

THE ACADEMY OF ELECTRICAL CONTRACTING

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Managing for Production

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The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be supported by a valid receipt or invoice. This ensures transparency and allows for easy verification of the data.

In the second section, the author outlines the various methods used to collect and analyze the data. This includes both primary and secondary data collection techniques. The primary data was gathered through direct observation and interviews, while secondary data was obtained from existing reports and databases.

The third section details the statistical analysis performed on the collected data. This involves the use of descriptive statistics to summarize the data and inferential statistics to test hypotheses. The results of these analyses are presented in the following sections.

The fourth section provides a comprehensive overview of the findings. It highlights the key trends and patterns observed in the data. These findings are then discussed in the context of the research objectives and existing literature.

Finally, the document concludes with a series of recommendations based on the research findings. These recommendations are intended to provide practical guidance for stakeholders and to inform future research in the field.

The data shows a clear upward trend in the number of transactions over the period studied. This is consistent with the hypothesis that the market is growing. The analysis also reveals that a significant portion of the transactions are concentrated in a few key areas, which may indicate a high level of specialization or a dominant market player.

The statistical tests conducted confirm the significance of the observed trends. The p-values are well below the conventional threshold, suggesting that the results are not due to chance. This provides strong evidence in support of the research hypotheses.

The findings have several important implications. First, they suggest that the current market structure is sustainable and likely to continue to grow. Second, they highlight the need for continued investment in infrastructure and services to support this growth. Finally, they provide a clear path forward for future research, which should focus on understanding the underlying drivers of the market's expansion.

In conclusion, this study has provided a detailed and thorough analysis of the market under investigation. The results are both statistically significant and practically relevant. It is hoped that these findings will be useful to all those interested in the market and its future development.

MANAGING FOR PRODUCTION

Production is the buzz word in today's industrial world. It is how we measure our successes and amass our profits. But above all, production tells the story of how well our projects are managed.

So, if, in fact, good management equals high production, then we must target the factors that can make the formula work---each and every time-- no matter how large or small the project is.

It is not known if the pyramid builders-- who evidently worried little about labor costs or time-- had construction schedules or production plans. But as production became more and more influenced by that strange blend of economic and political factors, the need for sound project management evolved. The development of the Electrical Industry itself is a good case in point.

In the mid-30s we were emerging from the great depression as a country where small communities generated power during limited hours. Some Rural communities depended solely on kerosene, while the more affluent basked in the glow of Delco generators. The gradual yet systematic changes that started in the Roosevelt administration were the roots of new production techniques. With massive public works projects that saw the development of Boulder Dam and the Tennessee Valley Authority and the momentous impact of the REA, the Electrical Industry relied on a certain kind of production-- production that was shaped by the eagerness of both management and labor to get and hold a job, as

people lined up by the hundreds just hoping for a day's work. By World War II, however, work was plentiful. In fact, contracts were easier to get than the manpower and materials to carry them off. Suddenly competitive pricing was born. Some could not compete, could not change with the times. And production in the Electrical Industry took on yet another dimension. The project manager became a necessary part of every organization that wanted to hold the competitive edge with high production.

Today the best production does not stem from any one ingredient. It is, instead, a network of quality personnel, the proper equipment and a sound plan. And there is no way to cut corners on any of the ingredients and tell a success story in the end.

A January issue of the Wall Street Journal reported a prime example of poor project management, a major auto manufacturer assembling cars in Mexico. In management's opinion labor was so cheap that automation and modern tools were not necessary. Parts were delivered by hand. Cars were pushed down the assembly line manually. Despite costs per hour of less than 10 percent of U.S. costs, the finished product was 30 percent more.

Project Management Concept means total commitment from all levels--top management, project manager and supervisor. And the field people, as well, must be involved to make it work.

With that total commitment, you can focus on the details of good management with the confidence of success. Some of the management techniques are highlighted below.

In most cases, the Project Manager is the key ingredient. So, the

contractor cannot stress enough the qualities and duties a project manager should be able to perform. He needs to be a strong leader, a reliable negotiator, a keen buyer and a sharp business manager. He will have to review estimates, plans and specifications; place purchase orders, prepare schedules and submittal registers and-- last-- work all the necessary hours to see that every detail is complete. Just as there is no substitute for a competent project manager, there is no substitute for knowledge of job procedures. In purchase orders-- make sure all parties understand the order replaces any oral or written agreements. Do not be vague or use misleading terms, such as ship best way or terms usual. Put it in writing-- all the submittal dates, delivery dates and terms and conditions. Should an invoice, then, show different conditions, you can immediately notify the supplier that you will not accept the changes. All this brings me to what I call the paper trail. Today's complex electrical projects need a paper trail. Rarely can you carry a production schedule in your head. Use a formal plan of control. While a good bar chart is an effective tool, especially on small and simple jobs, requiring the same thought and planning as a CPM, the CPM will have something extra. It will enable you to do more with planning and it is a must for complex jobs. Consider the CPM a road map that will tell you every detail of your journey through the project. Properly prepared the CPM will show major material, submittals, receipt dates, activity durations, manpower requirements and much more.

It can be the most important tool the contractor will have if claims are made or litigation ensues.

When the project is a subcontract, make sure the general contractor has allowed enough time for the electrical to be installed without excessive manpower or overtime. If not-- protest-- before the plan becomes formal. In most cases the general's network does not have enough activities to allow the electrical contractor to properly control his work. In this case, the CPM should be expanded for the electrical portion for personal use.

And finally, proper tools and equipment-- they must be available to effectively employ your work force.

Good production does not come automatically. Without good equipment, labor will drive up costs. Without good personnel, new equipment cannot generate profits. Each part of production must work for the whole concept. Sound management does not come cheaply. But, it can come economically when you plan your project each step of the way. Because when you manage for production, you manage for profit.

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The Academy of Electrical Contracting