,320.00
Bonus Percentage (Available)	6.32%
Profit (Yes or No)	1
Bonus Percentage (Paid)	6.32%

- Due to the information available, neither formula includes all employees of XYZ Corporation.
- XYZ Corporation Test Formula 1 is limited by the accuracy of the standards.
- An estimated 25% of the crew-leaders time is spent working on production jobs at XYZ Corporation. Therefore, in XYZ Corporation Test Formula 1 only 25% of their payroll was taken into account.
- As improvements are made in the actual payroll expenses, the number of employees remains the same.
- The fluctuation in the number of participating employees through the year is unknown.
- Due to the proprietary nature of the information the actual numbers are not represented in the formulas. However, the results are based on the actual numbers.

Chapter IV: Results

Through literature review, the purpose of this study was to determine what is required for a successful gainsharing plan, define an implementation procedure, and develop and test a gainsharing formula specifically for XYZ Corporation. Using information gathered from XYZ Corporation a measurement was selected to use in a gainsharing formula. From this, two Simple Scanlon single ratio based formulas were created and tested. XYZ Corporation Test Formula 1 used XYZ's company standards for allowed payroll expenses, while XYZ Corporation Test Formula 2 used a base ratio calculated from information gathered for 2005. Both formulas were then tested using improvements in actual payroll expenses of 5%, 10%, 15%, and 20%. Next, the formulas were tested to determine the improvement percentage to zero out the year-end company share of bonus pool account, the year-end holdback for deficit months account, and the percentage of improvement required for each employee to receive a total of \$500.00 in bonuses. The bonus calculation included any positive amount in the year-end holdback for deficit months' account. Due to the proprietary nature of the information, only the results of the formulas are shown. Tables 7 and 8 show a summary of the year end results for each formula, while Appendices C through R shows a monthly breakdown of each component listed in the tables.

Discussion of Results

After applying the base information for 2005 to XYZ Corporation Test Formula 1, the bonus pool and the company share of bonus pool would have been (\$600,310) and the employees would have received no bonus (see Table 7). This is a result of the difference between the total allowed payroll costs for 2005, based on standards, and the

Table 7

Summary of Results for XYZ Corporation Test Formula 1

	Improvement							
	Base	5%	10%	15%	20%	37%	41%	42%
Bonus Pool	\$ (600,310)	\$ (514,862)	\$ (429,413)	\$ (343,964)	\$ (258,515)	\$ 33,228	\$ 104,166	\$ 119,289
Company Share of Bonus Pool	\$ (600,310)	\$ (514,862)	\$ (429,413)	\$ (343,964)	\$ (258,515)	\$ 0	\$ 44,642	\$ 53,738
Employee Share of Bonus Pool	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 33,228	\$ 59,523	\$ 65,551
Holdback for Deficit Months	\$ (600,310)	\$ (514,862)	\$ (429,413)	\$ (343,964)	\$ (258,515)	\$ (24,921)	\$ 0	\$ 4,574
Available for Immediate Distribution	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 24,921	\$ 44,642	\$ 49,163
Bonus Percentage Available (Average)	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.4%	0.5%
Bonus Percentage Paid (Average)	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.3%	0.3%
Total Dollar Value of Bonus/Employee	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 240	\$ 407	\$ 500

actual payroll costs for 2005. After testing for improvements of 5%, 10%, 15%, and 20% in actual payroll costs, the results were a negative bonus pool, a negative company share of bonus pool, and no bonus for the employees. However, with a 20% improvement the variance between the allowed payroll costs and the actual payroll costs was reduced from (\$610,310) to (\$258,515). It was not until a 37% improvement was achieved that the company share of the bonus pool reached the break even point. At 37%, the holdback for deficit months' account was still negative, but the employees received a total of \$240 in bonuses for the year. At 41%, the holdback for deficit months' account reached the break even point. At this level of improvement the company share of bonus pool increased to \$44,642 and the employees received a total of \$407 in bonuses for the year. With an additional 1% improvement the employees would receive \$500 in bonuses for the year.

When using the calculated base ratio and applying the base information for 2005 to XYZ Corporation Test Formula 2, the employees would have received \$558 in bonuses (see Table 8), but the company share of bonus pool would have been (\$52,660) and the holdback for deficit months totaled (\$123,286) for the year. At 10% improvement the company share of bonus pool increased to \$132,092, the holdback for deficit months was (\$10,181) and the employees received a total of \$1,030 in bonuses. At 20%, the employees received a total of \$2,170 in bonuses, which included dispersing the \$73,491 positive variance in the holdback for deficit months' account to the employees. The company share of bonus pool grew to \$300,025. At 3% improvement the Company share of bonus pool reached the break even point, the employees received \$690 in bonuses, but the holdback for deficit months' account was (\$90,305). At 11% the holdback for deficit months' account reached the break even point, with the employees

receiving \$1,078 in bonuses, and the company share of bonus pool reaching \$150,288. With a 1% reduction from the base information the employees would still receive \$500 in bonuses for the year. Under all tested scenarios of improvement XYZ Corporation realized no additional profitable months.

Table 8

Summary of Results for XYZ Corporation Test Formula 2

	Improvement							
	Base	5%	10%	15%	20%	3%	11%	-1%
Bonus Pool	\$ 41,508	\$ 181,649	\$ 321,789	\$ 461,930	\$ 602,071	\$ 120,407	\$ 350,673	\$ 7,351
Company Share of Bonus Pool	\$ (52,660)	\$ 40,875	\$ 132,092	\$ 218,284	\$ 300,025	\$ 0	\$ 150,288	\$ (75,458)
Employee Share of Bonus Pool	\$ 94,168	\$ 140,773	\$ 189,697	\$ 243,646	\$ 302,045	\$ 120,407	\$ 200,385	\$ 82,809
Holdback for Deficit Months	\$ (123,286)	\$ (64,705)	\$ (10,181)	\$ 35,550	\$ 73,491	\$ (90,305)	\$ 0	\$ (137,565)
Available for Immediate Distribution	\$ 70,626	\$ 105,580	\$ 142,273	\$ 182,734	\$ 226,534	\$ 90,305	\$ 150,288	\$ 62,107
Bonus Percentage Available (Average)	0.3%	0.4%	0.5%	0.7%	0.9%	0.3%	0.6%	0.2%
Bonus Percentage Paid (Average)	0.2%	0.3%	0.4%	0.5%	0.6%	0.3%	0.4%	0.2%
Total Dollar Value of Bonus/Employee	\$ 558	\$ 794	\$ 1,030	\$ 1,589	\$ 2,170	\$ 690	\$ 1,078	\$ 500

Chapter V: Discussion

Through literature review this study determined what is required for a successful gainsharing plan, including the management theory behind gainsharing, the role of teams/employee involvement, and the benefits and limitations of gainsharing plans. Next, various types of gainsharing plans were reviewed and an implementation procedure was defined. The study further analyzed the information gained from the literature and developed and tested a gainsharing formula specifically for XYZ Corporation. This was accomplished by gathering information from XYZ Corporation and selecting a measure to use in a gainsharing formula. Upon selection of the measure two formulas were developed and tested. XYZ Corporation Test Formula 1 (see Table 5) utilized standards from XYZ Corporation to determine the allowed payroll costs, while XYZ Corporation Test Formula 2 (see Table 6) utilized a calculated base ratio. Both formulas were tested with the base information from 2005 and then tested with improvements to actual payroll costs of 5%, 10%, 15%, and 20%. Next the formulas were solved to determine the improvement percentage required to zero out the year-end company share of bonus pool, the year-end holdback for deficit months' account, and to determine the percentage of improvement required for each participating employee to receive a \$500.00 bonus for the year.

Limitations

The limitations of the study are:

1. The study is limited to a mid-size computer furniture and Point-of-Purchase manufacturer in Northwest Wisconsin
2. The amount of measurements at XYZ Corporation, Inc. is limited.

3. With limited measurements available, only one gainsharing formula will be tested for XYZ Corporation, Inc.

The limitations observed in the methodology are:

1. The formulas are limited to information gathered from XYZ Corporation for the year 2005.
2. Due to the information available, neither formula includes all employees of XYZ Corporation.
3. XYZ Corporation Test Formula 1 is limited by the accuracy of the standards.
4. An estimated 25% of the crew-leaders time is spent working on production jobs at XYZ Corporation. Therefore, in XYZ Corporation Test Formula 1 only 25% of their payroll was taken into account.
5. As improvements are made in the actual payroll expenses, the number of employees remains the same.
6. The fluctuation in the number of participating employees through the year is unknown.
7. Due to the proprietary nature of the information the actual numbers are not represented in the formulas. However, the results are based on the actual numbers.

Conclusions

The results of the tested formulas were held up to the six points of an effective gainsharing formula as defined by Boyett & Boyett (2004). These are:

1. The formula must be fair to the company.

2. The formula must be able to be affected by the employees modifying their behavior.
3. The formula must be easy to understand.
4. The calculations must be easily made and based on information that is available in a timely fashion.
5. The formula must be flexible to accommodate changes in company goals, objectives, and priorities.
6. The formula should direct the attention of the employees to problem areas.

Upon reviewing the data collected, the two gainsharing formulas are deemed to be unacceptable for implementation at XYZ Corporation at this time. XYZ Corporation Test Formula 1 is not fair to the company or the employees. Even though this formula was based off of company standards, the company lost a significant amount of money in the company share of bonus pool and the holdback for deficit months' account. This can be partially attributed to a company philosophy of not laying off employees during slow periods. However, this would not explain why the variance between the allowed payroll costs and actual payroll costs is so great during the peak busy season. There are two possibilities explaining this variance during the peak months. Either the employees have lost their sense of urgency and have become less efficient throughout the year because of the presence of excess employees during the off-peak months or the standards are extremely inaccurate. Since the standards are based off past history, the latter seems less likely to be the cause. XYZ Corporation Test Formula 1 also required a 37% improvement in order for the employees to receive a \$240 bonus, making the formula very difficult for the employees to affect by modifying their behaviors. This would not

allow the company to gain any short-term wins making it difficult for the program to gain momentum and becoming part of the culture.

While XYZ Corporation Test Formula 2 is better for the employees by virtue of them receiving a bonus from the 2005 base information, the formula is not fair to the company. The company share of the bonus pool and the holdback for deficit months' account are negative even though the employees receive a bonus. In addition, given the findings of XYZ Corporation Test Formula 1, if the standards are that inaccurate then it is reasonable to assume that the base ratio is inaccurate also. Both formulas achieve points three through five of a successful gainsharing formula, but they only direct the employees' attention to the allowable payroll costs and would not direct their attention to any other problem areas. In order for a gainsharing plan to be successful at XYZ Corporation either the demand needs to be steadied or the labor pool must be more closely matched with the fluctuating demand.

Recommendations

Based off this study, the following are recommendations and future steps for XYZ Corporation to take under consideration:

1. XYZ Corporation Test Formula 2 could be expanded to use the information from the previous three years to develop a base ratio. Once the base ratio was developed a rolling average could be used and recalculated annually. This would be recommended if it were determined the standards are inaccurate.

2. XYZ Corporation could assess how supportive their management practices are of the gainsharing philosophy of employee involvement, visible measures, and allowing employees to have an influence on their area.
3. XYZ Corporation could begin to practice employee involvement by forming formal committees, teams, and councils.
4. Implement Lean Manufacturing techniques for a few years to gain some consistency in the manufacturing processes, achieve some initial benefits by plucking the “low hanging fruit”, and define the appropriate measures that would work towards the strategic objectives of the organization. This would also assist in aligning the management practices and philosophy with gainsharing.
5. Define better measurements that would work towards the strategic objectives of the organization and make them visible to the employees.
Some measures to consider would include:
 - Throughput time
 - On-time delivery
 - Overall Equipment Efficiency (OEE)
 - Scrap
 - Rework/Cost of Quality>Returns
6. Ultimately, possibly with the measures above, use a balanced scorecard method with tiered profit gates. This would prevent the employees from focusing on one measure while the others slipped. A tiered profit gate would pay a portion of the bonus to the employees provided they met

certain profit levels. As the profit level increased, the employees would receive a higher portion of their bonus. This would guarantee the formula was beneficial to the company while the employees made improvements.

7. Expand the formula to cover all employees except upper management. A profit sharing system may be beneficial for use with upper management.

This is not an exhaustive list of recommendations or future steps for XYZ Corporation to take under consideration. However, it may provide the beginning steps that XYZ Corporation can take towards implementing the gainsharing philosophy and programs and ultimately realizing the many benefits that are associated with gainsharing.

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Appendix A: Measures Available at XYZ Corporation

Number	Measure
1	Financial statement budget & prior year comparatives
2	Earnings per share
3	Monthly net income
	Balance sheet measures
4a	Quick Ratio
4b	Current ratio
4c	Liabilities to net worth
4d	Liabilities to inventory
4e	Fixed Assets to net worth
4f	Collection days
	Financial efficiency/profitability measures
5a	Inventory Turnover
5b	Assets to sales
5c	Sales to net working capital
5d	Return on sales
5e	Return on net worth
5f	Return on assets
	Sales Measures
6a	Sales per market segment per month
6b	Sales per item group per month
6c	Sales per sales group per month
6d	Orders per market segment per month
6e	Orders per item group per month
6f	Running twelve monthly sales
6g	Sales per state and market
6h	Sales per SKU number
6i	Quotes per week
6j	Quote conversion to sales order
6k	Sales activity cost related to generated revenue
6l	Sales per product
6m	Bidding success rate
6n	Cost per sales lead
	Profitability Measures
7a	Profit margins per product
7b	Gross margin per market segment
7c	Gross margin per item group
7d	Net profit contribution per market segment (Sales less CGM less selling costs)

- 7e All components of gross margins as a percentage of sales (i.e. material, labor, overhead, etc.)
- 7f Labor hours and dollars per dept (w/prior year comparatives)
- 7g Overtime hours per department (w/prior year comparatives)
- 7h Average y-t-d and monthly direct labor wage rate
- 7i Custom products job cost
- 7j Installation profitability per job, customer and state
- 7k Outgoing freight cost as a percent of sales per state
- 7l Payroll expense per department
- 7m Production dollars per item group and month
- 7n Inventory dollars per item group
- 7o Production (in Sales Dollars) per direct employees
- 7p Production (in Sales Dollars) per total company employees
- 7q Actual production labor to standard production labor per job
- 7r Actual production labor to standard production labor per product
- 7s Actual material cost per product to standard cost per product

Service Measures

- 8a Days to ship
- 8b Number of days from planned ship date

Other Measures

- 9a Attendance
- 9b Maintenance time per work-center
- 9c Time to invoice after shipment
- 9d Workplace Safety- number of days without an injury

Appendix B: Selection of Measure

Number	Measure	Criteria				
		1	2	3	4	5
7r	Actual production labor to standard production labor per product	↑	↑	↑	N/A	↔
7q	Actual production labor to standard production labor per job	↑	↔			
9a	Attendance	↑	↓			
9d	Workplace Safety- number of days without an injury	↑	↓			
7s	Actual material cost per product to standard cost per product	↔	↑	↑	N/A	↔
8b	Number of days from planned ship date	↔	↔			
7a	Profit margins per product	↔	↔			
7f	Labor hours and dollars per dept (w/prior year comparatives)	↔	↔			
7g	Overtime hours per department (w/prior year comparatives)	↔	↔			
7o	Production (in Sales Dollars) per direct employees	↔	↔			
8a	Days to ship	↔	↔			
9b	Maintenance time per work-center	↔	↔			
1	Financial statement budget & prior year comparatives	↓				
2	Earnings per share	↓				
3	Monthly net income	↓				
4a	Quick Ratio	↓				
4b	Current ratio	↓				
4c	Liabilities to net worth	↓				
4d	Liabilities to inventory	↓				
4e	Fixed Assets to net worth	↓				
4f	Collection days	↓				
5a	Inventory Turnover	↓				
5b	Assets to sales	↓				
5c	Sales to net working capital	↓				
5d	Return on sales	↓				
5e	Return on net worth	↓				
5f	Return on assets	↓				
6a	Sales per market segment per month	↓				
6b	Sales per item group per month	↓				
6c	Sales per sales group per month	↓				
6d	Orders per market segment per month	↓				

6e	Orders per item group per month	↓
6f	Running twelve monthly sales	↓
6g	Sales per state and market	↓
6h	Sales per SKU number	↓
6i	Quotes per week	↓
6j	Quote conversion to sales order	↓
6k	Sales activity cost related to generated revenue	↓
6l	Sales per product	↓
6m	Bidding success rate	↓
6n	Cost per sales lead	↓
7b	Gross margin per market segment	↓
7c	Gross margin per item group	↓
7d	Net profit contribution per market segment (Sales less CGM less selling costs)	↓
7e	All components of gross margins as a percentage of sales (i.e. material, labor, overhead, etc.)	↓
7h	Average y-t-d and monthly direct labor wage rate	↓
7i	Custom products job cost	↓
7j	Installation profitability per job, customer and state	↓
7k	Outgoing freight cost as a percent of sales per state	↓
7l	Payroll expense per department	↓
7m	Production dollars per item group and month	↓
7n	Inventory dollars per item group	↓
7p	Production (in Sales Dollars) per total company employees	↓
9c	Time to invoice after shipment	↓

Criteria:

- 1 Employees can affect/control
- 2 Acts as a driver towards Strategic Objectives
- 3 Ability to be measured financially
- 4 Can be converted to a financial measure (ex: on-time delivery)
- 5 Is/could be visible to employees

Legend:

- ↑ Measure has a high correlation to criteria
- ↔ Measure has a moderate correlation to criteria
- ↓ Measure has a low correlation to criteria

Appendix C: XYZ Corporation Formula 1- Bonus Pool Comparison

	Base	5%	10%	15%	20%	37%	41%	42%
January	\$ (39,260)	\$ (35,050)	\$ (30,841)	\$ (26,631)	\$ (22,422)	\$ (8,050)	\$ (4,555)	\$ (3,810)
February	\$ (37,395)	\$ (32,789)	\$ (28,183)	\$ (23,577)	\$ (18,971)	\$ (3,244)	\$ 579	\$ 1,395
March	\$ (52,886)	\$ (46,865)	\$ (40,844)	\$ (34,822)	\$ (28,801)	\$ (8,243)	\$ (3,244)	\$ (2,178)
April	\$ (39,804)	\$ (34,209)	\$ (28,613)	\$ (23,018)	\$ (17,423)	\$ 1,680	\$ 6,325	\$ 7,316
May	\$ (33,388)	\$ (27,466)	\$ (21,544)	\$ (15,623)	\$ (9,701)	\$ 10,516	\$ 15,432	\$ 16,480
June	\$ (44,652)	\$ (37,090)	\$ (29,528)	\$ (21,965)	\$ (14,403)	\$ 11,417	\$ 17,695	\$ 19,033
July	\$ (56,331)	\$ (48,057)	\$ (39,783)	\$ (31,510)	\$ (23,236)	\$ 5,013	\$ 11,881	\$ 13,346
August	\$ (59,743)	\$ (48,737)	\$ (37,732)	\$ (26,726)	\$ (15,721)	\$ 21,855	\$ 30,991	\$ 32,939
September	\$ (70,817)	\$ (61,362)	\$ (51,907)	\$ (42,452)	\$ (32,997)	\$ (715)	\$ 7,134	\$ 8,808
October	\$ (58,663)	\$ (50,338)	\$ (42,014)	\$ (33,689)	\$ (25,364)	\$ 3,059	\$ 9,970	\$ 11,443
November	\$ (65,619)	\$ (58,519)	\$ (51,418)	\$ (44,318)	\$ (37,218)	\$ (12,976)	\$ (7,081)	\$ (5,825)
December	\$ (41,753)	\$ (34,379)	\$ (27,006)	\$ (19,632)	\$ (12,259)	\$ 12,917	\$ 19,038	\$ 20,343
Totals	\$ (600,310)	\$ (514,862)	\$ (429,413)	\$ (343,964)	\$ (258,515)	\$ 33,228	\$ 104,166	\$ 119,289

Appendix D: XYZ Corporation Formula 1 - Company Share of Bonus Pool Comparison

	Base	5%	10%	15%	20%	37%	41%	42%
January	\$ (39,260)	\$ (35,050)	\$ (30,841)	\$ (26,631)	\$ (22,422)	\$ (8,050)	\$ (4,555)	\$ (3,810)
February	\$ (37,395)	\$ (32,789)	\$ (28,183)	\$ (23,577)	\$ (18,971)	\$ (3,244)	\$ 290	\$ 697
March	\$ (52,886)	\$ (46,865)	\$ (40,844)	\$ (34,822)	\$ (28,801)	\$ (8,243)	\$ (3,244)	\$ (2,178)
April	\$ (39,804)	\$ (34,209)	\$ (28,613)	\$ (23,018)	\$ (17,423)	\$ 840	\$ 3,163	\$ 3,658
May	\$ (33,388)	\$ (27,466)	\$ (21,544)	\$ (15,623)	\$ (9,701)	\$ 5,258	\$ 7,716	\$ 8,240
June	\$ (44,652)	\$ (37,090)	\$ (29,528)	\$ (21,965)	\$ (14,403)	\$ 5,708	\$ 8,847	\$ 9,517
July	\$ (56,331)	\$ (48,057)	\$ (39,783)	\$ (31,510)	\$ (23,236)	\$ 2,506	\$ 5,941	\$ 6,673
August	\$ (59,743)	\$ (48,737)	\$ (37,732)	\$ (26,726)	\$ (15,721)	\$ 10,927	\$ 15,496	\$ 16,469
September	\$ (70,817)	\$ (61,362)	\$ (51,907)	\$ (42,452)	\$ (32,997)	\$ (715)	\$ 3,567	\$ 4,404
October	\$ (58,663)	\$ (50,338)	\$ (42,014)	\$ (33,689)	\$ (25,364)	\$ 1,529	\$ 4,985	\$ 5,722
November	\$ (65,619)	\$ (58,519)	\$ (51,418)	\$ (44,318)	\$ (37,218)	\$ (12,976)	\$ (7,081)	\$ (5,825)
December	\$ (41,753)	\$ (34,379)	\$ (27,006)	\$ (19,632)	\$ (12,259)	\$ 6,458	\$ 9,519	\$ 10,172
Totals	\$ (600,310)	\$ (514,862)	\$ (429,413)	\$ (343,964)	\$ (258,515)	\$ 0	\$ 44,642	\$ 53,738

Appendix E: XYZ Corporation Formula 1 - Employee Share of Bonus Pool Comparison

	Base	5%	10%	15%	20%	37%	41%	42%
January	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
February	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 290	\$ 697
March	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
April	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 840	\$ 3,163	\$ 3,658
May	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,258	\$ 7,716	\$ 8,240
June	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,708	\$ 8,847	\$ 9,517
July	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,506	\$ 5,941	\$ 6,673
August	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 10,927	\$ 15,496	\$ 16,469
September	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,567	\$ 4,404
October	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,529	\$ 4,985	\$ 5,722
November	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
December	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,458	\$ 9,519	\$ 10,172
Totals	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 33,228	\$ 59,523	\$ 65,551

Appendix F: XYZ Corporation Formula 1- Holdback for Deficit Months Comparison

	Base	5%	10%	15%	20%	37%	41%	42%
January	\$ (39,260)	\$ (35,050)	\$ (30,841)	\$ (26,631)	\$ (22,422)	\$ (8,050)	\$ (4,555)	\$ (3,810)
February	\$ (37,395)	\$ (32,789)	\$ (28,183)	\$ (23,577)	\$ (18,971)	\$ (3,244)	\$ 72	\$ 174
March	\$ (52,886)	\$ (46,865)	\$ (40,844)	\$ (34,822)	\$ (28,801)	\$ (8,243)	\$ (3,244)	\$ (2,178)
April	\$ (39,804)	\$ (34,209)	\$ (28,613)	\$ (23,018)	\$ (17,423)	\$ 210	\$ 791	\$ 914
May	\$ (33,388)	\$ (27,466)	\$ (21,544)	\$ (15,623)	\$ (9,701)	\$ 1,315	\$ 1,929	\$ 2,060
June	\$ (44,652)	\$ (37,090)	\$ (29,528)	\$ (21,965)	\$ (14,403)	\$ 1,427	\$ 2,212	\$ 2,379
July	\$ (56,331)	\$ (48,057)	\$ (39,783)	\$ (31,510)	\$ (23,236)	\$ 627	\$ 1,485	\$ 1,668
August	\$ (59,743)	\$ (48,737)	\$ (37,732)	\$ (26,726)	\$ (15,721)	\$ 2,732	\$ 3,874	\$ 4,117
September	\$ (70,817)	\$ (61,362)	\$ (51,907)	\$ (42,452)	\$ (32,997)	\$ (715)	\$ 892	\$ 1,101
October	\$ (58,663)	\$ (50,338)	\$ (42,014)	\$ (33,689)	\$ (25,364)	\$ 382	\$ 1,246	\$ 1,430
November	\$ (65,619)	\$ (58,519)	\$ (51,418)	\$ (44,318)	\$ (37,218)	\$ (12,976)	\$ (7,081)	\$ (5,825)
December	\$ (41,753)	\$ (34,379)	\$ (27,006)	\$ (19,632)	\$ (12,259)	\$ 1,615	\$ 2,380	\$ 2,543
Totals	\$ (600,310)	\$ (514,862)	\$ (429,413)	\$ (343,964)	\$ (258,515)	\$ (24,921)	\$ 0	\$ 4,574

Appendix G: XYZ Corporation Formula 1- Available for Immediate Distribution Comparison

	Base	5%	10%	15%	20%	37%	41%	42%
January	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
February	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 217	\$ 523
March	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
April	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 630	\$ 2,372	\$ 2,743
May	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,944	\$ 5,787	\$ 6,180
June	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,281	\$ 6,635	\$ 7,137
July	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,880	\$ 4,456	\$ 5,005
August	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 8,195	\$ 11,622	\$ 12,352
September	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,675	\$ 3,303
October	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,147	\$ 3,739	\$ 4,291
November	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
December	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,844	\$ 7,139	\$ 7,629
Totals	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 24,921	\$ 44,642	\$ 49,163

Appendix H: XYZ Corporation Formula 1 - Bonus Percentage Available Comparison

	Base	5%	10%	15%	20%	37%	41%	42%
January	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
February	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.6%
March	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
April	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	2.1%	2.5%
May	0.0%	0.0%	0.0%	0.0%	0.0%	3.3%	4.9%	5.2%
June	0.0%	0.0%	0.0%	0.0%	0.0%	3.2%	4.9%	5.3%
July	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%	3.3%	3.7%
August	0.0%	0.0%	0.0%	0.0%	0.0%	4.7%	6.7%	7.1%
September	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.1%	2.6%
October	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	3.1%	3.5%
November	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
December	0.0%	0.0%	0.0%	0.0%	0.0%	3.9%	5.8%	6.2%
Average	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.4%	0.5%

Appendix I: XYZ Corporation Formula 1- Bonus Percentage Paid Comparison

	Base	5%	10%	15%	20%	37%	41%	42%
January	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
February	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
March	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
April	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
May	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
June	0.0%	0.0%	0.0%	0.0%	0.0%	3.2%	4.9%	5.3%
July	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%	3.3%	3.7%
August	0.0%	0.0%	0.0%	0.0%	0.0%	4.7%	6.7%	7.1%
September	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.1%	2.6%
October	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
November	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
December	0.0%	0.0%	0.0%	0.0%	0.0%	3.9%	5.8%	6.2%
Average	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.3%	0.3%

Appendix J: XYZ Corporation Formula 1 - Dollar Value of Bonus Comparison

	Base	5%	10%	15%	20%	37%	41%	42%
January	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
February	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
March	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
April	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
May	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
June	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,281	\$ 6,635	\$ 7,137
July	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,880	\$ 4,456	\$ 5,005
August	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 8,195	\$ 11,622	\$ 12,352
September	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,675	\$ 3,303
October	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
November	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
December	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,844	\$ 7,139	\$ 7,629
Holdback	\$ (600,310)	\$ (514,862)	\$ (429,413)	\$ (343,964)	\$ (258,515)	\$ (24,921)	\$ 0	\$ 4,574
Average/Emp	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 240	\$ 407	\$ 500

Appendix K: XYZ Corporation Test Formula 2- Bonus Pool Comparison

	Base	5%	10%	15%	20%	3%	11%	-1%
January	\$ (7,616)	\$ (1,489)	\$ 4,637	\$ 10,764	\$ 16,891	\$ (4,167)	\$ 5,900	\$ (9,109)
February	\$ (33,162)	\$ (24,437)	\$ (15,712)	\$ (6,987)	\$ 1,738	\$ (28,250)	\$ (13,914)	\$ (35,289)
March	\$ (44,920)	\$ (34,195)	\$ (23,470)	\$ (12,745)	\$ (2,020)	\$ (38,882)	\$ (21,260)	\$ (47,535)
April	\$ (20,383)	\$ (10,735)	\$ (1,088)	\$ 8,560	\$ 18,207	\$ (14,951)	\$ 901	\$ (22,734)
May	\$ 6,672	\$ 17,541	\$ 28,409	\$ 39,277	\$ 50,146	\$ 12,791	\$ 30,649	\$ 4,023
June	\$ 16,063	\$ 28,834	\$ 41,605	\$ 54,376	\$ 67,147	\$ 23,253	\$ 44,237	\$ 12,951
July	\$ 4,208	\$ 17,642	\$ 31,075	\$ 44,509	\$ 57,943	\$ 11,771	\$ 33,844	\$ 934
August	\$ 75,168	\$ 92,325	\$ 109,481	\$ 126,638	\$ 143,794	\$ 84,827	\$ 113,017	\$ 70,987
September	\$ 22,555	\$ 36,940	\$ 51,324	\$ 65,709	\$ 80,094	\$ 30,653	\$ 54,289	\$ 19,049
October	\$ 18,123	\$ 31,231	\$ 44,339	\$ 57,446	\$ 70,554	\$ 25,502	\$ 47,040	\$ 14,928
November	\$ (40,747)	\$ (29,041)	\$ (17,335)	\$ (5,629)	\$ 6,077	\$ (34,157)	\$ (14,922)	\$ (43,600)
December	\$ 45,548	\$ 57,035	\$ 68,523	\$ 80,011	\$ 91,499	\$ 52,015	\$ 70,891	\$ 42,747
Totals	\$ 41,508	\$ 181,649	\$ 321,789	\$ 461,930	\$ 602,071	\$ 120,407	\$ 350,673	\$ 7,351

Appendix L: XYZ Corporation Formula 2- Company Share of Bonus Pool Comparison

	Base	5%	10%	15%	20%	3%	11%	-1%
January	\$ (7,616)	\$ (1,489)	\$ 2,319	\$ 5,382	\$ 8,445	\$ (4,167)	\$ 2,950	\$ (9,109)
February	\$ (33,162)	\$ (24,437)	\$ (15,712)	\$ (6,987)	\$ 869	\$ (28,250)	\$ (13,914)	\$ (35,289)
March	\$ (44,920)	\$ (34,195)	\$ (23,470)	\$ (12,745)	\$ (2,020)	\$ (38,882)	\$ (21,260)	\$ (47,535)
April	\$ (20,383)	\$ (10,735)	\$ (1,088)	\$ 4,280	\$ 9,104	\$ (14,951)	\$ 450	\$ (22,734)
May	\$ 3,336	\$ 8,770	\$ 14,204	\$ 19,639	\$ 25,073	\$ 6,396	\$ 15,324	\$ 2,012
June	\$ 8,032	\$ 14,417	\$ 20,803	\$ 27,188	\$ 33,574	\$ 11,627	\$ 22,119	\$ 6,475
July	\$ 2,104	\$ 8,821	\$ 15,538	\$ 22,255	\$ 28,971	\$ 5,886	\$ 16,922	\$ 467
August	\$ 37,584	\$ 46,162	\$ 54,741	\$ 63,319	\$ 71,897	\$ 42,414	\$ 56,509	\$ 35,493
September	\$ 11,277	\$ 18,470	\$ 25,662	\$ 32,855	\$ 40,047	\$ 15,327	\$ 27,145	\$ 9,524
October	\$ 9,061	\$ 15,615	\$ 22,169	\$ 28,723	\$ 35,277	\$ 12,751	\$ 23,520	\$ 7,464
November	\$ (40,747)	\$ (29,041)	\$ (17,335)	\$ (5,629)	\$ 3,039	\$ (34,157)	\$ (14,922)	\$ (43,600)
December	\$ 22,774	\$ 28,518	\$ 34,262	\$ 40,006	\$ 45,750	\$ 26,008	\$ 35,446	\$ 21,374
Totals	\$ (52,660)	\$ 40,875	\$ 132,092	\$ 218,284	\$ 300,025	\$ (0)	\$ 150,288	\$ (75,458)

Appendix M: XYZ Corporation Formula 2- Employee Share of Bonus Pool Comparison

	Base	5%	10%	15%	20%	3%	11%	-1%
January	\$ -	\$ -	\$ 2,319	\$ 5,382	\$ 8,445	\$ -	\$ 2,950	\$ -
February	\$ -	\$ -	\$ -	\$ -	\$ 869	\$ -	\$ -	\$ -
March	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
April	\$ -	\$ -	\$ -	\$ 4,280	\$ 9,104	\$ -	\$ 450	\$ -
May	\$ 3,336	\$ 8,770	\$ 14,204	\$ 19,639	\$ 25,073	\$ 6,396	\$ 15,324	\$ 2,012
June	\$ 8,032	\$ 14,417	\$ 20,803	\$ 27,188	\$ 33,574	\$ 11,627	\$ 22,119	\$ 6,475
July	\$ 2,104	\$ 8,821	\$ 15,538	\$ 22,255	\$ 28,971	\$ 5,886	\$ 16,922	\$ 467
August	\$ 37,584	\$ 46,162	\$ 54,741	\$ 63,319	\$ 71,897	\$ 42,414	\$ 56,509	\$ 35,493
September	\$ 11,277	\$ 18,470	\$ 25,662	\$ 32,855	\$ 40,047	\$ 15,327	\$ 27,145	\$ 9,524
October	\$ 9,061	\$ 15,615	\$ 22,169	\$ 28,723	\$ 35,277	\$ 12,751	\$ 23,520	\$ 7,464
November	\$ -	\$ -	\$ -	\$ -	\$ 3,039	\$ -	\$ -	\$ -
December	\$ 22,774	\$ 28,518	\$ 34,262	\$ 40,006	\$ 45,750	\$ 26,008	\$ 35,446	\$ 21,374
Totals	\$ 94,168	\$ 140,773	\$ 189,697	\$ 243,646	\$ 302,045	\$ 120,407	\$ 200,385	\$ 82,809

Appendix N: XYZ Corporation Formula 2- Holdback for Deficit Months Comparison

	Base	5%	10%	15%	20%	3%	11%	-1%
January	\$ (7,616)	\$ (1,489)	\$ 580	\$ 1,345	\$ 2,111	\$ (4,167)	\$ 738	\$ (9,109)
February	\$ (33,162)	\$ (24,437)	\$ (15,712)	\$ (6,987)	\$ 217	\$ (28,250)	\$ (13,914)	\$ (35,289)
March	\$ (44,920)	\$ (34,195)	\$ (23,470)	\$ (12,745)	\$ (2,020)	\$ (38,882)	\$ (21,260)	\$ (47,535)
April	\$ (20,383)	\$ (10,735)	\$ (1,088)	\$ 1,070	\$ 2,276	\$ (14,951)	\$ 113	\$ (22,734)
May	\$ 834	\$ 2,193	\$ 3,551	\$ 4,910	\$ 6,268	\$ 1,599	\$ 3,831	\$ 503
June	\$ 2,008	\$ 3,604	\$ 5,201	\$ 6,797	\$ 8,393	\$ 2,907	\$ 5,530	\$ 1,619
July	\$ 526	\$ 2,205	\$ 3,884	\$ 5,564	\$ 7,243	\$ 1,471	\$ 4,231	\$ 117
August	\$ 9,396	\$ 11,541	\$ 13,685	\$ 15,830	\$ 17,974	\$ 10,603	\$ 14,127	\$ 8,873
September	\$ 2,819	\$ 4,617	\$ 6,416	\$ 8,214	\$ 10,012	\$ 3,832	\$ 6,786	\$ 2,381
October	\$ 2,265	\$ 3,904	\$ 5,542	\$ 7,181	\$ 8,819	\$ 3,188	\$ 5,880	\$ 1,866
November	\$ (40,747)	\$ (29,041)	\$ (17,335)	\$ (5,629)	\$ 760	\$ (34,157)	\$ (14,922)	\$ (43,600)
December	\$ 5,693	\$ 7,129	\$ 8,565	\$ 10,001	\$ 11,437	\$ 6,502	\$ 8,861	\$ 5,343
Totals	\$ (123,286)	\$ (64,705)	\$ (10,181)	\$ 35,550	\$ 73,491	\$ (90,305)	\$ 0	\$ (137,565)

Appendix O: XYZ Corporation Formula 2- Available for Immediate Distribution Comparison

	Base	5%	10%	15%	20%	3%	11%	-1%
January	\$ -	\$ -	\$ 1,739	\$ 4,036	\$ 6,334	\$ -	\$ 2,213	\$ -
February	\$ -	\$ -	\$ -	\$ -	\$ 652	\$ -	\$ -	\$ -
March	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
April	\$ -	\$ -	\$ -	\$ 3,210	\$ 6,828	\$ -	\$ 338	\$ -
May	\$ 2,502	\$ 6,578	\$ 10,653	\$ 14,729	\$ 18,805	\$ 4,797	\$ 11,493	\$ 1,509
June	\$ 6,024	\$ 10,813	\$ 15,602	\$ 20,391	\$ 25,180	\$ 8,720	\$ 16,589	\$ 4,856
July	\$ 1,578	\$ 6,616	\$ 11,653	\$ 16,691	\$ 21,729	\$ 4,414	\$ 12,692	\$ 350
August	\$ 28,188	\$ 34,622	\$ 41,055	\$ 47,489	\$ 53,923	\$ 31,810	\$ 42,381	\$ 26,620
September	\$ 8,458	\$ 13,852	\$ 19,247	\$ 24,641	\$ 30,035	\$ 11,495	\$ 20,358	\$ 7,143
October	\$ 6,796	\$ 11,712	\$ 16,627	\$ 21,542	\$ 26,458	\$ 9,563	\$ 17,640	\$ 5,598
November	\$ -	\$ -	\$ -	\$ -	\$ 2,279	\$ -	\$ -	\$ -
December	\$ 17,080	\$ 21,388	\$ 25,696	\$ 30,004	\$ 34,312	\$ 19,506	\$ 26,584	\$ 16,030
Totals	\$ 70,626	\$ 105,580	\$ 142,273	\$ 182,734	\$ 226,534	\$ 90,305	\$ 150,288	\$ 62,107

Appendix P: XYZ Corporation Formula 2- Bonus Percentage Available Comparison

	Base	5%	10%	15%	20%	3%	11%	-1%
January	0.0%	0.0%	1.4%	3.3%	5.2%	0.0%	1.8%	0.0%
February	0.0%	0.0%	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%
March	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
April	0.0%	0.0%	0.0%	1.7%	3.5%	0.0%	0.2%	0.0%
May	1.2%	3.0%	4.9%	6.8%	8.7%	2.2%	5.3%	0.7%
June	2.5%	4.5%	6.5%	8.6%	10.6%	3.7%	7.0%	2.0%
July	0.7%	2.8%	4.9%	7.0%	9.0%	1.8%	5.3%	0.1%
August	9.5%	11.7%	13.8%	16.0%	18.1%	10.7%	14.3%	9.0%
September	3.8%	6.2%	8.5%	10.9%	13.3%	5.1%	9.0%	3.2%
October	3.1%	5.4%	7.6%	9.9%	12.1%	4.4%	8.1%	2.6%
November	0.0%	0.0%	0.0%	0.0%	1.1%	0.0%	0.0%	0.0%
December	8.3%	10.4%	12.5%	14.6%	16.7%	9.5%	12.9%	7.8%
Average	0.3%	0.4%	0.5%	0.7%	0.9%	0.3%	0.6%	0.2%

Appendix Q: XYZ Corporation Formula 2- Bonus Percentage Paid Comparison

	Base	5%	10%	15%	20%	3%	11%	-1%
January	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
February	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
March	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
April	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
May	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
June	2.5%	4.5%	6.5%	8.6%	10.6%	3.7%	7.0%	2.0%
July	0.7%	2.8%	4.9%	7.0%	9.0%	1.8%	5.3%	0.1%
August	9.5%	11.7%	13.8%	16.0%	18.1%	10.7%	14.3%	9.0%
September	3.8%	6.2%	8.5%	10.9%	13.3%	5.1%	9.0%	3.2%
October	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
November	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
December	8.3%	10.4%	12.5%	14.6%	16.7%	9.5%	12.9%	7.8%
Average	0.2%	0.3%	0.4%	0.5%	0.6%	0.3%	0.4%	0.2%

Appendix R: XYZ Corporation Formula 2- Dollar Value of Bonus Comparison

	Base	5%	10%	15%	20%	3%	11%	-1%
January	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
February	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
March	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
April	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
May	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
June	\$ 6,024	\$ 10,813	\$ 15,602	\$ 20,391	\$ 25,180	\$ 8,720	\$ 16,589	\$ 4,856
July	\$ 1,578	\$ 6,616	\$ 11,653	\$ 16,691	\$ 21,729	\$ 4,414	\$ 12,692	\$ 350
August	\$ 28,188	\$ 34,622	\$ 41,055	\$ 47,489	\$ 53,923	\$ 31,810	\$ 42,381	\$ 26,620
September	\$ 8,458	\$ 13,852	\$ 19,247	\$ 24,641	\$ 30,035	\$ 11,495	\$ 20,358	\$ 7,143
October	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
November	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
December	\$ 17,080	\$ 21,388	\$ 25,696	\$ 30,004	\$ 34,312	\$ 19,506	\$ 26,584	\$ 16,030
Holdback	\$ (123,286)	\$ (64,705)	\$ (10,181)	\$ 35,550	\$ 73,491	\$ (90,305)	\$ 0	\$ (137,565)
Average/Emp	\$ 558	\$ 794	\$ 1,030	\$ 1,589	\$ 2,170	\$ 690	\$ 1,078	\$ 500

Appendix S: Executive Summary

The purpose of the study was to research various gainsharing plans and formulas through literature review, define the characteristics of a successful gainsharing program, provide an implementation procedure, and develop and test a gainsharing formula specifically for XYZ Corporation. Gainsharing plans are team-based reward programs that benefit the employees and the organization by sharing in any gains that are achieved by the employees. A Theory Y management style generally works best when implementing a gainsharing program as this philosophy is based on actively seeking employee ideas, developing work teams, teamwork, and employee involvement. Employees must come to understand how their work is part of a team and how they are able to contribute to the organization. According to Boyett & Boyett (2004), a company can see an average of 17.3% gains in quality and productivity improvements per year after implementing gainsharing. Along with the quality and productivity improvements, other benefits include improved morale and job satisfaction along with a reduction in turnover and absenteeism.

Upon researching various types of gainsharing formulas and selecting an available measure at XYZ Corporation that the employees could affect/control, acted as a driver towards strategic objectives, and was able to be measured financially, two formulas were developed and tested. Both formulas focused on allowed payroll costs versus actual payroll costs for a monthly time period. The first formula (see Table 5) used standards available at XYZ Corporation, while the second formula (see Table 6) utilized historical data from 2005 to calculate a ratio of actual payroll costs to sales value of production. This ratio was then used to calculate an allowed payroll cost based on the value of

production for the month. Each formula was tested using base information from 2005 and improvements in actual payroll costs of 5%, 10%, 15%, and 20%. Next the formulas were tested to determine the percentage of improvement required for the company to break even on their bonus pool account, the break even point for the holdback for deficit months' account, and the percentage of improvement required for each participating employee to receive a \$500 bonus for the year.

When testing the first formula utilizing company standards to determine the allowed payroll costs, the employees did not receive a bonus even when showing a 20% reduction in actual payroll costs (see Table 7). From the 2005 base information, actual payroll costs were \$600,000 more than the allowed payroll costs. With a 20% reduction in actual payroll costs this was reduced to a \$258,000 variance. At a 37% improvement the employees received \$240 in bonuses for the year and the company share of the bonus pool reached the break even point. It was not until the employees reached a 42% improvement that they achieved a \$500 bonus for the year.

Under the second formula in which a calculated ratio was used, the employees received \$560 in bonuses for the year when using the base information (see Table 8). The company, however, still showed a negative variance of \$175,000 for the year in the company share of bonus pool and holdback for deficit months' accounts. At 15% improvement the employees received nearly \$1600 dollars for the year and the company showed a positive variance of approximately \$253,000 in the company share of bonus pool and holdback for deficit months' accounts. The company share of bonus pool account achieved the break-even point at 3% improvement, while the employees still received a \$500 bonus with a 1% reduction in efficiency.

Gainsharing formulas are meant to be a win-win for both the company and the employees, while being easy to understand and calculate, and assisting in directing the employees' attention to any problem areas. Given the above results, the conclusion can be drawn that it would not be appropriate to implement a gainsharing program at this time at XYZ Corporation. Under the first formula, the employees were unable to attain benefits from their efforts until they achieved a 20% improvement. Even at this level of improvement the company would still see a negative variance between actual payroll costs and allowed payroll costs. Two theories can be drawn from this information:

- 1) the standards that are being used to calculate the allowed payroll costs are inaccurate or
- 2) the employees have inherently slowed down throughout the year due to a company philosophy of not laying people off during the slow periods.

Given the above two theories for the lack of accuracy in formula 1, formula 2 is also deemed an unacceptable option. Furthermore, both formulas fail the last criterion of a successful gainsharing formula by limiting the employees' focus solely on allowable payroll costs and not allowing them to focus their attention on other problem areas. In order for a gainsharing plan to be successful at XYZ Corporation either the demand needs to be steadied or the labor pool must be leveled to meet the fluctuating demand. Upon reviewing the results the following recommendations may be taken under consideration:

- XYZ Corporation Test Formula 2 (see Table 6) could be expanded to use the information from the previous three years to develop a more accurate base ratio. Once the base ratio has been developed, a rolling average could be used and recalculated annually.

- XYZ Corporation could assess how supportive their management practices are of the gainsharing philosophy of employee involvement, visible measures, and allowing employees to have an influence on their area.
- XYZ Corporation could begin to practice employee involvement by forming formal committees, teams, and councils.
- Implement Lean Manufacturing techniques for a few years to gain some consistency in the manufacturing processes, achieve some initial benefits by plucking the “low hanging fruit”, and define the appropriate measures that would work towards the strategic objectives of the organization. This would also assist in aligning the management practices and philosophy with gainsharing.
- Define better measurements that would work towards the strategic objectives of the organization and make them visible to the employees. Some measures to consider would include:
 - Throughput time
 - On-time delivery
 - Overall Equipment Efficiency (OEE)
 - Scrap
 - Rework/Cost of Quality>Returns
- Ultimately, possibly with the measures above, use a balanced scorecard method with tiered profit gates. This would prevent the employees from focusing on one measure while the others slipped. A tiered profit gate would pay a portion of the bonus to the employees provided they met certain profit

levels. As the profit level increased, the employees would receive a higher portion of their bonus. This would guarantee the formula was beneficial to the company while the employees made improvements.

- Expand the formula to cover all employees except upper management. A profit sharing system may be beneficial for use with upper management.

This is not an exhaustive list of recommendations or future steps for XYZ Corporation to take under consideration. However, it may provide the beginning steps that XYZ Corporation can take towards implementing the gainsharing philosophy and programs and ultimately realizing the many benefits that are associated with gainsharing.