

ROI ANALYSIS BASED ON SINGLE ORDER

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This Report Presented in Partial Fulfillment of the Requirements for the
Degree of Master of Science in Management Information System.

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DHAKA, BANGLADESH
December 2018

APPROVAL

This Project titled “**ROI ANALYSIS BASED ON SINGLE ORDER**”, submitted by Khondaker Sayed Ahmed (ID:172-17-352) to the Department of Management Information System, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of MIS in Management Information System and approved as to its style and contents. The presentation has been held on **12 December, 2018**.

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I am declare that, this project has been done by me under the supervision of **Md Zahid Hasan, Assistant Professor, Department of CSE**, Daffodil International University.

I also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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ACKNOWLEDGEMENT

First of all, my heartiest thanks and gratefulness to Almighty Allah for His divine blessing that makes us capable to complete this project successfully.

I would like to thanks to our honorable teacher & project supervisor **Md Zahid Hasan, Assistant Professor, Department of CSE**, Daffodil International University for his endless patience, scholarly guidance, continual encouragement, constant and energetic supervision, constructive criticism, valuable advice, reading many inferior draft and correcting them at all stage have made it possible to complete this project.

We would like to express our heartiest gratitude to **Dr. Syed Akhter Hossain**, Head, Department of CSE, for his kind help to finish our project and I am also thankful to all the other faculty and staff members of our department for their co-operation and help.

I must acknowledge with due respect the constant support and patients of my parents.

Finally, I would like to thank our entire course mate in Daffodil International University, who took part in this discuss while completing the course work.

ABSTRACT

This project is on “**ROI ANALYSIS BASED ON SINGLE ORDER**”. We are standing on the edge of technological whirl where 4th industrial revolution is knocking the door. Still the Industrial leaders are not yet to know that how the revolution will reveal, nevertheless it is obvious that the repercussion to it surely mobilized and extensive as well as the involving all stakeholders of the global realm, from the public and private sectors to academia and civil society. Every now and then we are talking about updating our technology, it’s a fact but I think it also equally important to focus on the worker's skill and utilize those effectively. The country like Bangladesh where resources are limited, financial supports are confined, skills are parochial, facilities are tied and we have to go forward with these existence availabilities, that time we should utilize those available facts in a significant way that could make an impact. The workers are playing an immense role in terms of industrial growth, they are the key factors. In this thesis, I will show you how we can utilize their skill data to make some informative dataset and how can you take advantage of that dataset regarding the manufacture section. As per unaccompanied Production Order, we will analyze the whole ROI (Return on investment) factor and as well as the break-even point.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

“ROI ANALYSIS BASED ON SINGLE ORDER” will be an industrial planning part where the planning department can exhibit their team (workers) based on their skill set and with the production order characteristics.

1.2 Objectives

The main objective of this analysis is to proper utilization of workers skill data and make an effective impact of production as well as the profit.

The goals of our system are:

- Consuming Production Time.
- Depreciating Production Cost.
- Proper Utilization of workers Skill Data.
- Improve Production Efficiency.
- KPI Analysis

1.3 Motivation

The main motivation is to make a feasible impact which I learned and experienced from my tiny career. I perceive that in our industrial sector everyone talking about the technology, but very few are thinking about the updating skill of workers or properly utilizing it. Still, now we are using this manpower like old school technique. Not even think about make formation of a team on the basis of their skill. So I thought why not make analysis, and forecasting a result what if it will happen to the production sector by proper exploration of those skill data of workers.

1.4 Report Layout

On this analysis report the very first Chapter comprise with the Introduction, Objectives, Motivation, Expected Outcome and Report layout of this analysis report and then second chapter is on Literature Review on where it contains related works, Scope of the problem and also Challenges of the analysis. The third chapter is on Proposed Methodology which containing the proposed workflow of this analysis when it comes to real life implementation.

Fourth Chapter describes Expected Outcome of this project with some statistical overview. The fifth chapter is all about containing conclusion of the full project and possible future scope and work of it.

CHAPTER 2

Literature Review

2.1 Related Works

There are several sectors where skill data analysis using in a fecund way like sports and in the military sector. They use these analysis to building a better team or destroy the opponents. Skill analysis also conducted in video game like FIFA or any kind of battlefield game. For an example we can have the image [1] bellow,



Figure: 2.1 Ronaldo vs Messi skill Statistics & All Time Records Compared

This the skill statistics analysis from Renowned sports journal called *Total Sparte*. They published an analysis on Ronaldo and Messi based on their skill and as well as their previous activity, performance and achievements. Every now and then skill analysis is being used in Video game, various sports and also in military.

2.2. Scope of the Problems

- Consuming Production Time.
- Pick the right person for the right place of work.
- Proper Team Combinations
- Depreciating Production Cost.
- Proper Utilization of workers Skill Data.
- Improve Production Efficiency.

2.3 Challenges

There are few challenges to implementing these analysis on real field which are-

- Collecting the verified skill data set of workers.
- Team Combinations.
- Priority set of activities.
- Calculating the ROI based on the circumstances.
- Emotional impact of the workers.

CHAPTER 3

Proposed Methodology

3.1 Contexts of This Analysis

- **Organizational Analysis-**

The exploration of the business exigent or diverse motives the training is intended. An analysis of the organization's strategies, goals, and objectives. Organizational analysis should focus on mission and capital resources, job analysis and human resources and organizational environment. [2]

What is the organization, in general, trying to attain? The important questions being answered by this analysis are who decided that training should be conducted, why a training program is seen as the recommended solution to a business problem, what the history of the organization has been with regard to employee training and other management interventions. [3]

- **Person Analysis-** Analysis dealing with potential participants and instructors involved in the process. The important questions being answered by this analysis are who will receive the training and their level of existing knowledge on the subject, what their learning style is, and who will conduct the training. Do the employees have required skills? Are there changes to policies, procedures, software, or equipment that require or necessitate training? [4]

- **Work analysis / Task Analysis-** Analysis of the tasks being performed. This is an analysis of the job and the requirements for performing the work. Also known as a task analysis or job analysis, this analysis seeks to specify the main duties and skill level required. This helps ensure that the training which is developed will include relevant links to the content of the job. [5]

- **Performance Analysis-** Are the employees performing up to the established standard? If performance is below expectations, can training help to improve this performance? Is there a Performance Gap? To achieve repeated success, coaches and athletes must know and understand what they have done to make them successful or unsuccessful and make the right decisions at the right time. However research shows that on average, athletes and coaches can only recall 30% of performance correctly. Performance analysis helps with the remaining

70% by providing the facts of what happened which makes it a vital component for athlete improvement. The EIS Performance Analysis team work closely alongside the coaches and athletes to provide the relevant key performance information that helps objectify the performance. This allows for more evidence based decisions, augments the experiences and knowledge that they have gained and reduces the speculation to enhance their ability to make the right decisions at the right time. [6]

- **Content Analysis-** Analysis of documents, laws, procedures used on the job. This analysis answers questions about what knowledge or information is used on this job. Content analysis is distinguished from other kinds of social science research in that it does not require the collection of data from people. Like documentary research, content analysis is the study of recorded information, or information which has been recorded in texts, media, or physical items. [7] This information comes from manuals, documents, or regulations. It is important that the content of the training does not conflict or contradict job requirements. An experienced worker can assist (as a subject matter expert) in determining the appropriate content.
- **Training Suitability Analysis-** Analysis of whether training is the desired solution. Training is one of several solutions to employment problems. However, it may not always be the best solution. It is important to determine if training will be effective in its usage. [8]
- **Cost-Benefit Analysis-** Analysis of the return on investment (ROI) of training. Effective training results in a return of value to the organization that is greater than the initial investment to produce or administer the training. A cost-benefit analysis is a process businesses use to analyze decisions. The business or analyst sums the benefits of a situation or action and then subtracts the costs associated with taking that action. Some consultants or analysts also build the model to put a dollar value on intangible items, such as the benefits and costs associated with living in a certain town, and most analysts will also factor opportunity cost into such equations. [9]

3.2 Analysis Concepts

For doing this analysis I went to a Garments Sewing units where the lots of workers are assigned in various activities. The management of Garments have Two Individuals departments to look after those workers assignments one is Work-Study and another One is the Production Department.

There are lots of organized sewing line and workers are operated on those lines by specialized machines. Most of the time the Work Study department adorn the workers based on nothing, they don't think about the capability of a workers and sewing line team.

3.3 Working Process

To doing that analysis we do store the workers information's in a database in a specific way. Database storage might be like this figure below,



Name	Salma	Sabina	Khaleda	Sumi	Rumi
ID	705589	705590	705585	755589	705588
Age	24	25	30	20	25
Average Efficiency	55%	52%	65%	70%	63%
Expert On Style	SST,LSD	LSD	TOP,LSD	BTM,LSD	YLSD,LSD
Experience on Buyer	H&M,M&S	PUMA,M&S	HM,M&S	M&S	C&A,M&S
Total Working Hour	5000	7000	10000	6500	4000
Total Production	10000	12000	25000	11000	8000
Unit	JAL-1	JFL-2	JKL-3	FFL2-4	JKL-U-2

Figure: 3.1 Proposed Data Storing Process

In the visualization you can see the verities of specified information of a worker, which are,

- Image- We need each and every workers image.

- Name- Name should be there.
- ID- Employee ID has to be there.
- Average Efficiency- Based on their previous performance the efficiency need to be calculate automatically and need to be archive for further analysis.
- Expert on Style- This shows on which style of garments these workers are so comfortable, skilled and experienced of.
- Experience of Buyer- On which buyer's order the particular workers are works of previously.
- Total Production – The total number of production is done by the individual workers.
- Unit- On which unit the workers are currently working at.

3.4 ROI Calculating Process

As we all know the universal ROI calculation formula is,

$$\text{ROI}\% = \frac{\text{Gain From Investment} - \text{Cost of Investment}}{\text{Cost of Investment}} \times 100$$

Figure: 3.2 ROI calculation formula

We will calculate ROI based on a single order when it comes to the Planning Department. Let's have a look how it might be,

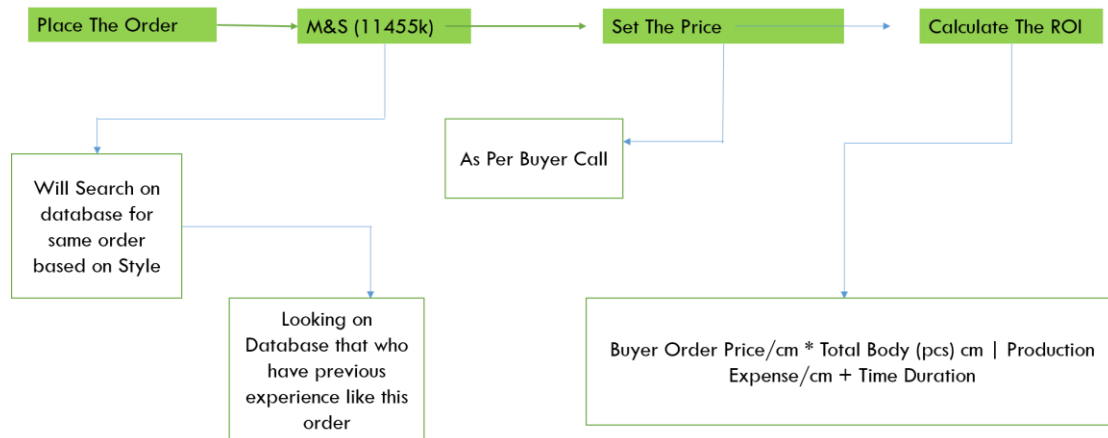


Figure: 3.3 ROI Calculation Process

We can visualize here some process with some components, which are like-

- Place the Order- There will be an option where you can put your Production Order Number which you will get from the buyers.

- M&S(11455k)- This is a sample order number, Our system will make an inquiry in the database that is there any other order as similar as it based on some comparison components, which are
 1. TOP- Which Part of a Garments Body
 2. BTM- Which Part of a Garments Body
 3. SMV (Standard Minute Valuation) – How many time take to sewing it.
 4. LSD- Type Of Garments Body
 5. YLSD- Type Of Garments Body
 6. SST- Type Of Garments Body
 7. GSM- Grams per Square Meter of a Garments.

- Set The Price- After finding the similar order from the database you need to set up the price which you get from the buyers.
- Calculate ROI- The calculation formulated on like this,

$$\text{Buyer Order Price/cm} * \text{Total Body (pcs) cm} | \text{Production Expense/cm} + \text{Time Duration}$$

our per centimeter base buyer price will multiplying by the total pieces of body and it will compare with the total estimated production cost as well the production time valuations.

- The break-even point of your Production- We can also forecasting our break-even point the production by given estimated number of workers as per cost + estimated accessories cost + time valuations cost and that will compare with your gettable price from you buyer.

$$\text{\# of Units To Produce the Desired Profit} = \frac{\text{Desired Profit in Dollars}}{\text{Contribution Margin per Unit}} + \text{Break Even \# of Units}$$

Figure: 3.4 break-even formula

CHAPTER 4

Outcome

The Expected Outcome of this analysis is to proper utilization of workers skill data and make an efficient and effective influence of production as well as the avail. And the others expected payoffs might be Consuming Production Time, Depreciating Production Cost, Proper Utilization of workers Skill Data, Improve Production Efficiency and helping on KPI Analysis.

4.1 For Planning Purpose

Planning division of Garments can make an effective blueprint based on a single order, like the anticipated with a worker team on whose are have experienced to working on those type of order by analyzing the skill dataset from the database.

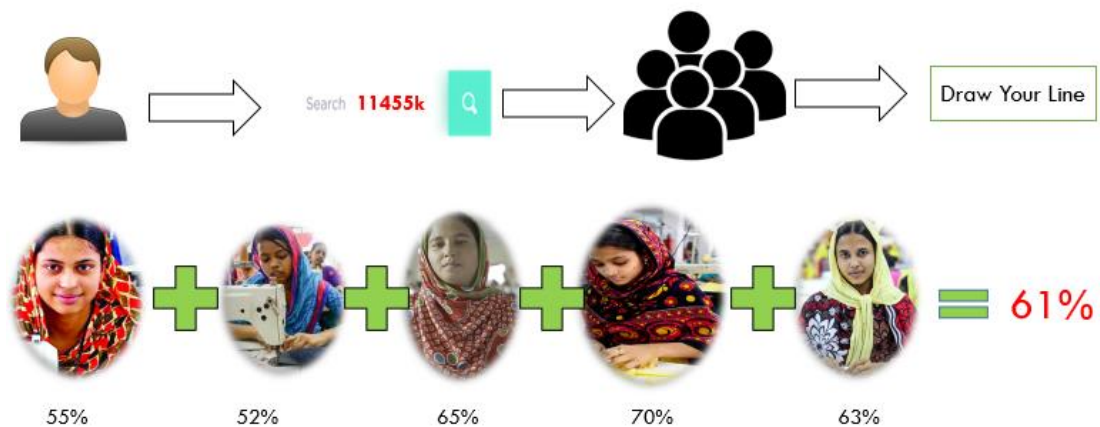


Figure: 4.1 Planning Process

A planner will put the order on the search bar and will get the search result of workers who to have the experience to work with similar order previously and also he will get the individual efficiency of the workers. After getting all that he may draw his sewing line which will pretty much suitable to get the fast Break-Even Point and More ROI facts.

When a planner will set the sewing line on this moment he will get the possible calculated total efficiency value. If the value high then getting the ROI or Break-Even reaching process will be smoother. Total sewing line efficiency always depends on the individual workers efficiency.

4.2 Possible Financial Avail Facts

If your sewing line team is very much efficient and skilled as well as proper team up you will definitely get at least 10s extra from 1 minute on your working time. For the calculation let's consider,

The Possible Extra Getting Time will be = 10s/ 1 min (60s)

Total Working Hour in a day will be= 8hr (4800s)

Total Production by an hour is= 100 pieces

A single garments body price is= 3\$

Now

10s / Min

$$\begin{aligned}
 10s * 60 &= 600s \\
 600s &| 3600s \\
 600s * 8 &= 4800s \\
 4800s &= 1.33hr
 \end{aligned}$$

1 hr = 100 pcs

$$\begin{aligned}
 100 \text{ pcs} * 3\$ &= 300\$ \\
 100 \text{ pcs} * 1.33hr &= 133\text{pcs} \\
 133 \text{ pcs} * 3\$ &= 399\$ \\
 399\$ * 84.75 \text{ BDT} &= \mathbf{33815.25BDT}
 \end{aligned}$$

Figure: 4.2 Possible Financial Avail Facts

That means we will get extra 33815.25BDT or we can save extra 33815.25BDT by using this analysis.

CHAPTER 5

CONCLUSION & FUTURE SCOPE

5.1 Conclusion

Sports Science Says,

Same Work + More Time = Efficiency Will be Increase + Expert Worker on those style = Efficiency Will be Increase 05% More.

On that note, we can assume that if the same workers spend their time on the same type of order then efficiency must be will increase more than previous. We all know we have the limitation of resource and lack of a skilled workforce and number of unsatisfied people workers who are not doing their likable work. Our management couldn't figure it out the actually skilled people in an effective way. This analysis is for them to find the right people to put on the right place to make the production system bit a favorable phase.

5.2 Future Scope

We can spread it this analysis in the education sector as well as the other organization as modifying the theme to analyzing the skill set of data. To have a skillful youth you can also be archiving the national youth dataset of skill and by analyzing those our government might take some valuable decision s for the betterment of our country.

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