

UNDERPINNING OF 'CHAOS THEORY' AND CHANGE MANAGEMENT ROLES IN ERP IMPLEMENTATIONS WITH REFERENCE TO INFORMATION TECHNOLOGY INDUSTRY AT HYDERABAD AND BANGALORE

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ABSTRACT

Change Management is a common buzz word in today's businesses, with constantly evolving business goals and strategies, change is inevitable and managing change is essential. It has become a monumental errand for any organization in the recent times. It is a planned technique in bringing foremost adjustments for reaching employee's expectations to transport the enterprise ahead smoothly. Change management is also used as a catch-all for project activities that may otherwise be overlooked. It is thus important to understand what it is and how to use it to be effective in the discipline.

The Enterprise Resource Planning (ERP) system is a set of integrated business applications supporting core business processes such as Production and Logistics, Finance and Accounting, Sales and Marketing, and Human Resources. An ERP system integrates and helps the different departmental units of the organization to share data and knowledge, reduce costs, improve and impose best of the business Processes.

The objective of the study includes - To ascertain the underpinning of 'Chaos theory and change management Roles' in ERP implementations in IT industry at Hyderabad and Bangalore. Research collaborates Moderate to very High rankings for various elements of Chaos theory under demographic variables - Age, gender, Education, Occupation and Income. Research concludes intense application of Chaos theory under demographic segmentation variables. The shift from traditional methods to modern methods of change management practices is due to demand from the industry and can even conclude providing 'change management is need for organizations in ERP Implementations.

KEYWORDS

Change Management, Errand, Enterprise Resource Planning, Underpinning, Chaos Theory, IT Industry etc.

INTRODUCTION

The world of business today is highly competitive and the organizations are operating in a complex environment where market positions are the function of competitive factors, technology is undoubtedly leading the way and the race among organizations to change; besides it is also aiding businesses to reap its best, the resultant outputs are technology-enabled products. The environments in which organizations operate become increasingly complex, turbulent, and uncertain (van Tonder, 2004:47). Only those agile organizations responding quickly and effectively to changing political, economical, social and technological environmental conditions will sustain, to sustain in business 'Change' is becoming inevitable for organizations, they need to change, in order to keep in balance with the environment more so with technological environment. However, to remain in business and sustain its competitive position in a dynamic environment, managing change needs is a core competency in which managers need to gain skills. The ability to manage change will be more important in the years ahead than at any time before (Nadler and Tushman, 1989: 194). It is also claimed that while the future may be uncertain, it is clear that organizations and managers unable to respond swiftly to the sweeping changes will fail in future.

The Enterprise Resource Planning (ERP) system is a set of integrated business applications supporting core business processes such as Production and Logistics, Finance and Accounting, Sales and Marketing, and Human Resources. An ERP system integrates and helps the different departmental units of the organization to share data and knowledge, reduce costs, and improve and impose best of the business Processes. (Adel M. Aladwani, 2001). Despite having so many benefits, lot of ERP projects still fails (Stratman and Roth, 1999). Most of the ERP system implementation that fails is due to employee resistance to change. A good and careful change management strategies are required facilitating a successful ERP implementation. (Adel M. Aladwani, 2001).

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CHANGE MANAGEMENT

Meaning

Change Management is a planned change approach internal to an organization. The objective is to amplify the advantages and lower the potential hazard for the association identified with changes because of ERP practice. In any ERP execution attempted by a business, change administration is one of the greatest undertakings intensely required by the association. Not just this, it requires a lot of subsidizing from the organization yet in addition require an abnormal state of responsibility all through the entire organization. It is a think way to deal with guarantee an adjustment in individual desires towards the real changes in the work procedure achieve by the implementation of ERP to advance the business easily.

Importance

The entire idea of progress administration association in ERP execution is building common trust and comprehension between the organization and its representatives all through the business part, amid the usage stage. The concentration of progress administration in the business ought to be client centric overseeing the desire of the potential end of client as opposed to innovation or item arranged. End client will not be staggered with the best in class gear, if the new ERP framework or business process ignored to satisfy individuals' desire. While ERP implementation requires the business to institutionalize its business forms, change administration will be expected to ensure that harms can be kept at a strategic distance from what are caused by change.

Chaos Theory and Change Management Roles

Managing Transitions: Destabilize people; get them involved in decision-making and problem solving.

Building Resilience: Provide people with the ability to absorb change

Destabilizing the System: Create a State of tension, Seek disconfirmation of organizational beliefs, Act as a devil's advocate, Seek to nurture the creativity needed to cope with the chaotic environment in which organizations operate.

Managing Order and Disorder, the Present and the Future: Provide balance between a need for order and a need for change.

Creating and Maintaining a Learning Organization: Facilitate ways in which continuous learning is available to everyone in the organization

PROFILE OF INDUSTRY

IT industry excels as one of the fastest growing industry by outshining the automobile and other traditional industries. In addition, its applications have permeated all aspects of human and industrial life. To gain competitive edge in the market industries like agriculture. Manufacturing and services enhances the qualitative aspects through IT. IT has become an economic phase of the world than mere an industry for increased productivity. It is growing rapidly because of economies of scale and voracious demand from customers and enterprises. In terms of investment, infrastructure, employment, turnover and geographical coverage IT industry has occupied the position of largest industry.

REVIEW OF LITERATURE

Fisher and Kotter (2015) contend that change flows as follows: anxiety and denial, happiness, fear, threat, guilt and disillusionment, depression and hostility, gradual acceptance, moving forward Steensma, (2010), including the need for more integrated ways of working (Rugman and Hodgetts, 2011) and the need to improve business performance Balogun and Hailey (2008). These considerations typically result in structured change programs based on the assumption that change management on employees consists of a (limited) set of interventions, which are regarded as objective, measurable and linearly manageable programs that can be realized in a relatively short time.

Reid and Smith (2010), Chenhall, (2013) and Woods (2011) The study of organizational behavior in which explanations are given as to how contingent factors such as technology, culture and the external environment influence the employees and functions of organizations for meaningful changes clearly shows that for performance based results employees must be fully engaged. The assumption underlying contingency theory is that no single type of organizational structure is equally applicable to all organizations. Rather, organizational effectiveness is dependent on a fit or match between the type of technology, environmental volatility, the size of the organization in terms of human capital, the features of the organizational structure and its information system. Contingency theories were developed from the sociological functionalist theories of organization structure such as the structural approaches to organizational studies.

Kuruppuarachchi et al. (2012) declares some of the problems in the application of change management and the implementation of ERP in organizations. His analysis states that there are many employees and manager who do not prefer to change their organizational structure for ERP. According to these people, there is nothing disagreeable with the company without ERP and thus there is no need for change management. However, employees who have a preference of traditional ways of management usually cannot accept the ERP formulation and thus can show apprehensiveness towards it.

Panorama Consulting Solutions is a well-known consulting group specializing in the ERP, their latest surveys in 2015 shows that more than 55% of projects budget overrun whereas above 75% of project schedule overrun and about 41% of the respondents have a point of view that ERP delivered half of the expected benefits. The last five year data of panorama independent research provides the average cost of ERP implementation projects that is about \$6.1million whereas the average duration of the ERP implantation projects has been 15.7 months. The research results shows that out of these project 58% of project have crossed the planned budget and 65% of the project faced delay and could not be completed according to their planned duration. There is 53% of the organization that could not achieve half of the benefits planned at the start of the project (Panorama Consulting Solutions, 2014).

Hunton, Lippincott and Reck (2003) researched organisation performance of ERP adopters and non-adopters. Results indicate that return on assets (ROA), return on investment (ROI), and asset turnover (ATO) were significantly better after the third year for adopters, as compared to non-adopters. Their results were consistent with Poston and Grabski (2001), who reported no pre- to post-adoption improvement in financial performance for ERP firms. However, remarkable differences arise between the two studies in financial performance. Non-adopters financial performance decreased over time while it held steady for adopters. The theory suggests that ERP system implementation has better impact on larger organizations (Bradford and Frorin, 2003), however, Hunton, Lippincott and Reck (2003) proven in practice that *“for relatively large ERP-adopting firms, there will be a significant negative association between firm health and performance”*.

RESEARCH GAP

Core part of the research is identifying the potential concept capable of generating spark or the need for a research, the gap can be conceptually unexplored domain or an explored domain with negligent or limited research. The industry in which this occurs offers a level playing field for a researcher to pursue his research activity in an effective fashion. ERP implementations are a major market in IT with around a lakh of employees and Change Management is a concept that no one has tried to relate to so far with ERP. This offers a level playing field for the researcher to relate both of them and conduct an empirical evaluation.

NEED FOR STUDY

Market growth, higher employment and a need for productivity precedes need for a research. The academic concepts tested in various industries hitherto are to be tested and validated once again for their application. Change Management improves organization's ability to handle its internal and external functioning and ERP implementation.

SCOPE OF STUDY

Change Management is a perennial exercise of applying critical academic concepts for redesigning of ERP implementation in the industry. Academic Scope of the present research is that of the concept of Change Management process. Industry scope is IT. Location scope is Hyderabad and Bangalore. Period scope refers to the research period 2012 to 2016.

RESEARCH METHODOLOGY

The present research study strictly abides by the conceptual frame work enunciated by the subject Research Methodology for the design and conduct of the research, this part of the study aims at presenting all the components of the research in a descriptive style which includes Statement of the problem, Objectives of the study, Hypotheses formulation, Data gathering, Data processing, interpretation or Description, finally followed by presenting the Findings and Conclusions of the study. All elements in various stages of research process are explained descriptively, offering due importance to them and treating them individually and distinctively.

STATEMENT OF PROBLEM

Parameters employed for measurement of development in all organizations depend on Physical, Human, Financial, and Information resources; however, in the process of organizational employees' development, employees do encounter problems that are resultant of the above forces.

Handling or solving these problems is the aim of the change management programmes, which aims to enhance employee's abilities in collectively handling the problems in an organizational environment. Evaluation of implementation intensities of various change management Programs in IT industry of Hyderabad and Bangalore assumes significance in the backdrop of stiff competition. Hence, evaluation of change management programs dealing with the development of employees' career through the collective efforts of its own employee from all levels of the organization forms the core part of the present research.

OBJECTIVE OF STUDY

Primary

To ascertain the underpinning of select Change Management Models in ERP implementations in IT industry at Hyderabad and Bangalore.

Secondary

To ascertain the underpinning of 'Chaos theory' and change management Roles' in ERP implementations in IT industry at Hyderabad and Bangalore.

Hypothesis

Primary

H₀ 1: Underpinnings of Select Change Management Models is not related to ERP Implementations in IT industry at Hyderabad and Bangalore.

Secondary

H₀ 2: Underpinning of 'Chaos theory and change management Roles' is not related to ERP implementations in IT industry at Hyderabad and Bangalore.

Sampling

Sampling Plan

The sample plan consists of choosing employees from IT industries for the study from the geographical region of Hyderabad and Bangalore cities. Further, the total size and composition of IT employees of the IT firms form the base for prescribing no. and size of respondents to be drawn from various hierarchical levels of the IT firms.

Universe

Encompasses total number of Male and Female employees at various hierarchical levels of all IT firms at Hyderabad and Bangalore cities.

Sample Size

It is a proportional representation of the employee density at a given location, firms and their various hierarchical levels, fixing the sample size of 316 and 974 for Hyderabad and Bangalore respectively.

Sampling Technique

The process of drawing sample respondents from the sample universe is known as sampling technique, among many techniques available Stratified sampling is employed for the purpose since it is more appropriate as the sample respondents are distributed in different organizations as stratified groups at different hierarchical levels of the firms. The organizational setting of the employee pre determines the suitability of the sampling technique making the exercise more meaningful, appropriate and relevant.

STATISTICAL TOOLS APPLIED FOR ANALYSIS

The following statistical tools are used for analyzing the data procured from the respondents from different locations selected for the study.

Simple Percentage
Chi-square Analysis

LIMITATIONS OF STUDY

A research study of this nature could not be carried out without any limitations. Hence, this research study is limited to principally the population, target population and sample population as their opinions, attitudes there on the findings of the study. Second factor is the time factor, which exerts magnificent influence on the opinion of sample population. In a study of this magnitude though, meticulous care has been taken in each aspect of study.

Unawareness of concepts and procedures prevailing in some respondents.
Hesitation on part of few of the respondents to offer details.
Bias as a general phenomenon in the responses offered.

Despite the above limitations, the researcher offered his best to overcome the limitations while completing the study.

DATA ANALYSIS & INTERPRETATION

Table-1: Change Management through Chaos Theory in ERP Implementations in IT industry at Hyderabad and Bangalore

Change Management	1	2	3	4	5
	LOW		HIGH		
<i>Managing Transitions</i>					
Destabilizing employees	-	-	41 (3.2%)	1249 (96.7%)	-
Involving in decision making and problem solving	-	-	41 (3.2%)	1246 (96.5%)	3 (.2%)
<i>Building Resilience</i>					
Enhancing employee ability to absorb/accept change	-	-	41 (3.2%)	1242 (96.2%)	7(.5%)
<i>Destabilizing the System</i>					
Create a state of tension	-	-	43 (3.3%)	1245 (96.4%)	5 (.3%)
Seek disconfirmation of organizational beliefs	-	-	41 (3.2%)	1245 (96.4%)	2 (.2%)
Acting as devil’s advocate	-	-	41 (3.2%)	1243 (96.3%)	6 (.5%)
Imparting creativity to cope with highly competitive markets	-	-	41 (3.2%)	1244 (96.4%)	5 (.4%)
<i>Managing the Present and Future</i>					
Balancing between the need for order and change	-	-	41 (3.2%)	1245 (96.4%)	4 (.3%)
<i>Creating and Maintaining Learning Organization</i>					
Facilities for continuous learning for every one	-	-	41 (3.2%)	1244 (96.4%)	5 (.4%)

Sources: Authors Compilation

Table-1 provides the change management actions as application of Chaos theory, which assumes that organizational change is non-linear, is fundamental rather than incremental. The companies continuously regenerate themselves through adaptive learning and interactive structural changes. In the present study, it can be seen that in change management actions, for managing transitions 96% of the sample rated 4 for destabilizing employees and involving them in decision-making and problem solving. The study also reveals that majority of respondents (96.2%) pointed out that building up resilience was high through enhancing employee

ability to absorb/accept change. The next step of change management action is destabilizing the system in which 96% of the IT employees selected gave high rating for creating a state of tension, seek disconfirmation of organizational beliefs. The respondents also rated high the change manager in acting as devil's advocate and imparting creativity to cope highly competitive markets. The change manager given rating of 4 (high) by majority of respondents in balancing the need for order and change. Further, it can be noted that majority of the respondents also rates facilities for continuous learning for everyone as high. Change is constant, from the results it can be concluded that chaos theory is related to ERP implementation in IT industry. With growth of organizations, complexity and possibility for susceptible events increase. Creativity and flexibility are necessary to adapt to the change and it is change manager role to build resilience, maintain balance and encourage creativity. From this result, it can be concluded that chaos theory has good influences in change management in ERP implementation in IT industry at Hyderabad and Bangalore.

Table-2: Gender differences in Chaos Theory

S. No.	Change Management	Male			Female			Chi-square Significance
		3	4	5	3	4	5	
1.	Managing Transitions							
A	Destabilizing employees	28	746		13	503		.332
B	Involving in decision making and problem solving	28	745	1	13	501	2	.352
2.	Building Resilience							
	Enhancing employee ability to absorb/accept change	28	743	3	13	499	4	.359
3.	Destabilizing the System							
A.	Create a state of tension	29	743	2	13	501	2	.441
B.	Seek disconfirmation of organizational beliefs	29	744	1	14	501	1	.575
C.	Acting as devil's advocate	28	742	4	13	501	2	.513
D.	Imparting creativity to cope with highly competitive markets	28	743	3	13	501	2	.545
4.	Managing the Present and Future							
A.	Balancing between the need for order and change	28	743	3	13	501	2	.545
5.	Creating and maintaining learning organization							
A.	Facilities for continuous learning for every one	28	742	4	13	503		.14

Sources: Authors Compilation

The table presents gender differences in chaos theory of change management. The study notes that majority of male and female respondents rated high the managing transitions, building resilience, destabilizing the system, managing the present and future, creating and maintaining learning organization. The chi-square test reveals that there are no gender differences as the calculated value is greater than 0.05 significance level.

FINDINGS

Moderate to very high Conceptual application of Chaos theory and change management.

Roles in ERP implementations in IT industry.

High Conceptual application of Chaos Theory and Change Management Roles by the majority of male and female respondents.

CONCLUSIONS

Concludes persistence in existing Chaos Theory and Change Management Roles in ERP implementations in IT industry.

Concludes that there are no gender differences in existing Chaos theory and change management Roles in ERP implementations in IT industry.

REFERENCES

- Palmer, I., & Dunford, R. (2008). Organizational change and the importance of embedded assumptions. *British Journal of Management*, 19(1), 20-32.
- Abrahamson, E. (2000). Change without pain. *Harvard Business Review*, 78(4), 75-79.
- Alvesson, M., & Sveningsson, S. (2008). *Changing Organizational Culture*. USA: Routledge Publishing.

Beckhard, R., & Pritchard, W. (1992). *Changing the Essence: The Art of Creating and Leading Fundamental Changes in Organizations*. San Francisco: Jossey-Bass.

Buchanan, D., Claydon, T., & Doyle, M. (1999). Organizational development and change: The legacy of the nineties. *Human Resource Management Journal*, 9(2), 20-37.

Carnall, C.A. (2007). *Managing Change in Organizations* (5th Ed.). London: Prentice Hall.

Carr, D., Hard, K., & Trahan, W. (1996). *Managing the Change Process: A Field Book for Change Agents, Consultants, Team Leaders, and Reengineering Managers*. New York: McGraw-Hill.

Duck, J. D. (1993). Managing change: The art of balancing. *Harvard Business Review*, 17(6), 109-118

Hannagan, T. (1998). *Management Concepts & Practices* (2nd Ed.). London: Pitman Publishing.

Kotter, J. P. (2005). Leading Change: Why Transformation Efforts Fail. *Harvard Business Review*, 73(2), 59-67.

Retrieved from <http://investopedia.com/terms/e/erp.asp>

Retrieved from <http://journals.sagepub.com/doi/abs/10.1177/0021886312469442>

Retrieved from <http://link.lib.byu.edu/portal/Managing-the-change-process--a-field-book-for/OSBB2GkE6k/>

Retrieved from <http://link.library.deakin.edu.au/portal/Managing-the-change-process--a-field-book-for/OSe...>

Retrieved from <http://onlinelibrary.wiley.com/doi/10.1111/bjom.2008.19.issue-s1/issuetoc>

Retrieved from <http://onlinelibrary.wiley.com/doi/10.1111/j.1467-8551.2008.00568.x/abstract>

Retrieved from <http://onlinelibrary.wiley.com/resolve/doi?DOI=10.1111/j.1467-8551.2008.00568.x>

Retrieved from <http://sche.ap.gov.in/ASSTPROFDASHBOARD/Notifications/SRI%20KRISHNA%20DEVARAYA%20UNIVERSIT...>

Retrieved from <http://support.sas.com/resources/papers/proceedings13/430-2013.pdf>

Retrieved from <http://umsl.edu/~sauterv/analysis/f06Papers/Wonglikphai/>

Retrieved from <http://www.asce.org/documents/zones/zone1/2014/Student/PDFs/6.pdf>

Retrieved from http://www.bestpracticehelp.com/ITIL_and_Organisational_Change_Tinkering_and_Kludging_to_A...

Retrieved from <http://www.changemethod.com/change-management-roles/>

Retrieved from <http://www.economist.com/node/12918653>

Retrieved from <http://www.mba-tutorials.com/management/2265-implementation-of-erp-in-the-organization.htm...>

Retrieved from <http://www.nios.ac.in/media/documents/316courseE/E-JHA-31-10A.pdf>

Retrieved from <http://www.plumsoft.com/wp-content/uploads/2015/06/article2.pdf>

Retrieved from [http://www.scirp.org/\(S\(i43dyn45teexjx455qlt3d2q\)\)/reference/ReferencesPapers.aspx?Referen...](http://www.scirp.org/(S(i43dyn45teexjx455qlt3d2q))/reference/ReferencesPapers.aspx?Referen...)

Retrieved from <http://www.skuniversity.ac.in/dload/PDF%20SKU-Asst%20Professors%20Notification%20Phase-II%...>

Retrieved from http://www.umsl.edu/divisions/business/mob/Syllabi/5600_balser.pdf

Retrieved from <http://www.wiley.com/WileyCDA/Section/id-351233.html>

Retrieved from <http://www.wiley.com/WileyCDA/Section/id-351234.html>

Retrieved from <http://www.wiley.com/WileyCDA/WileyTitle/productCd-0471788708.html>

Retrieved from <http://www.worldcat.org/title/managing-the-change-process-a-field-book-for-change-agents-c...>

Retrieved from http://www-pub.iaea.org/MTCD/publications/PDF/te_1491_web.pdf

Retrieved from <https://2012books.lardbucket.org/books/an-introduction-to-organizational-behavior-v1.1/s19...>

Retrieved from <https://annabelami.wordpress.com/2010/03/19/palmeri-and-dunford-r-2008-organizational-chan...>

Retrieved from <https://bloggerravi.wordpress.com/2017/05/23/balancing-past-present-and-future/>

Retrieved from <https://cb.hbsp.harvard.edu/resources/marketing/docs/95204f2.pdf>

Retrieved from <https://changedesignsportal.worldsecuresystems.com/public/organisation/change/Roles-in-cha...>

Retrieved from <https://changedesignsportal.worldsecuresystems.com/public/organisation/change/The-role-of-...>

Retrieved from <https://global.oup.com/academic/product/the-design-and-conduct-of-meaningful-experiments-i...>

Retrieved from <https://hbr.org/2007/01/leading-change-why-transformation-efforts-fail>

Retrieved from <https://hbr.org/product/leading-change-why-transformation-efforts-fail-hbr-bestseller/R070...>

Retrieved from <https://managementstudents.wordpress.com/2011/09/04/impact-of-enterprise-resource-planning...>

Retrieved from https://papers.ssrn.com/sol3/Delivery.cfm/SSRN_ID2656524_code2445090.pdf?abstractid=265652...

Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1095902

Retrieved from <https://quizlet.com/93743842/mgmt-417-flash-cards/>

Retrieved from <https://selecthub.com/enterprise-resource-planning/why-erp-systems-are-important/>

Retrieved from <https://www.business.unsw.edu.au/Programs-Courses-Site/Courseoutlines/MBAX9131-s2-15-leade...>

Retrieved from <https://www.cliffsnotes.com/study-guides/principles-of-management>

Retrieved from <https://www.cliffsnotes.com/study-guides/principles-of-management/managerial-environments/...>

Retrieved from <https://www.deepdyve.com/lp/emerald-publishing/change-hrm-and-the-voluntary-sector-TyPhlCm...>

Retrieved from <https://www.deepdyve.com/lp/wiley/organizational-change-and-the-importance-of-embedded-ass...>

Retrieved from https://www.enterpriseinnovation.net/files/whitepapers/top_10_erp_vendors.pdf

Retrieved from <https://www.prosci.com/change-management/thought-leadership-library/making-a-business-case...>

Retrieved from <https://www.smartsheet.com/8-elements-effective-change-management-process>

Retrieved from <https://www.thebalance.com/point-of-view-1277038>

Retrieved from <https://www.torbenrick.eu/blog/change-management/successful-change-management-involve-the-...>

Retrieved from <https://yourbusiness.azcentral.com/functions-organization-business-4346.html>
