



International Journal of Engineering, Business and Enterprise Applications (IJEBEA)

www.iasir.net

Study & Analysis and Issue & Challenges in context of Human Resources Management in SEPM using Apriori algorithm

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Abstract: In this paper, we discuss what the impacts of Human Resource IT Company are. Human Resource, are the most precious resource of any organization and forms its backbone. There is always a team of highly dedicated workforce, committed to its goal that makes any organization successful. It is end goal of all economic activities together with prime mover. Proper Manpower planning, their future growth, development needs and fulfillment of day-to day requirement are vital for the prosperity and health of any organization. apply the Apriori Algorithm Human Resource in IT has become the enabler for survival, innovation and growth and is the key driving factor for organization's competitiveness.

Keywords: Human resource management, software project, management, Apriori Algorithm

I. Introduction

Human Resource, are the most precious resource of any organization and forms its backbone. There is always a team of highly dedicated workforce, committed to its goal that makes any organization successful. It is end goal of all economic activities together with prime mover. Proper Manpower planning, their future growth, development needs and fulfillment of day-to day requirement are vital for the prosperity and health of any organization. Most successful organization has devised ways to keep their human resource highly satisfied and makes them participative in crucial matter related to the organization. Computerized systems are being used to this effect in a big way.

All IT project activities are executed by team member whether the project can be successful to a large degree depends on the team member. Project manager distribute the entire project activities to the team member based on their skills, personalities, interest

The Crucial factor for the success or failure of software development projects is the qualification of project managers but how can future project managers be prepared for their role? To successfully manage a software project, theoretical knowledge is not sufficient. Practical experience is necessary.

Such a level of abstraction is appropriate for a rough estimation of overall project variables such as duration, effort and costs, but does not solve typical tasks of a project manager such as deciding on process alternatives (e.g., inspecting a design or code document, testing a module), assigning tasks to persons, or scheduling the various activities. Simulation models with an explicit representation of objects related to software development processes, i.e. items (design or code documents) and developers might be better suited for supporting these decisions. Typically, discrete-event simulation models allow for such an explicit representation of a multiplicity of objects of the same type.

II. Literature Survey

Software project management

Software project management is the art and science of planning and leading software projects. It is a sub-discipline of project management in which software projects are planned, implemented, monitored and controlled.

Human Resource Management System

The key supporting element in the management of organization is Human Resource Management (HRM) function. HRM is the only responsible factor ensuring that the right people are available at the right place and at the right time to execute corporate plans with the highest level of quality i.e. manpower planning. But manpower planning is only a part of not whole HRM however manpower planning is core of HRM supported by other aspects of HRM.

Human Resource Management system presents integrated picture of all supporting the planning and control of personnel activities. It provides a powerful tool for monitoring, integrating, control and reevaluating human resource. It includes various activities related with employee like: Recruitment, Training, Benefits and Compensation etc. HRMS has both tangible and intangible benefits. Some tangible benefit areas include:

- 1) HR productivity improvements
- 2) Employee and manager productivity improvements
- 3) Overhead and outsourced service fee avoidance
- 4) Compliance and error reduction
- 5) Improve employee retention
- 6) Strategic business impact

Intangible benefits are most difficult to quantify, but hold an important place. Some of the intangible benefits

- 1) Brand advantage
- 2) Strategic advantage
- 3) Competitive advantage
- 4) Intellectual capital
- 5) Organizational advantage

A Framework Suggested for HRM

1) **External environment:** It consists of the environment outside the organization that includes Political system, economical system, legal industrial relation, education culture, technology, labor and product markets etc.

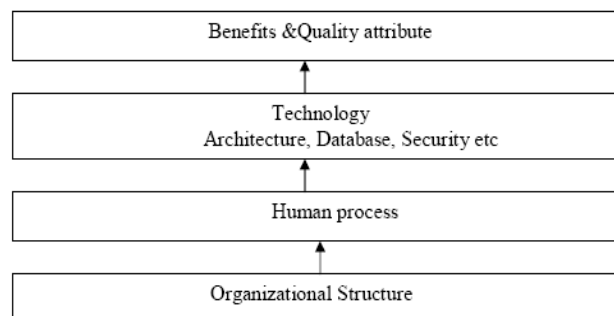
2) **Institutional structure process for HRM:** It consists of all the HRM activities required for managing human resource like collective and individual strategic activities, selection performance appraisal etc

3) **Desired optimal HRM outcome:** It covers the required outcome, for which management of human being is done like strategic integration commitment quality, flexibility cost effectiveness.

4) **Desired overall optimal performance:** It is responsible for overall outcome at organization level like organizational effectiveness employee-employee relationship etc.

III. Proposed Framework

Analyzing Human process contribution in achieving organizational goal. But for comparing software, technological view is also important. In this report for comparing human resource software a framework is being proposed.



It is also four tier model which include:

1. **Organizational Structure:** Type of organization, size of organization etc.
2. **Human Process:** Human resource modules implemented like employee selection, training etc.
3. **Technology:** Architecture, Database, Security etc
4. **Benefits & Quality attribute:** User-friendly, performance, reliability etc.

Benefits of HRMS

Key benefits achieved after apriori algorithm Implementation in HRM in Software Engineering:

- Better Decision Support
- Better Operation Control
- Efficient Cost Management
- Enable Internal Performance Measurements
- Improved responsiveness to changing market/ global conditions
- Enable Transformation
- Alignment to new Organization Structure e-Corporation

Project management

Project management is defined as the application of knowledge, skills, tools, and techniques to project activities in order to meet project requirements.

The project management framework in Figure 1.1, there is 9 project management knowledge areas, which describe project management knowledge and practice in terms of their component processes. Table 1.2 illustrates the overview of project management knowledge areas and project management processes. The four core knowledge areas are briefly described below:

- Project scope management: involves defining and managing all the work required to complete the project successfully.
- Project time management: includes estimating how long it will take to complete the work, developing an acceptable project schedule, and ensuring timely completion of the project.
- Project cost management: consists of preparing and managing the budget for the project.
- Project quality management: ensure that the project will satisfy the stated or implied needs for which it was undertaken.



Figure1.1
Project Management Framework

These are called core knowledge areas because they lead to specific project objectives.

There are also four facilitating knowledge areas of project management:

- Project human resource management: is concerned with making effective use of people involved with the project.
- Project communications management: involves generating, collecting, disseminating, and storing project information.
- Project risk management: includes identifying, analyzing, and responding to risks related to the project.
- Project procurement management: involves acquiring, procuring goods services for a project from outside the performing organization.

These are called facilitating knowledge areas because they are the processes through which the project objectives are achieved. The ninth knowledge area, called project integration management, is an overarching function that affects and is affected by all of the other knowledge areas.

Project portfolio management is an emerging business strategy, in which organizations group and manage projects as a portfolio of investments that contribute to the entire enterprise's success.

Throughout each knowledge area, there are many commonly used tools and techniques to assist project managers and their teams in achieving project objectives. Table 1.3 lists some commonly used tools and techniques in the nine project management knowledge areas.

Apriori Algorithm

Apriori Algorithm is an influential algorithm for mining frequent itemsets for Boolean association rules.

Knowledge Area	Commonly Used Tools and Techniques
Integration management	Stakeholder analysis, Project plans, Project management software, Change control boards, Configuration management, Project review meetings, Work authorisation systems, Project leadership, Executive sponsorship
Scope management	Net present value, Return on investment, Payback, Weighted scoring models, Business cases, Project charters, Scope statements, Work breakdown structures, Statement of work, Requirements analysis, Scope change control
Time management	Gantt charts, Network diagrams, Critical path analysis, Program evaluation review technique, Critical chain scheduling, Crashing, Fast tracking, Milestone reviews
Cost management	Earned value management, Project portfolio management, Cost estimates, Cost management plan, Financial software
Quality management	Six Sigma, Quality control charts, Pareto diagrams, Fishbone or Ishikawa diagrams, Quality audits, Maturity models, Statistical methods
Human resource management	Motivation techniques, Empathic listening, Team contracts, Responsibility assignment matrices, Resource histograms, Resource loading, Resource leveling, Team-building exercises
Communications management	Communications management plan, Conflict management, Communications media selection, Communications infrastructure, Status reports, Meetings, Virtual communications, Templates, Project web sites
Risk management	Risk management plan, Probability/impact matrix, Risk ranking, Monte Carlo simulation, Top-ten risk item tracking
Procurement management	Make-or-buy analysis, Contracts, Requests for proposals or quotes, Source selection, Negotiating, Eprocurement

Table 1.2

Problem Domain

The most precious resource of an organization, which forms its backbone, is its **Human Resource**. Behind every successful organization there is a team of highly dedicated workforce committed to its goal that makes the difference. Human Resource is not only the prime mover of all economic activities but also the end goal of such

activities. Proper Manpower planning, their future growth, development needs and fulfillment of day-to day requirement are vital for the prosperity and health of any organization. Most successful organization has devised ways to keep their human resource highly satisfied and makes them participative in crucial matter related to the organization. Computerized systems are being used to this effect in a big way.

It is challenging because:

1. Human are most important and costly asset of any/every organization.
- 2 It is strategic component, which provides competitive advantage.

1. Resources planning

1.1 Human Resources

1.1.1 Project Manager

The success of software projects mainly depends on the quality of project management states that successful projects are always characterized by effective project planning, progress and quality control, and most of all by qualified project managers. To improve the situation in software development, first of all we must improve the quality of software project management by better education of (future) project manager

Q. How we select the project manager?

1.1.2 Team Member

Q. How we select the Team Member?

1.2 Software Resources

Which Software is/are requires completing that product

1.3 Hardware Resources

Which Hardware is/are requires completing that product

Motivation

The importance of Human Resource Management is exponentially growing because of globalization which require cross culture interest to promote motivation and subsequently productivity considered to be two potential factors for global competitiveness for productivity, cost and quality.

Solution Domain

Parameter for select the Project manager

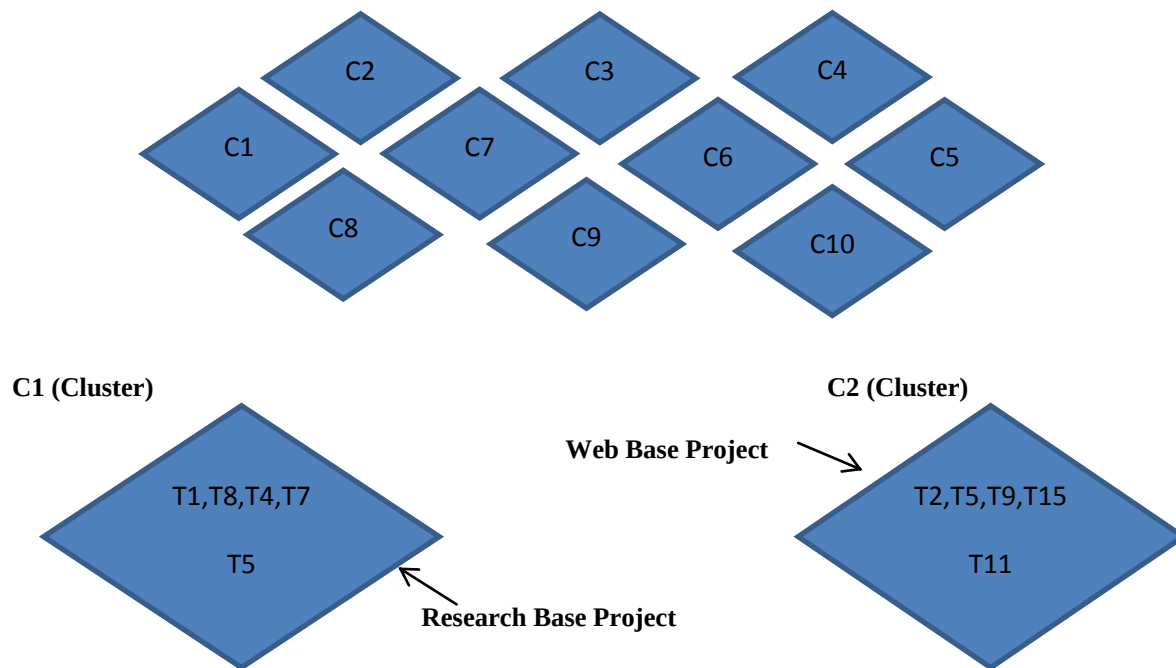
- Technology
- Work Experience
- Number of Successfully delivered Project
- Completion Time period for each project
- Size of Team Member are managed in each project
- How much salary they take
- Terminology Gap
- How many Bugs they are face
- How many Bugs are successfully resolved by Project manager

Parameter for select the Team Member

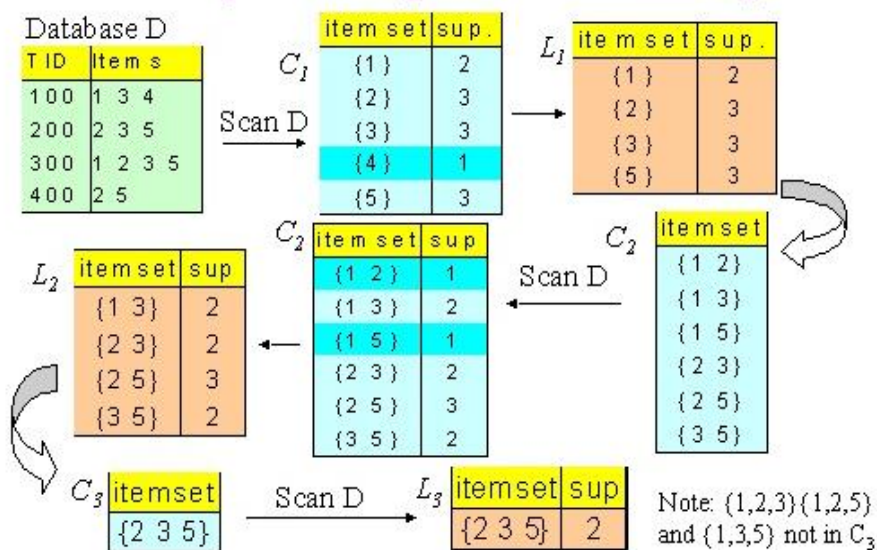
- Technology
- Work Experience
- Number of Successfully delivered Project
- Completion Time period for each task
- Types of task are successfully completed
- How much salary they take
- Terminology Gap
- How many Bugs they are face
- How many Bugs are successfully resolved by Team Member

Apply Apriori Algorithm

Make cluster on the bases of above criteria



The Apriori Algorithm -- Example



Experimental Analysis

S.NO	PROJECT	TEAM	% COMPLITION
1	P1	T1, T4	98%
2	P2	T1, T3, T4,	80%
3	P3	T2, T4	85%
4	P4	T1, T2, T3, T4	90%
5	P5	T1, T4	90%
6	P6	T2, T3,T4	60%
7	P7	T1, T3	85%

8	P8	T2, T3, T4	65%
9	P9	T1,T3,T4	90%
10	P10	T2, T3	60%

Apply Apriori Algorithm

Min Support: 75 %

Team	Occ	Total	%
T1	6	533	89
T2	5	360	72
T3	7	530	75
T4	8	658	83

T1,

T3,

T4

$SUPPORT\ of(x) = \sum [\% \text{ of Completion}] / \text{Sum of (Occurrences in Project)}$

Team	Occ	Total	%
T1,T3	4	345	87
T1,T4	5	448	90
T3,T4	5	385	77

Team member T1 and T3 give best effort as compare to other

IV. CONCLUSION

Though data mining techniques employ great participation in solving problems in various domains, the efficiency of data mining algorithms is proved through the application of the same in linguistics. The performance of two different algorithms of association rules in semantic validation of sentences is compared for efficiency. This system is developed and implemented for domain specific English language sentences. The capabilities of the system will increase with its usage. As future enhancements, by removing the constraints on the structure and types of sentences, the system can be extended for more types of sentences in a more general way. Semantic analysis can be improved by eliminating the constraint on the specific domain and can be enhanced for open domain.

References

- [1] Major Issues in Software Engineering Project Management, *richard h. thayer, member, ieee, arthur b. pyster, member, ieee, and roger c. wood, member, ieee transactions on software engineering*, vol. se-7, no. 4, July 1981
- [2] Critical Success Factors In Software Projects, By John S. Reel, *Trident Data System IEEE Software May/ June 1999*
- [3] How to Successfully Use Software Project Simulation for Educating Software, Project Managers *Patricia Mandl-Striegnitzl Reno, NV ASEEDEEE Frontiers in Education Conference October 10 - 13, 2001*
- [4] Managing software projects, *RICHARDMATEOSIAN xrm@pacbell.net 2003 IEEE Published by the IEEE computer Society*
- [5] Simulating Human Resources in Software Development Processes *Berichte des Fraunhofer ITWM, Nr. 64 (2004)*
- [6] Software Engineering Project Management 20 Years Later, By Arthur B. Pyster, *Science Applications International Corporation University of Southern Queensland, 2005.2 (1st edn), 2007.2 (2nd edn). Richard H. Thayer, Software Management Training LLC*
- [7] Communication, Knowledge and Co-ordination Management in Globally Distributed Software Development: Informed by a scientific Software Engineering, *Adel Taweel, Brendan Delaney, Theodoros N. Arvanitis and Lei Zhao University of Birmingham, UK, a.taweel@bham.ac.uk, 2009 Fourth IEEE International Conference on Global Software Engineering*
- [8] Recommending effort estimation methods for software project management, *Bernhard Peischl, Mihai Nica Institute for Software Technology, Technische Universität Graz 8010 Graz, Austria {peischl,nica}@ist.tugraz.at Markus Zanker, 2009 IEEE/WIC/ACM International Conference on Web Intelligence and Intelligent Agent Technology – Workshops*
- [9] Guiding Global Software Development Projects using Scrum and Agile with Quality Assurance, *Christelle Scharff Pace University, New York, NY, USA cscharff@pace.edu SEE&T 2011, Waikiki, Honolulu, HI, USA*
- [10] The Practical Method of Motivating Students to Iterative Software Development, *Ondřej Macek and Martin Komárek Czech Technical University in Prague, Faculty of Electrical Engineering {macekond, komaremm}@fel.cvut.cz, CSEE&T 2011, Waikiki, Honolulu, HI, USA*