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# APPLICATION OF ROBOTIC PROCESS AUTOMATION IN QUEUE SYSTEM OF SHOPPING MALLS IN INDIA

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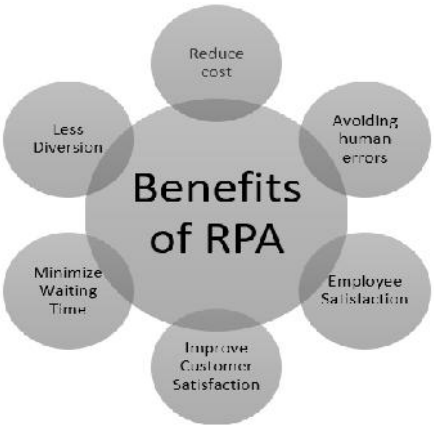
**ABSTRACT**

*Every human being is affected by shopping malls. They visit several shopping malls for their daily requirements either for groceries or home essentials. These users are affected by the queue system applied in the malls. They feel overstressed and Ideal at a point of time after their shopping. The main reason is poor queue system. After buying of the required product they need to wait for their bill generation and payment, therefore, where, they spent approx. 30 minutes for exit. The waiting time in these malls sometime creates stress, dissatisfaction, poor purchasing and diversion towards unorganized sector. Hence, robotic process automation can be applied for better queue management system in shopping malls. In this paper, the applicability of robotic process automation in shopping has been explained. This paper is focusing the impact of robotic process automation and its use in minimizing the queue system in shopping malls. This paper will also suggest the way to deal with queue system in their dealing point.*

***Keywords:*** *Shopping Malls, Queue System, Poor Purchasing, Unorganized Sector, Robotic Process.*

## Introduction

Robotic process automation [RPA] is the technology of computer software's that allows human being to expend their business with information technology. It is a process which imitate and assimilate the actions of a human interacting within digital systems to perform a business process. The robotic process automation [RPA]software's uses the user interface to collect data and manipulate applications as per the requirements of business just like humans do. They collect, classify, analyse, and report to the management for better control and operations. It can also be said that the business organization's may perform better after implementing robotic process automation [RPA] in their system because software robot never sleeps and makes zero mistakes. The main benefits of Robotic process automation are:

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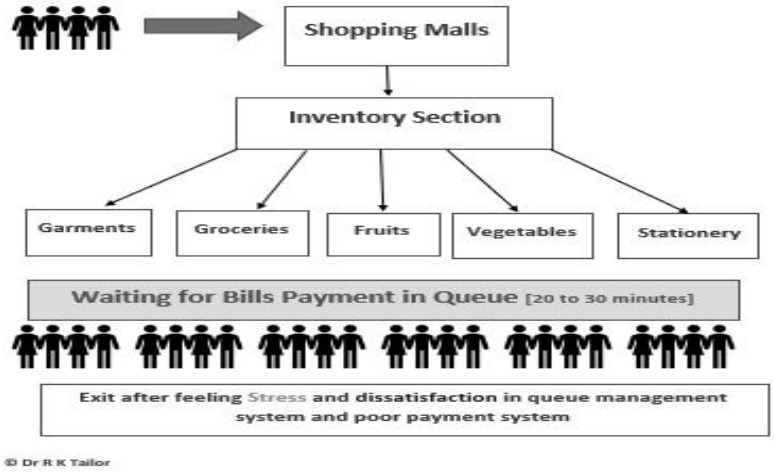
**Application of Robotic Process Automation [RPA] in Shopping Malls**

In shopping malls, robotic process automation [RPA] plays an important role towards inventory management, voucher management, sales analysis, store planning, demand and supply planning, finance and accounting, HR management, customer satisfaction and queue management, where queue management seems to be a major problem in shopping malls to manage their customers. Due to poor queue management system, an organization may lose their present and prospective customers. With the help of robotic process automation [RPA], business organizations can manage and control their queue management system and improve their customer satisfaction for their business growth.

The management of shopping malls must adopt robotic process automation [RPA] in their queue management system for faster queue management system and their bill payments specially. Generally, the customers feel stress and dissatisfy during the queue after purchasing their required items. Due to poor queue management system, they spent atleast 20 to 30 minutes in their billing and exit from the shopping malls. Hence. It is important to improve the queue management system for minimum waiting time of their customers.

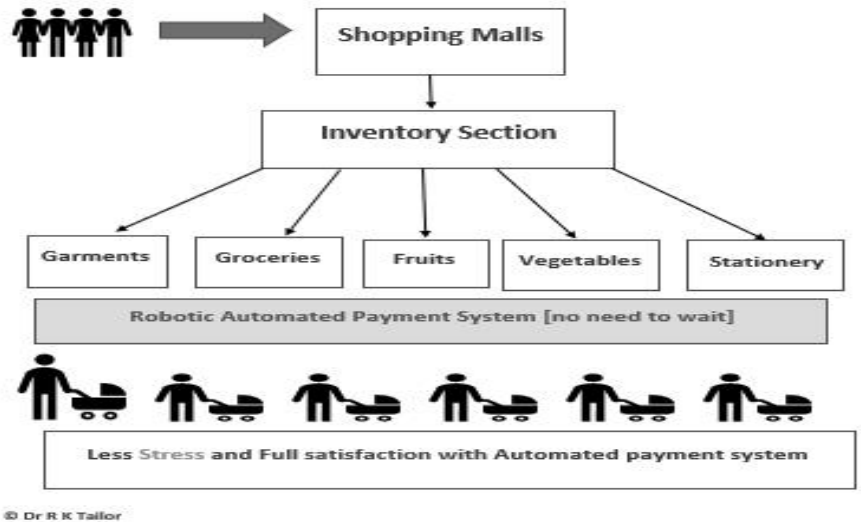
**Queue Management System before adoption of Robotic Process Automation [RPA]**

Following queue management system is followed before robotic process automation [RPA]:




**Queue Management System after Implementation of Robotic Process Automation [RPA]**

Following queue management system will be used after implementing robotic process automation [RPA]:



## Review of Literature

### Objectives

Following are the main objectives of the study:

- To study the awareness about the robotic process automation in shopping malls
- To identify the factors affecting queue management system of shopping malls
- To study the impact of robotic process automation in queue management system of shopping malls

### Hypothesis

Following is the main hypothesis of the study:

**$H_0$:** There is no significant difference between robotic process automation and queue management system in shopping malls

**$H_1$:** There is a significant difference between robotic process automation and queuemanagement system in shopping malls

### Research Methodology

| | | |
|---|---|---|
| Universe of the study | : | Users of shopping malls of Jaipur |
| Sample | : | Metro Cash and Carry and D Mart |
| Sampling technique | : | Random sampling |
| No of respondents | : | 300 respondents |

### Data Analysis and Interpretation

**Table 1: Chi-square (Goodness of Fit) Testing and Interpretations**

| Variables | Chi-square | d.f. | Asymp. Sig. | Decision |
|---|---|---|---|---|
| Existence of Robotic process automation | 295.233 | 4 | 0.00 | **Rejected** |
| Set standards | 222.923 | 4 | 0.00 | **Rejected** |
| Untrained staff | 292.030 | 5 | 0.00 | **Rejected** |
| Poor Payment | 161.585 | 4 | 0.00 | **Rejected** |
| Poor management system | 98.980 | 3 | 0.00 | **Rejected** |
| Change behaviour | 301.585 | 4 | 0.00 | **Rejected** |
| Minimum Buying | 210.415 | 4 | 0.00 | **Rejected** |
| Fresh stock | 90.097 | 3 | 0.00 | **Rejected** |
| Financial benefits | 243.525 | 4 | 0.00 | **Rejected** |
| Quality products | 132.077 | 3 | 0.00 | **Rejected** |
| Healthy competition | 193.492 | 4 | 0.00 | **Rejected** |
| Promotional Offers | 169.645 | 4 | 0.00 | **Rejected** |
| Barriers of promotions | 226.736 | 4 | 0.00 | **Rejected** |
| Untrained Employees | 187.137 | 4 | 0.00 | **Rejected** |
| Mandatory buying | 190.726 | 3 | 0.00 | **Rejected** |
| Performance incentives | 177.104 | 4 | 0.00 | **Rejected** |
| Diversity among staff | 185.331 | 4 | 0.00 | **Rejected** |
| Work pressure | 181.552 | 4 | 0.00 | **Rejected** |
| Conflicts among staff | 206.936 | 4 | 0.00 | **Rejected** |
| External reviewers | 148.876 | 4 | 0.00 | **Rejected** |
| Poor infrastructure | 158.241 | 4 | 0.00 | **Rejected** |

Source: Primary Data

### Inference Drawn

It is clear from the above table that the null hypothesis is rejected as the assumed significance value (P value) of the all the factors of the study is less than 0.05(@ 5% level of significance) i.e., 0.0000 which indicate that there is a significant difference between robotic process automation and queue management system of selected shopping malls.

### Independent t Test

Independent t Test has been performed to compare the opinion of selected respondents of Metro Cash and Carry and D Mart about the queue management system. Hypothesis testing using Independent t test has been carried out to compare the application of robotic process automation in minimizing the queue of shopping malls on the basis of given dimensions of queue management system among users of Metro cash and carry and D mart.

**Table 2: Group Statistics**

| | Shopping Malls | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| **Stress** | Metro Cash and Carry | 150 | 7.95 | 1.81 | .148 |
| | D Mart | 150 | 8.25 | 1.41 | .115 |
| **Satisfaction** | Metro Cash and Carry | 150 | 8.01 | 1.74 | .142 |
| | D Mart | 150 | 8.55 | 1.58 | .1292 |
| **Diversion** | Metro Cash and Carry | 150 | 8.67 | 2.16 | .177 |
| | D Mart | 150 | 8.51 | 1.61 | .132 |

Source: Primary Data

**Inference**

The above table shows the group statistics which describes the mean difference, standard deviation difference and the standard error of the difference. On the basis of the above table, it can be concluded that there is a difference in the mean and standard deviation between robotic process automation and queue management system of selected shopping malls.

**Table 3: Independent Samples Test**

| | | Levene's Test for Equality of Variances | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | F | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | Lower | Upper |
| **Stress** | Equal variances assumed | 1.16 | -1.55 | 298 | .009 | -.294 | .187 | -.663 | .075 |
| | Equal variances not assumed | | -1.55 | 281 | .009 | -.294 | .187 | -.663 | .075 |
| **Satisfaction** | Equal variances assumed | .006 | -2.73 | 298 | .005 | -.542 | .185 | -.921 | -.164 |
| | Equal variances not assumed | | -2.73 | 295 | .005 | -.542 | .185 | -.921 | -.163 |
| **Diversion** | Equal variances assumed | 4.09 | .721 | 298 | .471 | .159 | .220 | -.275 | .594 |
| | Equal variances not assumed | | .721 | 276 | .471 | .1593 | .220 | -.275 | .594 |

Source: Primary Data

**Inference**

An independent t-test was used to compare robotic process automation and queue management system of Metro Cash and Carry and D Mart with respect to selected parameters. The above table shows that the parameter of **stress and satisfaction**have a ***sig. value 0.009 and 0.005 which*** is less than P value 0.05 which shows that null hypothesis is rejected, it means there is no significant difference between the robotic process automation and queue management system in selected shopping malls. While, the parameter ***diversion*** has a ***sig. value 0.71***which is more than 0.05 indicates that null hypothesis is accepted, it means there is a significant difference between the robotic process automation and queue management system in selected shopping malls.

**Conclusion**

It is, therefore, concluded that the customers of shopping malls are facing stress and dissatisfaction due to poor queue management system, if robotic process automation can be adopted by the shopping malls then the waiting time of their customers can be minimized. The management of shopping malls must implement robotic process automation in their payment system so that they may reduce the queuing time and increase satisfaction among their customers.

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