

Quality Set-Up in an EMR Project

By

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*Dissertation submitted for the partial fulfillment of the
MBA Hospital and Health Management*

Academic year, 2014-2016



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Internship training

At

DELL International Services India Pvt. Ltd.

“Quality Set-Up in an EMR project”

By:

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MBA-Hospital and Health Management (2014-16)

Under the guidance of

Dr. Arindam Das

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TO WHOMSOEVER MAY CONCERN

This is to certify that Dr. Shivika Chugh student of MBA-Hospital and Health Management from The IIHMR University, Jaipur has undergone internship training at Dell International Service India Pvt. Ltd., Bangalore, from 8th February 2016 to 29th April 2016.

The Candidate has successfully carried out the study designated to her during internship training and her approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish her success in all her future endeavors.



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To whomsoever it may concern

This is to certify that **Shivika Chugh** of **Indian Institute of Health Management Research, Jaipur** has been working with Dell International Services for her summer project.

Project Details:

Project Name	: Quality set up within EMR project
Duration	: 08 February 2016 – 29 April 2016 (3 Months)
Location	: Bangalore
Guide Name	: Dr. Sneha Bhardwaj
Sponsor Name	: Ajay Aiyar

She has successfully completed her project and her performance during the tenure of the internship has been found to be satisfactory.

Her findings in course of the project has been found to be practical and relevant and some of the recommendations will be incorporated on the floor on approval from the business.

Thanking You,

Regards,


Ashish Kumar
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CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled "**Quality Set-Up in an EMR Project**" submitted by **Dr. Shivika Chugh**, Enrollment No. **IIHMR-U/MBA-HM/2014-16/19-1620** under the supervision of **Dr. Arindam Das** for award of MBA-Hospital and Health Management of the university carried out during the period from **2014 to 2016** embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

 16/05/2016

Signature

ACKNOWLEDGEMENT

I started off my training with a vision in my mind so as to be able to learn about the practical aspects of Healthcare Information Technology in a more detailed manner. Hereby, I take this opportunity to express my deep sense of gratitude to all those who have been instrumental in successful completion of my internship and dissertation.

I take immense pleasure to thank Dr. S.D. Gupta (Director-Institute of Health Management Research, Jaipur) and Col. (Dr.) Ashok Kaushik (Dean, Institute of Health Management Research, Jaipur) for placing me in such an esteemed organization to undertake my dissertation and internship. I would like to thank Dell International Services India Pvt. Ltd. to provide me with an opportunity to work with them where I gained basic knowledge about working of healthcare information technology functionaries.

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Words are inadequate to thank those with whom I interacted during my internship to learn about the Electronic Medical Records (EMR) systems and those who were a part of my project without whose unconditional cooperation my study would not have been completed successfully.

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Dr. Shivika Chugh

PREFACE

Internship is an integral part of the MBA-Hospital and Health management curriculum. As part of the curriculum, each student of final year is required to undergo internship with a reputed organization from February 08, 2016 to April 29, 2016.

The objectives of the internship are:

- (1) To assist the administrator/manager in day-to-day operations. Through this process it is expected to gain practical knowledge and skills to handle managerial issues related to major activities of the organization.
- (2) To observe various protocols observed in the organizations and try to acquire skills to accomplish them.
- (3) To observe mannerism of the existing employees and learn the culture of the organization. Inculcating soft skills is an integral part of understanding the organization. Observing human skills and understanding documentation, finance and accounting procedures will prepare for future managerial role.
- (4) To identify a specific problem area/areas of interest or a department (for example, human resource management, quality assurance, information system, risk management etc.) for the dissertation.
- (5) To diagnose critical problems within an operational area
- (6) To provide the management with a set of alternative solutions, and
- (7) If possible, design and implement a plan to carry out the most feasible solutions.

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ABBREVIATIONS

CCR	Compliments and Complaints Record
CMDB	Configuration Management Database
CMMI	Capability Maturity Model Integration
CMP	Configuration Management Plan
CI	Configuration Items
DMP	Disaster Management Plan
EMR	Electronic Medical Record
HIS	Hospital Information System
KMP	Knowledge Management Plan
NPS	Net Promoter Score
PM3	Program, Project, Portfolio Management Methodology
QMS	Quality Management System
RMO	Risk Management Office
S-AP	Service Assurance Partner
SEPG	Software Engineering Process Group
SDD	Service Delivery Document
SIP	Service Improvement Plan
SMP	Service Management Plan

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EXECUTIVE SUMMARY

This study tried to understand the quality management system within an EMR project in the organization as the primary objective. After understanding the processes in the quality management system with the help of the quality assurance team in the organization, a survey was designed and conducted to assess the knowledge about this set-up and the different quality processes amongst the various team members working on the projects.

They were assessed for their awareness on the importance of different documents such as the project charter, the service management plan, the configuration management plan, the disaster management plan, the knowledge management plan etc. that each team maintains and what these documents encompass.

It was found that few people in the team are unaware at some levels because certain things are handled only by more experienced people in the team. Having a quality set-up does not ensure complete awareness about all the quality processes amongst the team members. Also, since the projects under consideration are performing and delivering well, even after varied level of awareness among team members, it can be concluded that these projects are mainly driven by team management rather than awareness about the set processes.

Also, there are certain projects which are fairly new as compared to others and do not have a quality set-up yet. Hence, it was required to establish the same for these projects.

It is thus suggested that, regular knowledge transfer sessions should be arranged across the teams with special focus on hands on trainings. Also, since number of junior resources is more they should be involved in the various quality processes under the guidance of a mentor which will give a more hands-on experience on these processes and will be far more beneficial. In addition to being aware of different documents, the importance and benefit of maintaining them should also be known to each team member and should be taken care of in the induction plan. There should be a timeline maintained for following and maintaining all the quality processes.

A STUDY TO UNDERSTAND THE QUALITY SET-UP IN AN EMR PROJECT AND TO ASSESS THE KNOWLEDGE AMONG DIFFERENT TEAM MEMBERS REGARDING THE QUALITY PROCESSES

1. INTRODUCTION

With the increase in the demand for high quality medical services, the need for an innovative Hospital Information System (HIS) has become essential. Hospital Information System and Electronic Medical Records (EMR) are considered prerequisites for the efficient delivery of high quality care and instrumental to the decrease in medical errors in healthcare delivery (Wang et al. 2003)¹ (Liam et al. 2008)².

The purpose of a Hospital Information System (HIS) is to manage the information that health professionals need to perform their jobs effectively and efficiently. It is a comprehensive solution that automates the clinical, Electronic Medical Records (EMR), administrative and inventory functions, thereby leading to:

- Improved operational effectiveness
- Cost reductions
- Improving quality of patient care

EMR is a digital repository of patient data that is potentially shareable across multiple entities who may serve the same patient (Angst et al., 2010)³. Expected benefits from EMR include:

- The standardization of care,
- Prevention of loss of patient records,
- Ease of sharing records between different care givers,
- Cost reduction,
- Potential for patient-level analytics, etc.

Organizations focus on helping care providers through these transformational changes in healthcare delivery, most of which are enabled by IT. IT services form a necessary support for most business processes, therefore the quality of IT support services is of high importance.

2. LITERATURE REVIEW

Quality is defined as the “Conformance to requirements or fitness for use” which means that the product or services must meet the intended objectives of the project and have a value to the donor and beneficiaries and that the beneficiaries can use the material or service as it was originally intended⁴. IT support services are a key factor for minimizing failures and sustaining the business performance. Thus, to ensure quality of services, operations must be systematically planned and aligned to the organization’s requirements⁴

A quality management system (QMS) is a collection of business processes focused on consistently meeting customer requirements and enhancing their satisfaction. It is expressed as the organizational structure, policies, procedures, processes and resources needed to implement quality management⁵. QMS has tended to converge with sustainability and transparency initiatives, as both investor and customer satisfaction and perceived quality is increasingly tied to these factors.

It ensures that all project activities necessary to design, plan and implement a project are effective and efficient with respect to the purpose of the objective and its performance⁶.

It is a continuous process and is a part of every project management process from the moment the project initiates to the final steps in the project closure phase. It is more about preventing and avoiding than measuring and fixing poor quality outputs.

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3. RATIONALE

Understanding the Quality Management System in Dell and in an EMR project and assessing the knowledge of project teams regarding the quality processes will allow for the development of targeted measures to demonstrate the advantages of following quality protocols in an EMR project and setting up of a quality management system in the projects which lack the same.

4. **RESEARCH QUESTIONS**

1. What are the quality management processes followed in Dell and in an EMR project?
2. What is the knowledge regarding these processes among the team members?
3. What is the current quality set-up in different EMR projects?

5. **OBJECTIVES**

1. To Understand the Quality Management System in a service support project.
2. To assess the knowledge about Quality Management System in an EMR project among different team members.
3. To compare the quality set up of different EMR projects

6. **METHODOLOGY**

- **Study design:** Descriptive cross- sectional study design
- **Study Area:** Healthcare applications support services project teams
- **Study Duration:** Three months (February 2016-April2016)
- **Study Population:** The respondents for the study would be different project team members in Noida and Bangalore
- **Sampling :** Convenience sampling
- **Sample Size-** 57 (Excluding the team members working in the night shifts, responses received were 64, out of which 57 complete responses were received)
- **Source of Data:** Primary data collected through a semi-structured questionnaire.
- **Data Collection Tool:** Semi-structured questionnaire
- **Data Collection Technique:** The data collection combined a qualitative analysis of event logs data for a certain period, with a quantitative approach conducting face to face interview as well through e-mail

- **Data Analysis and Presentation:** Survey analysis is done using Microsoft excel and results are presented in the form of Pie-diagrams, bar and column graphs

7. **DISCUSSION**

(Objective 1)

To understand the organization's Quality Management Processes, guidance was taken from the Services Quality & Standards Advisor and Senior Advisor at Dell International Services, Bangalore using an Open ended questionnaire given in Annexure (1).

After understanding the processes and expectations of the Quality team with different projects, a survey was designed to assess the knowledge regarding these processes amongst different team members.

7.1. **QUALITY MANAGEMENT SYSTEM IN DELL**

- Quality Management System is a group of processes and infrastructure that enables the organization to achieve their business goals as established by the leadership.
- It leverages industry recognized Quality Models, Best Practices and Hands on Experiences.
- It contributes to our continual improvement.
- Engenders a management commitment to quality.
- It promotes better communication, standardization and change management.

It is a model based approach which has benefits such as:

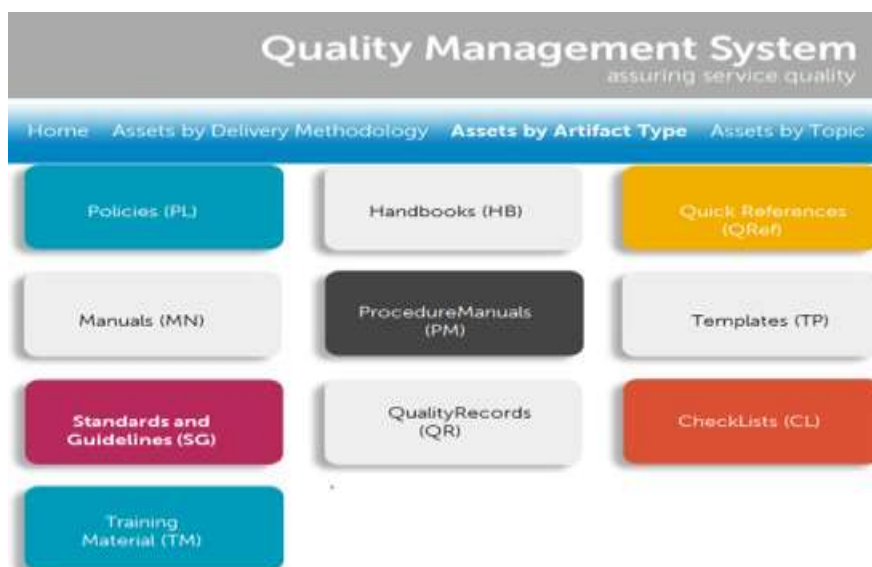
- Benchmarking with Industry Standards.
- Forges a shared vision.
- Provides framework for prioritizing actions.

- Industry best practices are replicated in the shortest possible time.
- PM3 methodology adoption: Project, Program, Portfolio Management Methodology (PM3) framework.

Dell Services – Applications approach to project delivery is supported by robust process framework (QMS) that includes:

- Standard Operating Procedures (SOP)
- Standards & Guidelines
- Checklists
- Quality Records
- Templates

Figure 2: Quality Management System in Dell Services



Source: Dell QMS portal

7.2. QUALITY MANAGEMENT TEAM

Figure 3: Quality assurance/Delivery Excellence team



SEPG

Software Engineering Process Group

- Maintains integrated Quality Management System
- Process owner
- Sustain ISO & CMMI certifications
- Establish guidelines in line with new organization structure (Verticals & Service Lines)

S-AP

Service assurance partners

- Facilitates projects for process adoption
- Implementation
- Monitors process health and raise early warnings

METRICS

- Collates and analyses project metrics data
- Publishes metrics baseline reports
- Maintains organizational metrics database

RMO

Risk Management Office

- Assesses risks at proposal stage
- Risks before pre-deal

7.3. QUALITY SET-UP IN AN EMR PROJECT

Quality set-up of an EMR project consists of maintaining a set of documents, plans and matrices such as:

7.3.1. PROJECT CHARTER

The Project Charter serves several purposes:

- Clearly states the situation or opportunity that the project addresses
- Defines the scope of the project and their deliverables
- Defines high-level expectations
- Establishes a Project Charter Statement
- Serves as sponsor's authorization to proceed to Initiation phase
- Suggests an initial approach to solve the problem

7.3.2. SERVICE MANAGEMENT PLAN (SMP)

- Service Management plan is created to document how a Service delivery manager plans to deliver the services in an optimal manner to achieve the service management objectives as stated in the contract.
- This document consists of a number of important aspects like stating service management objectives, strategy to achieve the objectives, execution plan, service monitoring and reporting etc.
- Roles and responsibilities of those involved in this engagement have been clearly defined in the document.

SERVICE DELIVERY DOCUMENT (SDD)

- This document is a subset of Service Management Plan (SMP)
- The objective of this document is to record the actual implementation of service delivery as planned in Service Management Plan

7.3.3. SERVICE IMPROVEMENT PLAN (SIP)

- To share knowledge about ongoing activities related to the Project and discussion on any issues faced by the team members
- There are certain triggers that lead to the identification of the service improvement opportunity. Some of the examples are :
 - SLA performance
 - Project Performance
 - Customer Complaint
 - Contractual Requirement

- Review with Customer
- Process Audit

7.3.4. CONFIGURATION MANAGEMENT PLAN (CMP)

The document clearly defines the roles and responsibilities for all the individuals responsible to perform configuration management activities. The configuration management activities will also cover the following:

- Build and release management for project/product components
- Environment management/ system configuration changes
- Naming conventions
- Versioning

CONFIGURATION MANAGEMENT DATABASE (CMDB)

The Configuration Management Database would contain the information about all the Configuration Items in the department/Group. This CMDB can be used by the departments to capture useful information about the Configuration Items (CIs), the references and history that are not already covered in the configuration tool.

7.3.5. DISASTER MANAGEMENT PLAN

Lists all the Critical SLA's/milestones and ensures service continuity so that there is no breach of SLA's or deviations in case of disastrous situations.

7.3.6. ESCALATION MATRIX

If the item owner cannot resolve the risk or issue, or validate the assumption and out-of-scope item, the Project/Operations manager escalates the item to the next level.

7.3.7. RAID MATRIX

- Risks
- Assumptions
- Issues/Impact
- Dependencies

Also, a mitigation plan is prepared accordingly.

7.3.8. COMPLIMENTS AND COMPLAINT RECORD (CCR)

- Captures the compliments received
- Captures the client complaints

7.3.9. COMMUNICATION MATRIX

- The communications you need to engage in with your project/program stakeholders. It includes
 - ID
 - Trigger Event
 - Audience
 - Channel/ Approvers
 - Vehicle

7.3.10. KNOWLEDGE MANAGEMENT PLAN

- Track the list of potential components that may be reused in the project. It also tracks the effort and value saved for the components that are reused.(Reusability)
- Track Knowledge Sessions (K-Hours) conducted by a project for sharing experiential learnings across all relevant expertise areas like domain & technology
- Document experiential learnings (On-the-Job learnings) of team members for further reference.(Lessons Learnt)
- An Induction Plan for associates.
- Present a ready snapshot of the project through project case study
- Other Collaborative Initiatives (Newsletters, Debates, Quiz etc.)
- Compile KM related metrics for the project team.

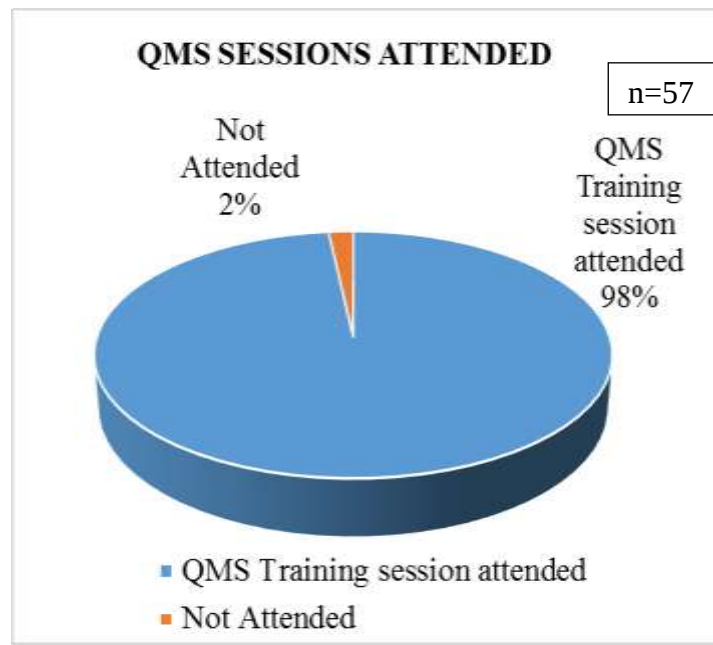
8. RESULTS

8.1. SURVEY FINDINGS

(Objective 2)

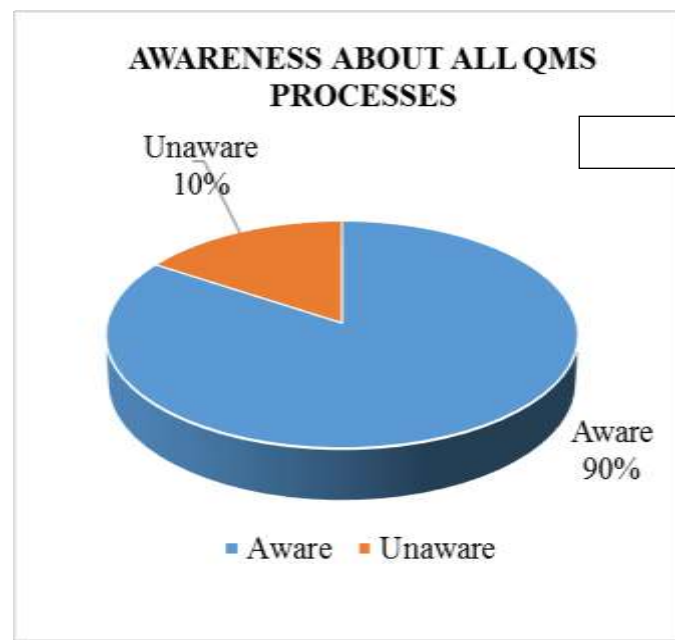
The questionnaire that has been used for the survey has been attached in Annexure (2)

Figure 3: Percentage of respondents who attended QMS training sessions



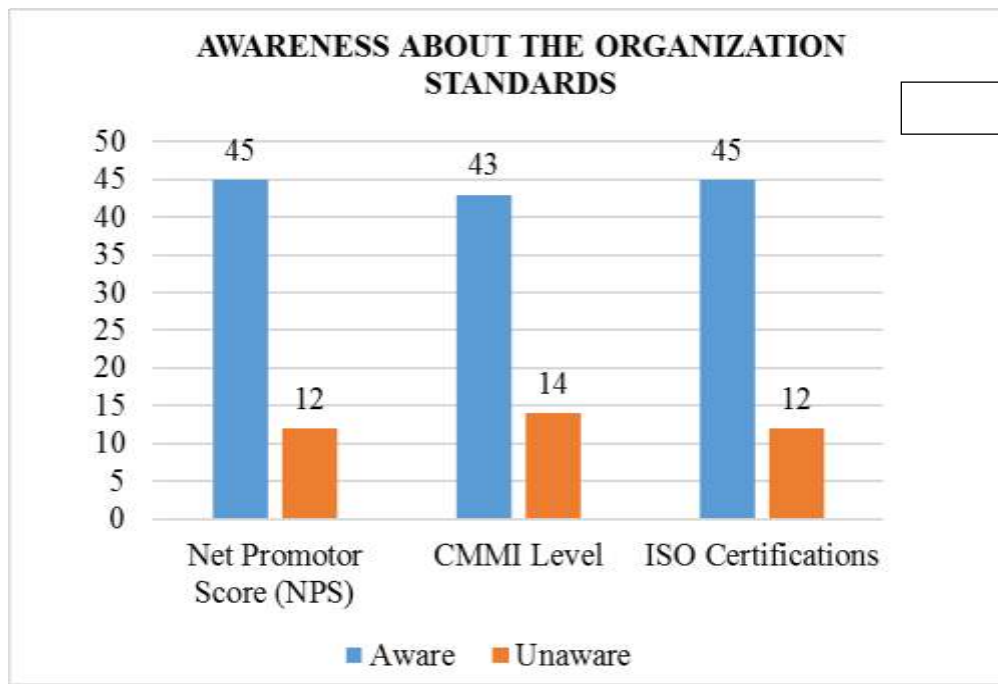
Quality Management System (QMS) training sessions are mandatory for every new joined to attend, still 2 percent people had not yet attended.

Figure 4: Percentage of respondents aware about all the Quality Management System (QMS) processes



The QMS consists of various processes like Standard Operating Procedures (SOP), Standards & Guidelines, Checklists, Quality Records and Templates and around 90 percent respondents were completely aware about all the processes.

Figure 5: Number of respondents aware about the various Dell standards

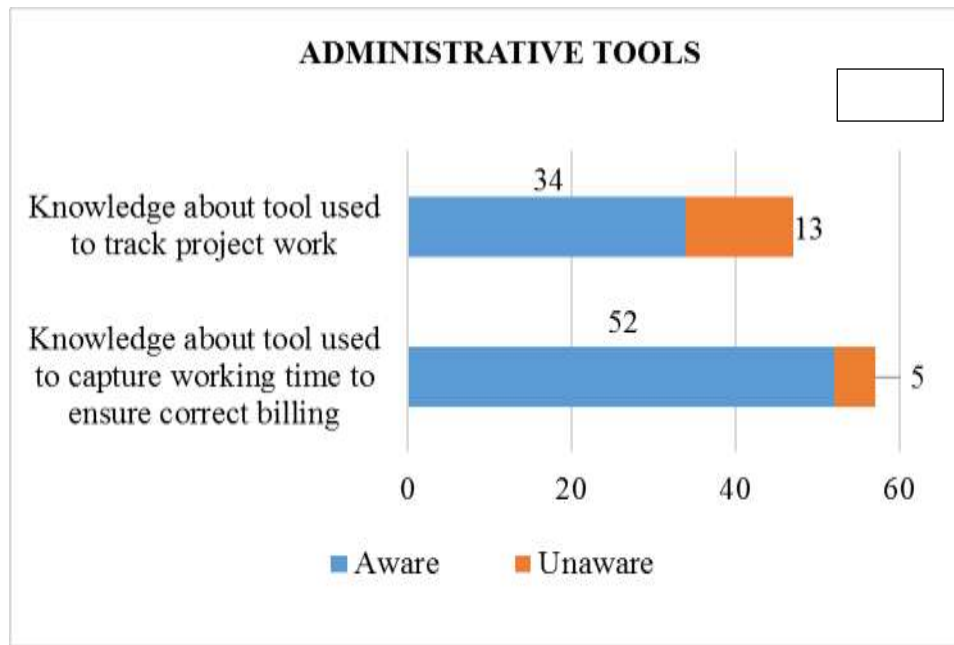


NPS which stands for Net Promoter Score is an indicator of client satisfaction levels and loyalty and around 79 percent respondents were aware of Dell's NPS.

CMMI is Capability Maturity Model Integration which is used to guide process improvement. There are various levels based on the maturity level of the organization. Seventy five percent respondents were aware about the CMMI level of Dell.

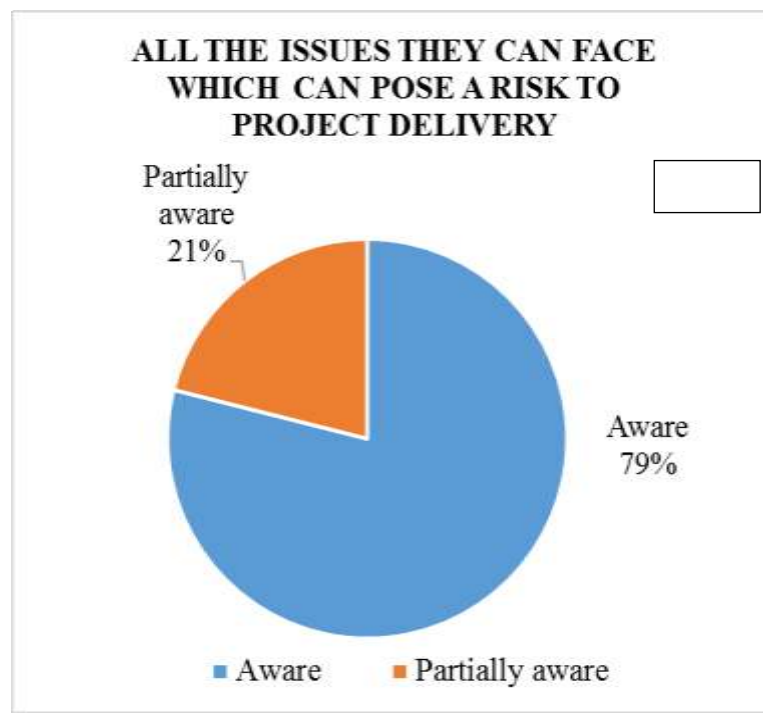
Seventy nine percent respondents were aware about the various ISO certifications Dell has.

Figure 6 : Awareness about day-to-day administrative tools like changepoint and trackers



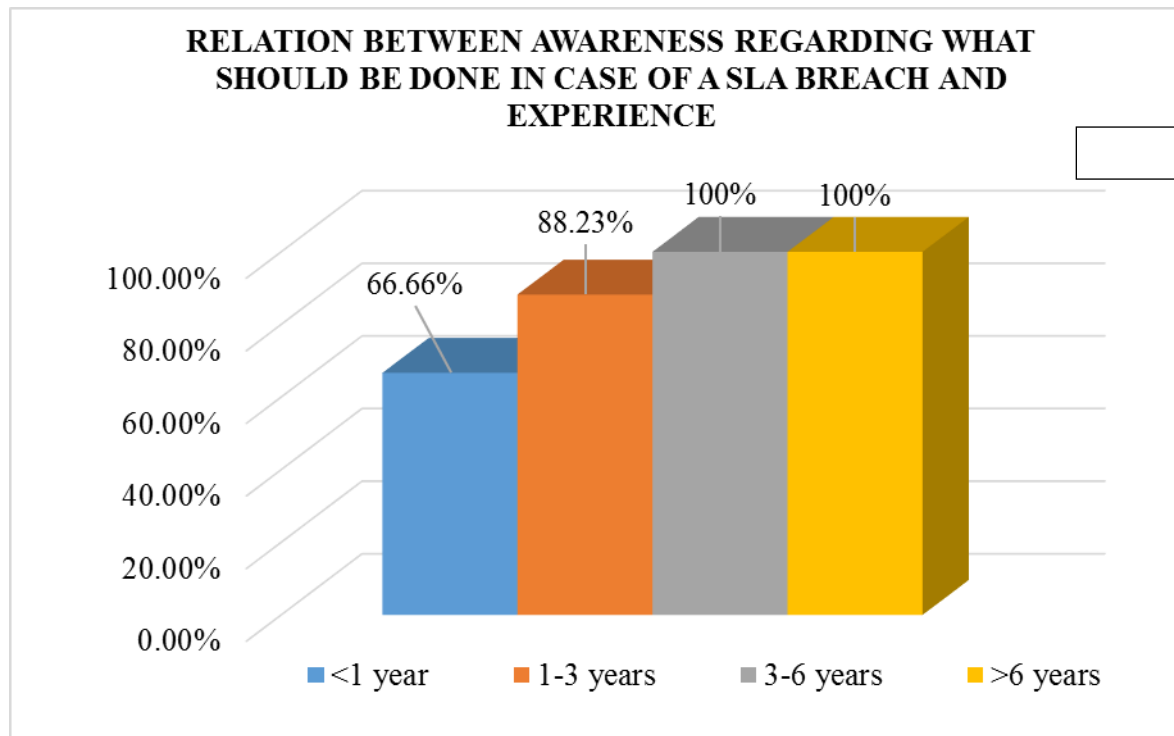
Over 90 percent of the respondents are aware of the administrative tools like changepoint and their usage because these tools come into practice everyday.

Figure 7: Awareness regarding the various risks that a project can pose



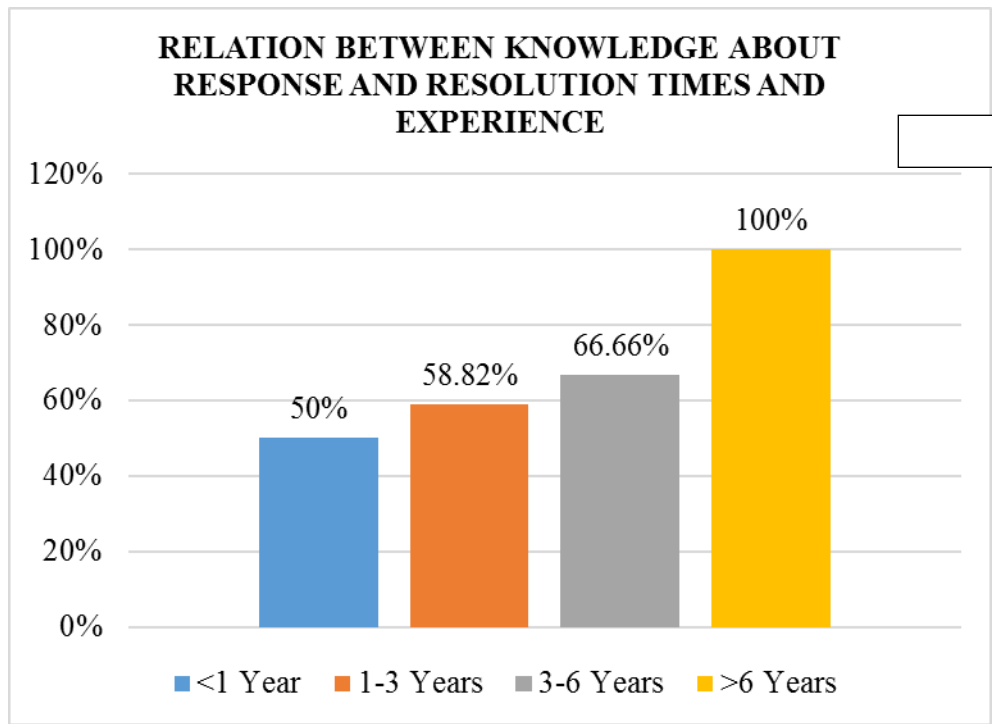
There are various risks a project can pose such as attrition, when a critical resource leaves the team, transportation issues, network issues and all members should be aware in order to prevent them from happening and providing early response. Still, 21 percent respondents were not completely aware of the possible risks.

Figure 8: Awareness regarding resolution of Service Level Agreement (SLA) Breach amongst team members with different levels of experience



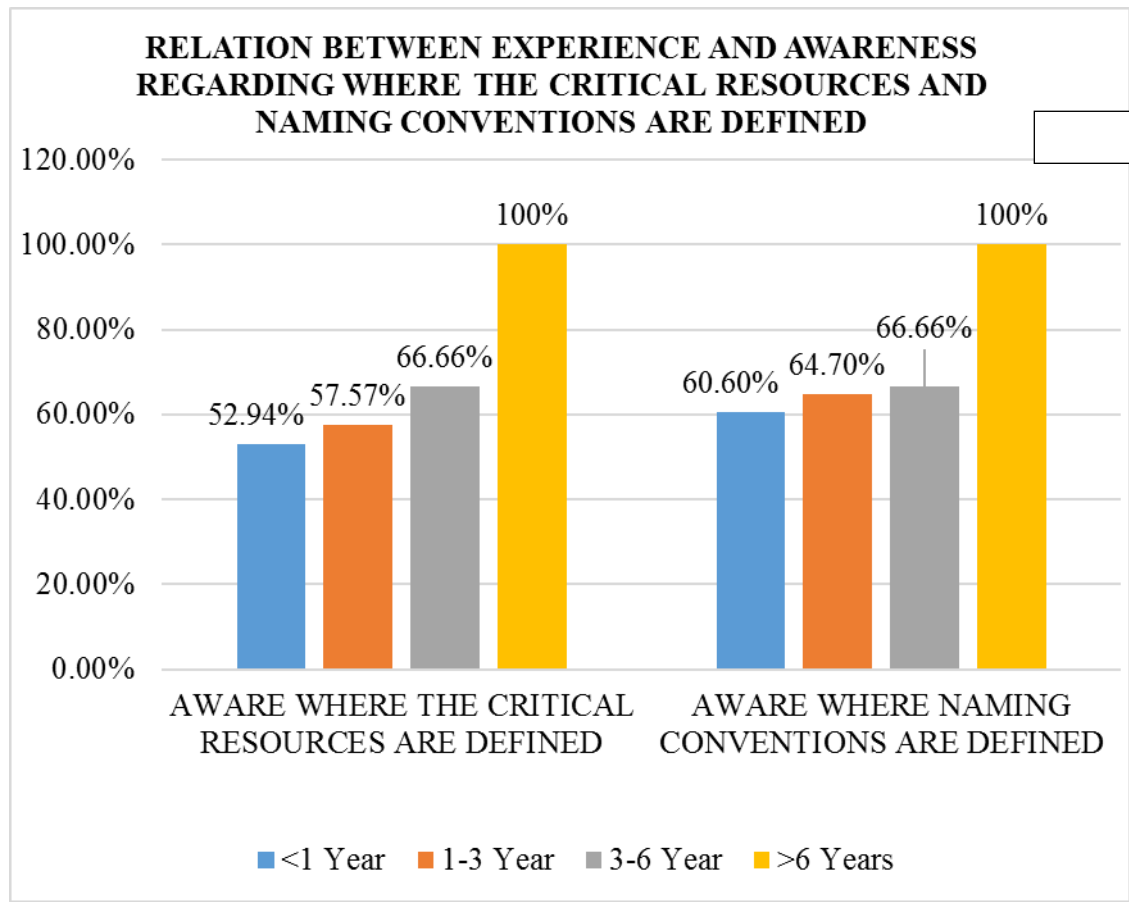
The graph shows relation between experience and awareness regarding what needs to be done in case of a SLA breach. It is seen that respondents with more than 3 years' experience were fully aware. This is probably because the SLA breaches are handled by the higher management in the team.

Figure 9: Knowledge regarding correct response and resolution times amongst team members with varied levels of experience



Knowledge about the correct response and resolution times is important from the service delivery point of view. It can be seen that experienced staff is completely aware whereas almost half of the respondents with less than 3 years of experience are not aware. This may lead to escalations and SLA breaches.

Figure 10: Awareness regarding the disaster management and configuration management plan amongst team members with different experience levels



The critical resources are defined and documented in the disaster management plan and all team members should be aware of it in case of a disaster situation. But, it is seen that around half of the respondents with less than 3 years' experience are unaware of it.

The naming conventions and versioning for various documents are defined in the configuration management plan which provides as a reference for all team members whenever they need to refer a particular document. Around 40 % respondents less than 6 years' experience were unaware of it.

8.2. DIFFERENT EMR PROJECTS AND THEIR QUALITY SET-UP

(Objective 3)

Table 1: Different project teams and their quality set-up

	PROJECT 1	PROJECT 2	PROJECT 3	PROJECT 4	PROJECT 5
DOCUMENTS					
PROJECT CHARTER	✓	✓	✗	✓	✗
SERVICE MANAGEMENT PLAN(SMP)	✓	✓	✗	✓	✗
CONFIGURATION MANAGEMENT PLAN(CMP)	✓	✓	✗	✓	✗
DISASTER MANAGEMENT PLAN(DMP)	✓	✓	✗	✓	✗
RAID MATRIX	✓	✓	✗	✓	✗
ESCALATION MATRIX	✓	✓	✗	✓	✗
SERVICE DELIVERY DOCUMENT	✓	✓	✗	✓	✗
SERVICE IMPROVEMENT PLAN(SIP)	✓	✓	✗	✓	✗
COMMUNICATION WORKBOOK	✓	✓	✗	✓	✗
CONFIGURATION MANAGEMENT DATABASE(CMDB)	✓	✓	✗	✓	✗
COMPLIMENTS AND COMPLAINT RECORD	✓	✓	✗	✓	✗

The table shows a comparison between the quality set-ups of different EMR projects that are running in dell. Project 3 and project 5 are relatively new projects that have come up a year ago. Hence, a set-up is not yet present.

The criteria for a quality set-up is that the project team should have at least 5-7 team members working on it.

9. LIMITATIONS

- Sample size : Less responses from the project team members because of variation in shifts
- Non-availability of the Quality Management Team because of their hectic schedule
- Time constraints : Collection, compilation and analysis of data requires lot of time
- Some questions were slightly prone to subjectivity.

10. CONCLUSION

- Few people in the team are unaware at some levels because certain things are handled only by the top management in the project i.e. people with more than 3 years of experience
- Having a quality set-up does not ensure complete awareness about all the quality processes amongst the team members.
- The Projects under consideration are performing and delivering well. This is mainly due to experienced and skilled resources. Hence, it can be concluded that the projects are people driven and not process driven.

11. RECOMMENDATIONS

- Regular knowledge transfer sessions should be arranged across the teams with special focus on hands on trainings.
- Since number of junior resources is more they should be involved in the various quality processes under the guidance of a mentor which will give a more hands-on experience on these processes and will be far more beneficial.
- In addition to being aware of different documents, the importance and benefit of maintaining them should also be known to each team member and should be taken care of in the induction plan.
- There should be a timeline maintained for following and maintaining all the quality processes.

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ANNEXURE

(1) QUESTIONNAIRE FOR THE QUALITY ASSURANCE TEAM

1. What all quality processes exist within the organization? How are these processes framed?
2. Are there any guidelines and processes within the organization and projects to ensure quality?
3. Has the organization established, documented, implemented and maintained a quality management system?
4. How do these processes vary with different projects- like Development project, testing project or a Support project?
5. How are these processes refined and updated with time?
6. Are all processes in accordance with ISO standards?
7. What all parameters are considered for a project to ensure it is quality compliant?
8. What are the mandatory process that every project should follow?
9. How is project's quality compliance measured?
10. Does the project quality evaluation exist? What is the criteria of evaluation? / What do they evaluate?
11. What is the impact on a project if it is found non-compliant?
12. How is awareness about quality processes among team members measured?
13. What does Dell do at an organizational level to increase awareness about importance of quality compliance?
14. What methods are used by the organization to ensure that the quality management processes are effective?

(2) SURVEY QUESTIONNAIRE

QUESTIONNAIRE

Study to assess the knowledge regarding Quality Management System in an EMR project among the project team members

SR. NO.	QUESTIONS		RESPONSE
	<u>DEMOGRAPHIC DETAILS</u>		
1.	Name		
2.	Project		
4.	Designation		
5.	Role		
6.	For how long have you been associated with the project?	1. <1 year 2. 1-3 years 3. 4-6 years 4. >6 years	
	<u>QUALITY MANAGEMENT SYSTEM</u>		
7.	Have you attended QMS training sessions?	1.Yes 2.No	
8.	Which of the following processes in QMS are you aware of? Multiples responses allowed.	1. Standard Operating Procedures (SOP) 2. Standards & Guidelines 3. Checklists 4. Quality Records 5. Templates	

9.	Which of the following industry best standards is Dell certified for?	1. ISO 9001 - Quality, 2. ISO 20000 – Services, 3. ISO27001 –Security 4. CMMI for Development 5. All of the above																											
10.	Which level of CMMI is Dell services on?	1. Level 1 2. Level 2 3. Level 3 4. Level 4 5. Level 5																											
11.	What is Dell’s NPS?	1. 40 2. 36 3. 51 4. 49																											
12.	What are SLAs?	1. Second language Acquisition 2. Special Leave Approval 3. Service level Agreement 4. State Lead Agency																											
13.	What is the response time and resolution time of various incidents?	<table><thead><tr><th><u>Response time</u></th><th><u>Resolution time</u></th></tr></thead><tbody><tr><td>1. Within 15 minutes</td><td>1. 2 hours</td></tr><tr><td>2. Within 30 minutes</td><td>2. 4 hours</td></tr><tr><td>3. Within 1 hour</td><td>3. 10 hours</td></tr><tr><td>4. Within 2 hours</td><td>4. 18 hours/2 business days</td></tr><tr><td>5. Within 3 hours</td><td>5. 90 hours/10 business days</td></tr><tr><td>6. Within 4 hours</td><td>6. 20 calendar days</td></tr></tbody></table>	<u>Response time</u>	<u>Resolution time</u>	1. Within 15 minutes	1. 2 hours	2. Within 30 minutes	2. 4 hours	3. Within 1 hour	3. 10 hours	4. Within 2 hours	4. 18 hours/2 business days	5. Within 3 hours	5. 90 hours/10 business days	6. Within 4 hours	6. 20 calendar days	<table><thead><tr><th>Response time</th><th>Resolution time</th></tr></thead><tbody><tr><td>Severity 1</td><td></td></tr><tr><td>Severity 2</td><td></td></tr><tr><td>Severity 3</td><td></td></tr><tr><td>Severity 4</td><td></td></tr><tr><td>Severity 5</td><td></td></tr></tbody></table>	Response time	Resolution time	Severity 1		Severity 2		Severity 3		Severity 4		Severity 5	
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14.	Where are the SLAs documented, defined and tracked?	1. Disaster management plan 2. Service management plan 3. Configuration management plan 4. Knowledge management plan																											
15.	If a new associate joins a team how do you make sure that proper																												

	knowledge transfer is happening?		
16.	Which tool do we use to capture working time on each project/account to ensure correct billing to the client?	1. Kronos 2. Folklore 3. Changeoint 4. Service Request Management system(SRMS)	
17	What are the issues you face which can pose a risk to the project delivery?	1. Network issues 2. Transportation issues 3. Attrition 4. Client environment not available due to downtime 5. All of the above	
18.	Where risks in a project that are identified documented?	1. Escalation matrix 2. RAID matrix 3. Disaster management plan 4. Configuration management plan	
19.	If an associate is not able to deliver a required task on time, whom does the client approach to escalate the issue?	Level 1 1. Offshore manager 2. Global Delivery Manager 3. Account sponsor Level 2 1. Offshore manager 2. Global Delivery Manager 3. Account sponsor Level 3 1. Offshore manager 2. Global Delivery Manager 3. Account sponsor	Level 1 Level 2 Level 3
20.	Which document has the critical resources defined for the project?	1. Disaster management plan 2. Service management plan 3. Configuration management plan 4. Knowledge management plan	

21.	What should be done whenever there is a SLA breach?	1. Root cause analysis 2. Capture in issue tracker 3. Resolution 4. All of the above	
22.	Where are the naming conventions for different projects defined?	1. Disaster management plan 2. Service management plan 3. Configuration management plan 4. Knowledge management plan	
23.	How often are audits conducted?	Configuration audit	
		1. Once in a quarter 2. Once in six months 3. Once in a year	
		External audit	
		1. Once in a quarter 2. Once in six months 3. Once in a year	
		Project management review	
		1. Once in a quarter 2. Once in six months 3. Once in a year	
		SAP audit	
		1. Once in a quarter 2. Once in six months 3. Once in a year	
24.	Which tool is used to track project work?	1. Utilization tracker 2. Capability tracker 3. Client status report 4. None of the above	