Study And Familiarization Of Implementation Process of ISO And ERP For Product Quality Assurance And Efficient Production In Bangladeshi Industries

(Case study: Rangs Workshop limited, Tejgaon)
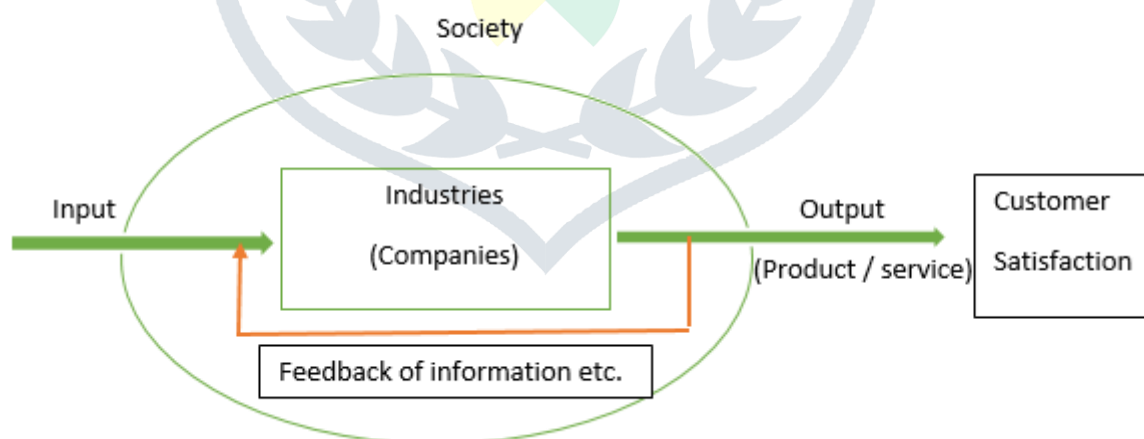
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Abstract- **The purpose of this project and thesis is to study and familiarization of implementation process of ISO and ERP for product quality assurance and efficient production in Bangladeshi industries. To cope up with the increasing competition of business around the world and to provide the people a better experience with good quality product and service our local industries needs to implement international standards and advanced technological methods to confirm ultimately the quality assurance of the satisfaction of customers. We worked at RANGS workshop limited, a leading automobile suppliers in Bangladesh. They have gained ISO 9001:2008 certificate in year 2011 and also they implemented Enterprise Resource Planning (ERP) in 2013.**
We studied all related documents of Rangs Workshop Ltd (RWL), discussed the problems during implementation phase of ISO and ERP. We observed the all steps to implement ISO. We also reviewed and analysis the most important steps in ISO implementation that is the audit section. We also visited some other industries and institute who have implemented ISO recently to get a more clear conception. We have worked for ERP also. ERP is a highly complex software based system. We have learned the basics of the overall software and the maintenance of the whole system and the buying procedure. We have gone through the detail process, necessary management commitment and required skill for the effectiveness of the overall work. We think all of our experiences and learnings will be helpful in implementation of ISO and ERP in local industries.

Index Terms— **International Organization for Standardization (ISO), Enterprise Resource Planning (ERP), Rangs Workshop Ltd (RWL)**

Introduction (Heading 1)

Figure1: Input/output model

To satisfy the customer with the best quality product or service has become the most important means for the organization to be on the racing track with the increasing competition throughout the world. We are living in the age of globalization and the customer are so much aware while buying products or receiving service from any organization. So it has become a duty for the companies to ensure the quality and to improve them continually. Because quality has no finish line just like 100 meter sprint. The companies will seek to provide better quality or service and the customer will come to get them.
To ensure the quality International Organization for Standardization (ISO) has developed standards called ISO 9000 that is for Quality Management. This standards make sure that your products and services meet customers' needs. Basically ISO is a voluntary organization who develops standards. ISO International Standards ensure that products and services are safe, reliable and of good quality. For business, they are strategic tools that reduce costs by minimizing waste and errors and increasing productivity.

They help companies to access new markets, level the playing field for developing countries and facilitate free and fair global trade.

On the other hand Enterprise Resource Planning (ERP) collects, manages and distributes information across functional boundaries and helps break down information "silos"—those barriers that stand in the way of full cooperation between production, materials, planning, engineering, finance and sales/marketing. The resulting higher quality, reduced time-to-market, shortened lead times, higher productivity and lowered costs can help improve customer service and increase sales and market share as well as margins. Measurements, analysis and simulation capabilities can help companies plan better and react sooner and more effectively to changes in demand, competitive actions, and supply chain disruptions. Modern ERP systems are built for the internet-enabled world with e-commerce capabilities and provision for integration and collaboration with supply chain partners, customer portals, and enhanced tracking of incoming material and outgoing product to extend the visibility and control.

We believe that implementation of ISO and ERP for quality assurance can change the overall scenario in our local business. It will also help to break down the barrier of global business.   We have divided our work into two semester. In 4th year 1st semester we finished the ISO part and last semester we have finished the ERP part. Those two part of our thesis work have some defined objective and methodology.

II.ISO

- Studied about total quality assurance of product and resource planning **in RANGS Workshop Limited** and **Polar Ice Cream BD**
- Studied books related to ISO implementation of different authors[1,2]
- Studied the basics of ISO
- Studied the procedure of implementing of ISO
- Visited industries which has implemented ISO recently
- Collected general ideas through internet

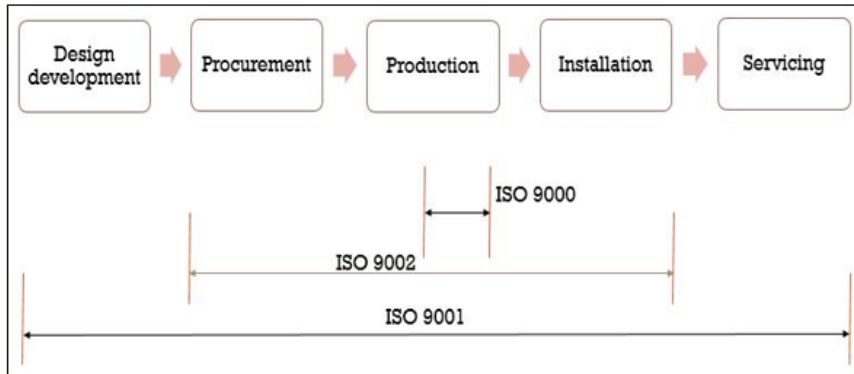### III. HOW DOES ISO DEVELOP STANDARDS?

An ISO standard is developed by a panel of experts, within a technical committee. Once the need for a standard has been established, these experts meet to discuss and negotiate a draft standard. As soon as a draft has been developed it is shared with ISO's members who are asked to comment and vote on it. If a consensus is reached the draft becomes an ISO standard, if not it goes back to the technical committee for further edits. [6]

Figure 2: Standard development process

IV. Application in production flow

ISO 9000 series of standards has variety of application in a production process. A flow chart is given below:

Figure 3: Application of ISO 9000 series in production process

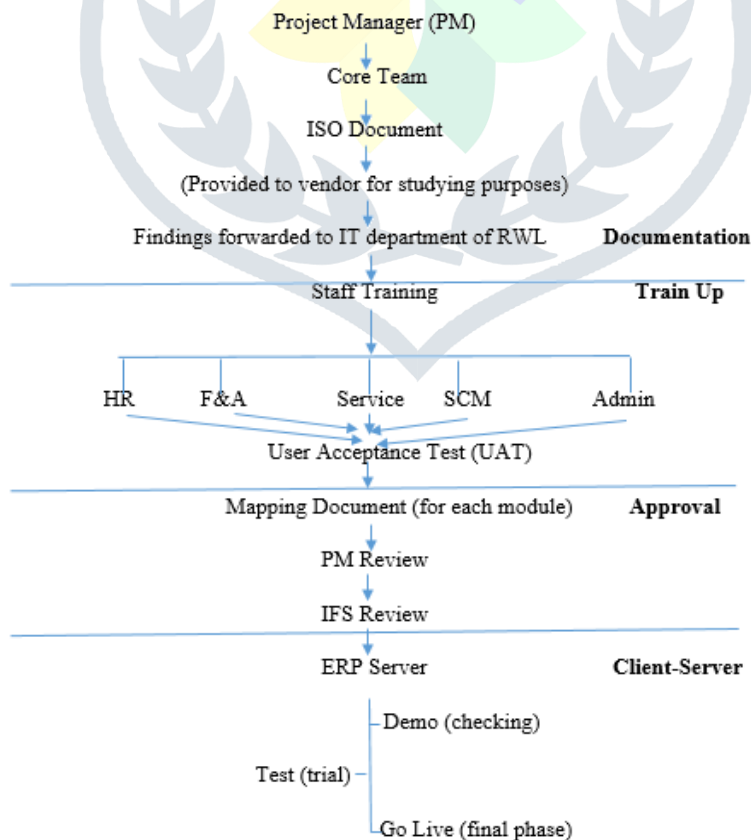## V. Implementation procedure of ISO 9001:2008 at Rangs Workshop Limited (RWL):

Implementation consists of some organized procedure.
General ISO Certification Process:

   i)   Auditing by the 1st party : The first step of the audit. It was done by RWL itself.
   ii) Auditing by the 2nd party: Usually by any local Consultant/local certified organization. But most of the organization along with RWL avoid this step because of cost and time.
   iii) Auditing by the 3rd party: It is done by the ISO affiliated body. ISO does not certified any organization itself. Their affiliated body certified the organization. RWL got its certification from TÜV SÜD. There are many affiliated bodies like SGS, UKAS etc. While choosing the 3rd party proper research is needed because it involves huge amount of cost and time.

We enlisted some of the documents of RWL during their audit period. This formant is common for others organization too.

VI. ERP Implementation Steps at RWL:

Figure 4: ERP Implementation Steps at RWL

VII. Conclusion

Now-a-days the market of any product has become globalized. For that reason, company has to compete with the companies not only those are inside the country but also others around the world. To sustain in in the market, acquiring customer satisfaction towards the product or service becomes an important one to be considered. ISO 9001:2008 certification is an important tool of quality assurance. If the product is ISO certified, then customer can distinguish that from others. Although now a days, it is sometimes said that, this certificate can also be achieved by unfair means in many places including those in the 3rd world countries. We came to know that, some of the affiliated body of ISO give the certificate in exchange of money without monitoring the standard of the organization. For getting the ISO certificate time, money and foremost the strong willingness of top management is needed. ISO also help a company to motivate the worker by systematic way. With all its merits and demerits, the ISO 9000 approach provides a systematic, documented and an all pervasive linkage through the value chain. It formally and publically commits the management for taking responsibility for this qualitative revitalization thorough a well-defined and inter-active process. Quality today has become a business strategy and ISO 9000 system acts as launching pad for Total Quality Management.

Enterprise resource planning (ERP) is business process management software that allows an organization to use a system of integrated applications to manage the business and automate office functions. ERP software integrates all facets of an operation, including product planning, development, manufacturing processes, sales and marketing. ERP software typically consists of multiple enterprise software modules that are individually purchased, based on what best meets the specific needs and technical capabilities of the organization. Each ERP module is focused on one area of business processes, such as product development or marketing. ERP provides an integrated real-time view of core business processes, using common databases maintained by a database management system. ERP systems track business resources—cash, raw materials, production capacity—and the status of business commitments: orders, purchase orders, and payroll. The applications that make up the system share data across the various departments (manufacturing, purchasing, sales, accounting, etc.) that entered the data. ERP facilitates information flow between all business functions

With the help of strong management support, skilled manpower and sufficient budget; our local industries can implement ISO and ERP to ensure quality and efficient production.

Our project and thesis work was theory based. So there is no calculation. Implementation of ISO and ERP is a very hard work to do. But if the management and the employees believe that they can do then it is possible. Rangs Workshop Limited (RWL) took it as a challenge and they have done very hard work to fulfil the challenge. We observed their sequential processes towards achieving the ISO 9001:2008 and ERP and reviewed their documents. Some format of their document is given in the chapter five.

We are very lucky that we have got chance to do our project and thesis work at RWL. Because those information we got and procedures we learnt, is not possible to know being an outsiders. Using the ERP software in a limited environment was the most exciting experience to us. They are currently using IFS version 8 and hoping to update it with the latest version of 8.5. They are the 1st company in Bangladesh who have got ISO certificate in automobile sector. They are also running ERP successfully. These two things made them an unique organization.

VIII. Reference

[1]   Total Quality Management by Dale 3rd edition
[2]   Quality Control and Management by Hasin
[3]   Enterprise Resource Planning by Alexis Leon 2nd edition
[4]   Enterprise Resource Planning: Concepts and Practice by VINOD KUMAR GARG, N. K. VENKITAKRISHNAN
[5]   http://www.iso.org/iso/home/standards/benefitsofstandards.htm
[6]   http://www.iso.org/iso/home/standards_development.htm
[7]   Quality Assurance and Total Quality Management by K.C. Jain page:46
[8]   http://www.kcg.com.sg/history-iso9000.html
[9]   http://www.transition-support.com/8_QM_Principles.htm
[10] Enterprise Resource Planning by Alexis Leon 2nd edition page-14
[11] Rangs-Overview : Rangs limited
[12] Quality manual of RWL
[13] Annual report of RWL
[14] Operations Management : Heizer & Render
[15] Operations management: strategy and analysis by Lee J. Krajewski, Larry P. Ritzman
[16] Fundamentals of Production Planning and Control by Chapman
[17] Productivity Measurement and Improvement: Organizational Case Studies by Robert D. Pritchard
[18] Road to Excellence Incredible 5S for Productivity Improvement by Upali Marasinghe
[19] Quality Control by Besterfield
[20] Quality Management Essentials by David Hoyle
[21] http://www.atu.edu/business/jbao/Spring%202011/Hurt-Application%20of%20Management%20Concepts%20to%20ERP%20Implementation.pdf
[22] http://surface.syr.edu/cgi/viewcontent.cgi?article=1007&context=mae
[23] http://www.iso.org/iso/04_concept_and_use_of_the_process_approach_for_management_systems.pdf
[24] http://www.iso.org/iso/03_terminology_used_in_iso_9000_family.pdf
[25] http://www.bot.or.th/Thai/Banknotes/banknotes%20management_1/Documents/ISO9001eng.pdf