Integrated Agile Software Framework: The Role of Critical Success Factors in Completion of Agile Software Project

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ABSTRACT
In the present day dynamic business environment, Agile Software could be the only savior for the organizations to face the ever changing business challenges and the dynamic complex requirements of customers. Agile Framework being the light weighted, it never expected complicated processes. The people's participation is very much considered in the agile framework development. Therefore, Critical Success Factors have occupied the key position and been considered to be foremost important in the agile software development process (ASDP) project. In accordance with the above requirements, ten CSFs have been identified and selected for this study. In order to investigate the presence of agility in the CSFs, the software developers were taken as samples and responses were obtained from them through the self structured and tested questionnaire. The data thus obtained were fitted to "t" and One Way ANOVA tests to understand the significant presence of agility with the selected CSFs and its influence over the Agile Software Development Project (ASDP). The results of the analysis clearly indicated the positive and significant association between the ASDP and the Critical Success Factors through their contribution of agility in the ASDP.

Keywords
Agility, Integration of Process with Systems, Critical Success Factors, Model Development.

1. INTRODUCTION
The present day world witnesses a 360 degree of fast movement in all the tasks carried out by human being. This fastness compelled everyone to adapt themselves to match to the fastest dynamic business trend of world. The business organizations have to encounter the fastest ever changeable business trend for their survival because, the attitude and behavior of consumers have also became more adaptive and dependable to the change in order to lead better and satisfactory life and live along with global trend. Mostly, the manufacturing and processing industries are witnessing dynamic changes in business and hence were mostly affected to the speedy trend of changing attitude and behavior of the consumer. It is the highest and most important responsibility of organizations/companies to satisfy the need and the requirements of consumer in order to keep their business standings always in high level among the similar organizations. This challenge could be met comfortably by engaging proper or suitable software in their various organizational processes. Despite availability of a number of traditional software belong to agile group few of them are in widespread applications in industries. Those have been mentioned below along with timeline: Lean (1950), Scrum (1986), Dynamic System Development (DSDM-1990s), Rapid Application Development (RAD-1991), Extreme Programming (XP-1996), Feature-Driven Development (FDD-1997), and Crystal (1998). The above softwares are heavy weighted and hence the organizations had to experience hardships in practicing those softwares in the organization. Therefore, the business organizations were desperately looking for light weighted software. The agile software came to their rescue due to its light weighted characteristics and its implementation is not cumbersome and is very easy. No technology is needed for its development, because, the agile software is basically a conceptual one developed with fully and wholehearted participation of people. The light weighted agile software that was proposed through the agile manifesto during the year 2017 and became the light in the darkness for the organizations in their troublesome days. Few of the core values of Agile Software Development considered as very important by [13] are: (1) individuals and interactions over process and tools are important (2) working software over comprehensive documents (3) Customer Collaboration over contract negotiation and (4) responding to changes by adapting a definite planofaction. Later, the agile manifesto was framed based on the above four core values. There are five facets in the organization, which include (1) People, (2) Process, (3) Strategy, (4) Structure and (5) Technology [6]. The agile framework development methodology mostly not considers the technological facet because it mainly based on People, Process and sometimes in few organizations, the Strategy and Structure. The turbulent and constantly changing and unexpected business situation help gain much attention on agile software development process (ASDP) which is considered to be an approach that provides values and principles to organization's strategy to adapt new valuable and appropriate business software. Therefore Agile Framework is considered by many researchers the good fit for the organizations facing dynamic business environment.

1.1 Theoretical Background
A few selected important reviews have been cited below to establish the theoretical background of the idea and the objective of this research paper. In the first, it is very important to know about "Agile" and its meaning, its importance in the business organization and importantly the need of development of software that comprehends the characteristics of agile phenomena. Then is the "agility", which the core substance, sometimes the product or the component that endowed mainly with the concept "agile". The software development organizations which seek to go for agile framework methodology (AFM) need importantly the agility shift across

the enterprise by accelerating the procedures and initiating intense operating endeavour in order to transform the structure of organization flatter, networking, and by forming cross functional teams [20].

1.2 Organizational Agility

The concept of agility is mainly applied in Software Development Organizations (SDOs) in the process of software development to deliver the product on time and hence is considered as "organizational agility" [1]. Organizational agility can be referred as to encounter successfully the dynamic requirements and needs of customers as quickly as maximum by fully and ideally and optimally utilizing the capabilities of the organization. It can otherwise be defined as the ability of a firm to use the internal capabilities of an organization to meet the external expectations and unexpected ever changing requirements of customers carefully in the most effective way [19]. It is expected and a must for all the Software Development Organizations (SDOs) to embrace the organizational agility by complying with the requirements of agile software development. Since, agile software development being the people based, one of the important requirement is the competent people that is employees and their ability to carry over successfully the task entrusted by the top management. Those requirements are heavily embodied with Critical Success Factors (CSFs). Therefore, the inclination of customer requirements and the tasks remains close to CSFs and hence the CSFs play key and significant role in agile software development process (ASDP) because, the CSFs were endowed with life concerning with as many as aspects.

1.3 Critical Success Factors

Chow and Cao (2008) [7], Stankovic et al., (2013) [25] and Tripathy et al (2014) [26] have done a study on critical success factors in agile software projects. The critical success factors (CSFs) are naturally the embodiment of "agility". In any project management or project development the CSFs play critically a crucial role deciding its success or the failure of the project. According to Misra et al, 2009 [21], Few of the Critical Success Factors which are more supportive during agile system development projects include, culture, people, time, budget, scope, user acceptance and communication . In this regard, Chow & Cao, (2008) [7] have studied the importance of CSFs in agile software development project (ASDP). Hansen (2021) [12] has highlighted the importance of culture has been brought out by several researchers. Top Management Commitment has been ranked as the most important critical success factor for successful completion of project [3]. The leadership agility has very well been studied by [14, 17, 12] have shown an approach to create a culture of agile leaders. Employee Empowerment has been examined and studied in detail by several authors for example, [16, 23, 24, 9, 8, 10] Further, Agarwal, 2014 [2] ; Gorgievski, et al., 2014 [11] ; Chen & Huang, 2016 [5] ; Kim & Park, 2017 [18] have found that Employee Empowerment is key to motivate innovative behavior. Yaghoubi and Dahmardeh, (2011) [27] and Salahat (2021) [22] have studied the importance of the CSF- Knowledge Management during ASDP. Accordingly, after reviewing a number of research studies implying CSFs in ASDP, the authors of the present study have selected ten such critical success factors and attempted to study how far those selected CSFs help by influencing agility in enhancing the task of ASDP.

2. THE GAP AND THE MOTIVATION OF THE STUDY

It was ascertained from most of the previous studies, that a process of integration has been done between two or among three or more similar different agile softwares for effective implementation. So far, no integration effort has been made to integrate the agile software process with any of the important alien management systems like, Quality Management Systems (QMS:ISO: 9001-2015; Environmental Management Systems (EMS-ISO:140001-2018; Occupational Health and Safety Management System (OHSMS-ISO:18001-2007(presently-50000), and Lean-Six Sigma. The agile software development is mainly depends upon human force and the technicality is mostly nil. The sustainability aspect has also to be given more importance due to human presence. Therefore, the authors felt that it is an important gap to the present dynamic business environment and felt unavoidable to incorporate the above systems components with process factors. The above systems and process motivated the present authors [15] to develop the Integrated Agile Framework (Refer Figure 1) which is unique in agile software integration. Therefore, the framework of Integrated Agile Software Methodology has been adopted in this empirical study.

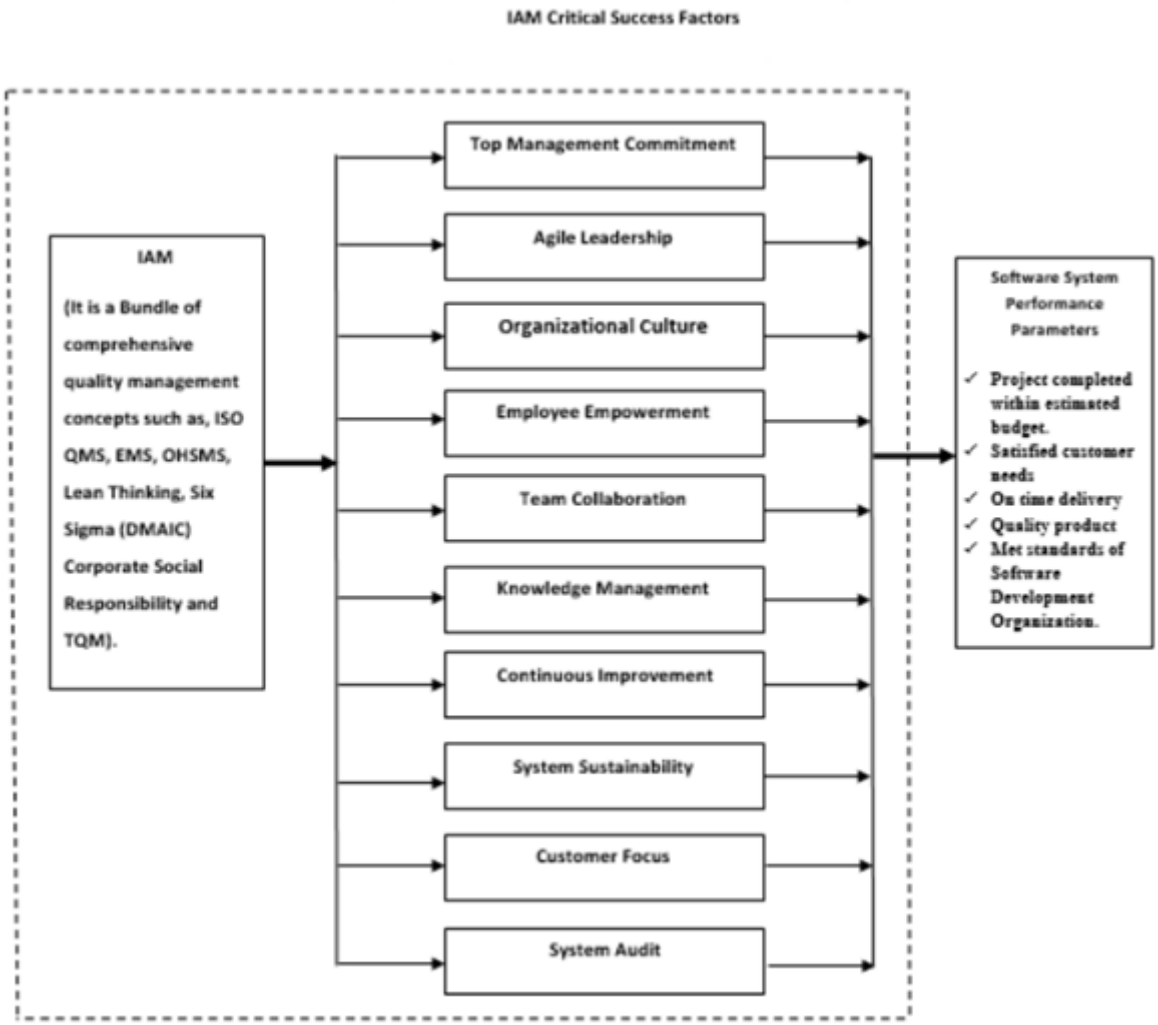

Fig 1. A Framework of Integrated Agile Methodology for Software Development Process (Source: Jeyathilagar, A., et al, 2025) [15]

2.1 Research Questions

There are few research questions which have to be suitably answered from this empirical analysis.

1. Is there any relationship between the critical success factors and the ASDP?
2. Are the critical successes factors really have and contribute power of "agility" during ASDP?
3. Is people play important role in ASDP?
4. Whether integration is possible between Systems and Process.

2.2 Objectives

Few of the important objectives of this research study are:

- ✓ To evaluate through the perception of various profiles of software developers the role of "people" factor during ASDP
- ✓ To investigate the presence of "Agility" within CSFs through the perception of various profiles of software developers.
- ✓ To analyze the significant contribution of "Agility "by CSFs during ASDP

2.3 Hypotheses

Following few null hypotheses have been framed to test the results obtained from data analysis.

H_01- There is no significant association between profile factor "Monthly Income" with the ten CSFs in influencing and enhancing agility during ASDP.

H_02 - There is no significant association between profile factor "Educational Qualification" with the ten CSFs in influencing and enhancing agility during ASDP.

H_03 - There is no significant association between profile factor "Size of Organization" with the ten CSFs in influencing and enhancing agility during ASDP.

H_04 - There is no significant association between profile factor "Employment Status" with the ten CSFs in influencing and enhancing agility during ASDP.

H_05 - There is no significant association between profile factor "Age" with the ten CSFs in influencing and enhancing

agility during ASDP.

3. METHODS

Further, null hypotheses were also framed to test the results in terms of significant influence of CSFs towards contribution of agility. An instrument was constructed incorporating ten

critical success factors under each a total of 108 variables have been incorporated. All the validity tests as prescribed have been done. After having tested the instrument on parameters set for the good instrument. As such scale reliability was done. (Refer Table 1). In this study, the calculated reliability coefficients (Cronbach alpha) of 10 CSFs were within the considerable parameters. Therefore, the internal consistency was established and hence the reliability of the instrument was confirmed and fittest for the administration. It was then distributed to respondents. The geographical area for this research study was the southern Tamil Nadu State, because, most of the Sothern districts in Tamil Nadu poised to get more IT companies. 200 to 300 samples were targeted due to time constraint. The targeted samples were the members of the staff belong to the categories of Developers and their group leaders. Though, Convenient Sample technique has been employed in collecting responses from samples, those samples have been stratified into five groups namely, "monthly Income", "Educational Qualification", " Size of the Organization""Occupational Status" and Age". The perceptions of respondents belong to the five profiles have been obtained and converted to numerical data and to which the statistical tools "t" and One Way ANOVA were employed. The results of the data analysis have been neatly presented in Tables for interpretation. The latest version of SPSS software was used for analyzing the data.

Table 1. Scale Reliabilities

Sl. No.	Critical Success Factors	No. of Predictors	Alpha
1	Top Management Commitment (TMC)	12	0.8325
2	Agile Leadership (AL)	10	0.6503
3	Organizational Culture (OC)	11	0.7990
4	Employee Empowerment (EE)	10	0.6737
5	Team Collaboration (TCN)	10	0.7158
6	Knowledge Management	12	0.7793
7	Continuous Improvement (CI)	10	0.8160
8	System Sustainability (SS)	12	0.8552
9	Customer Focus (CF)	11	0.7258
10	System Audit (SA)	10	0.6872
	Total	108	0.7943

4. RANKING OF CSFs

Ranking of CSFs was done on the basis of Global Mean Scores. The following Table 2 explains the ranks scored by the CSFs as perceived by different demographic factors. It was ascertained from Table 2 that considering the "mean scores", the Critical Success Factor-Continuous Improvement (CI) has been placed in I rank (4.363), System Sustainability (SS) scored the II rank (4.160), Top Management Commitment (TMC) has been placed in III rank (3.973) and System Audit (SA) adjudged IV rank (3.905). The ranks V – VIII were given to Agile Leadership (AL) (3.853), Customer Focus (CF) (3.736), Team Collaboration (TCN) (3.641) and Organizational Culture (OC) (3.633) respectively. The ninth and the tenth ranks have been attained by Employee Empowerment (EE) (3.611) and Knowledge Management (3.479) respectively.

5. CRITICAL ANALYSIS OF DATA AND DISCUSSION

The perceptions obtained from the profile 'Monthly Income' of the sample were converted to numerical data and fitted to One Way ANOVA test. The result of the data analysis has been presented in Table 3 below: A null hypothesis has also been framed to test the result and its outcome. It is understood from Table 3 that the mean scores as perceived by the three groups of employees who were stratified according to the quantum of monthly income, were found to be uniformly high. However, the employees who have grouped under (1) and (2) were found to be comparatively high in respect of CSFs-TCN(4.0398,4.0720),KM-(4.1000,3.9440), CI-1204,4.2000),SS-(3.9722,4.0800),CF-4.1056, 4.1760) and SA-(4.1713, 4.1400). The profile factor "Monthly Income" has perceived eight CSFs (except the CSFs – OC & EE) to be significant contributors of agility during ASDP. However, the employees have given more importance to those two insignificant CSFs by evolving with high mean scores because the CSF- Organizational Culture mostly help the employees that are from top to bottom the space and the concern to apply agility according to the working environment. Further, the CSF-Employee Empowerment helps employees to exercise agility according to its requirement. However, the employees have given more importance to those two in significant CSFs by evolving with high mean scores. Hence, it is inferred that there is close and significant association between the eight CSFs (except OC & EE) in influencing ASDP. Therefore, the null hypothesis H01 has been mostly rejected. The employees belong to the profile factor "Educational Qualification" responded in rating the enablers under the ten CSFs pertaining to influence of agile project development through their contribution of agility. The result of One Way ANOVA has

been shown in Table 4.

From the Table 4, it is observed that, the perceived mean scores of all the ten CSFs were shown with high rate of perceptions by the above three groups of profile factor about their importance in the ASDP. The CSF-Organizational Culture (OC-2.704) has-been evaluated to be not significant. However, its mean score was found to be high in all the three segments and hence its importance in the ASDP has been confirmed by the respondents. The employees belong to the above profile have perceived nine CSFs (except the CSF-OC) to be significant contributor of agility during the ASDP. Hence, it is inferred that there is close and significant association between the nine CSFs (except the CSF- OC) in influencing ASDP. Therefore, the null hypothesis H01 has been mostly rejected. Therefore, the null hypothesis H02 has been mostly rejected. The data regarding the responses of the three groups of employees belong to the profile "different size of organization" in respect of the ten CSFs were analyzed by employing the test of One Way ANOVA and the result has been presented in Table 5. It is understood from Table 5, that, the employees belong to the above three size of IT organizations, have perceived the ten CSFs with moreover medium to high rate of mean scores. They have found all the ten CSFs were significant contributor of agility during ASDP. It was ascertained from the "f" ratio that the employees belong to these three groups have given more importance to the CSFs; TCN (124.5438), KM (103.8375) and OC (93.6530). Hence, it is inferred that there is close and significant association between the ten CSFs in influencing ASDP. Therefore, the null hypothesis H03 has been totally rejected. How the importance of CSFs have been considered by the profiles belong to permanent and probationers was analyzed from the data obtained through their perception on the ten CSFs and „t" test was employed on the data to ascertain its significant association of the profile "Employment Status". The result obtained has been detailed in Table 6. It is noticed from the Table 6, that the permanent employees have perceived the ten CSFs with moderate to near high value of mean scores. This shows the moderate importance given by the permanent employees to the ten CSFs. The probationers have perceived differently from permanent cadres, by perceiving those CSFs with high rate of mean scores to consider those CSFs with high importance. In observing the „t" values, it could be presumed that all the ten CSFs were perceived to be significant contributors of agility. Hence, it is inferred that there is close and significant association between the ten CSFs in influencing ASDP. On reviewing the above result, it could clearly note that a clear difference of perceptions with to the influence of ten CSFs in ASDP could be observed between permanent and probationers. The permanent employees naturally have more experience than the probationers and hence they possessed with more skills and competencies in the Software Development Projects (SDPs) which might have resulted in differential perceptions. However, the null hypothesis H04 has been totally rejected. The result of One Way ANOVA obtained from the data collected from three group of employees belong to the profile "Age" in respect of ten CSFs and that have been subjected to investigation in order to understand the presence of agility among them has been presented in Table 7. It is observed from Table 7, the employees belong to groups 1 & 2 that is below 25 years and 26-50 years of age have evaluated the ten CSFs with moderate to high rate of mean scores. Interestingly, the employees belonging to higher age group (3) that is above 50 years of age, has evaluated the CSFs with highly moderate mean scores. However, the profile "Age" has perceived all the ten CSFs significantly influence agility in the ASDP and hence can be utilized during project development. However, considering the perceived mean scores of the ten CSFs, it is clearly noted the difference of perceptions between lower (1) and medium (2) aged employees. The reason for this difference of perceptions related to paucity of skill and competency. The above two sects of employees had to learn more on the ASDP. Despite the above difference in their perceptions, considering the f-ratio, it is inferred that significant association between the ten CSFs in influencing ASDP. Therefore, the null hypothesis H_05 has been totally rejected.

Table 2 . Ranking of Critical Success Factor (Global Score).

Sl.. No.	Critical Success Factors	Mean(Global)	Rank
1	Top Management Commitment (TMC)	3.973	III
2	Agile Leadership (AL)	3.853	V
3	Organizational Culture (OC)	3.633	VIII
4	Employee Empowerment (EE)	3.611	IX
5	Team Collaboration (TCN)	3.641	VII
6	Knowledge Management	3.479	X
7	Continuous Improvement (CI)	4.363	I
8	System Sustainability (SS)	4.160	II
9	Customer Focus (CF)	3.736	VI
10	System Audit (SA)	3.905	IV

Table 3. Association of Profile Factor "MonthlyIncome" with CSFs in influencing Agility during Agile Software Development Process ASDP

Sl. No.	Variables	Mean Score(MonthlyIncome)			F Ratio	F Probability
		<50,000 (1)	50,000-1,00,000 (2)	>100000 (3)		
1	TMC	3.9028	40360	3.7171	12.3452*	0.0000
2	AL	3.9148	3.9800	3.7902	4.9577*	0.0071
3	OC	3.9833	4.0720	3.9415	2.1603	0.1156
4	EE	3.8477	3.8840	3.7512	1.9534	0.1421
5	TCN	4.0398	4.0720	3.7024	19.5079*	0.0000
6	KM	4.1000	3.9440	3.8146	15.4668*	0.0000
7	CI	4.1204	4.2000	3.8146	18.0196*	0.0000
8	SS	3.9722	4.0800	3.5951	23.2204*	0.0000
9	CF	4.1056	4.1760	3.9366	6.6578*	0.0013
10	SA	4.0713	4.1400	3.9659	3.6345*	0.266

*Significantat5percentlevel

Table 4.AssociationofRespondentsbelongtodifferent"EducationalQualifications"withCSFsin influencing Agility during Agile Software Development Process (ASDP)

Sl. No.	Variables	Mean Score(Educational Qualifications)			F Ratio	F Probability
		Diploma	Graduate	P.G		
1	TMC	3.9868	3.9110	3.7603	8.119*	0.0033
2	AL	4.629	3.8778	3.8464	10.899*	0.0000
3	OC	4.0662	3.9865	3.9288	2.704	0.0672
4	EE	3.9702	3.8090	3.8069	5.739*	0.0033
5	TCN	4.3444	3.9234	3.7024	19.507*	0.0000
6	KM	4.1557	4.0725	3.7828	20.691*	0.0000
7	CI	4.1921	4.1004	3.9513	7.615*	0.0005
8	SS	4.2450	3.8965	3.7491	30.574*	0.0000
9	CF	4.2682	4.0890	3.9176	17.099*	0.0000
10	SA	4.0662	4.1014	3.9513	4.983*	0.0090

*Significantat5percentlevel

Table 5.Perceptions of Respondents belong to different "Size of Organizations" on CSFs in influencing Agility during Agile Software Development Process (ASDP)

Sl. No.	Variables	Mean Score(Size of IT Organization)			F Ratio	F Probability
		Small	Medium	Large		
1	TMC	4.0607	3.6970	3.6832	59.8644*	0.000
2	AL	4.0378	3.7475	3.7349	41.8161*	0.000
3	OC	4.1970	3.7626	3.7047	93.6530*	0.000
4	EE	3.9622	3.8474	3.6053	36.0206*	0.000
5	TCN	4.2176	4.0000	3.5905	124.5438*	0.000
6	KM	4.2532	3.8838	3.6940	103.8375*	0.000
7	CI	4.2291	4.1818	3.7974	56.3163*	0.000
8	SS	4.1065	3.9141	3.6358	53.3509*	0.000
9	CF	4.1286	4.1566	3.9849	7.7568*	0.004
10	SA	4.1249	4.1919	3.9095	18.8427*	0.000

* Significant at 5 per cent level.
Note: Small size-<100employees; Medium size –101-500employees; Large size->500 employees.

Table 6. Association of "Employment Status"with CSFs in influencing AgilityAgile Software Development Process (ASDP)

Sl. No	Variables	Employment Status				"t"	Sig. level
		Permanent		Probationer			
		Mean	SD	Mean	SD		
1	TMC	3.8796	0.814	4.3013	0.757	6.54*	0.000
2	AL	4.1051	0.624	4.2500	0.608	2.81*	0.005
3	OC	3.9456	0.687	4.1026	0.755	2.48*	0.014
4	EE	3.7404	0.801	4.0064	0.861	3.68*	0.000
5	TCN	3.9688	0.713	4.1474	0.769	2.77*	0.006
6	KM	3.8608	0.748	4.0577	0.571	3.94*	0.000
7	CI	3.6773	0.763	4.1987	0.731	8.41*	0.000
8	SS	3.7578	0.850	4.2051	0.785	6.69*	0.000
9	CF	3.7607	0.873	4.0577	0.844	4.15*	0.000
10	SA	3.6555	0.834	4.0064	0.749	5.48*	0.000

*Significantat5Percentlevel

Table 7. Association of CSFs as perceived by profile factor "Age" in respect of the Ten CSFs in influencing Agility during Agile Software Development Process (ASDP)

Sl. No.	Variables	Mean Score (Age in years)			F Ratio	F Probability
		>25 (1)	26-50 (2)	< 50 (3)		
1	TMC	3.7398	3.6760	3.400	12.2841*	0.0000
2	AL	4.1787	4.1080	3.8244	28.9071*	0.0000
3	OC	3.9852	4.2040	3.5415	57.0416*	0.0000
4	EE	3.8009	3.8960	3.4341	21.9791*	0.0000
5	TCN	4.0056	4.1360	3.7073	21.7369*	0.0000
6	KM	3.9398	3.9600	3.7951	2.9447*	0.0529
7	CI	3.9370	3.8280	3.7268	5.7457*	0.0033
8	SS	3.8241	3.8670	3.6244	5.4008*	0.0046
9	CF	3.7167	3.8920	3.6049	8.3639*	0.0002
10	SA	3.7194	3.7080	3.5220	4.9412*	0.0073

*Significant at 5 percent level

6. DISCUSSION

Perceptions were gathered through the questionnaire which was constructed by the authors and standardized by following the due procedures by subjecting the questionnaire into various validity tests. Five point Likert scale was used to collect the responses. The responses were transformed into numerical data and the data were fitted to "t" and One Way ANOVA tests as per its appropriateness and the results have been neatly portrayed in Tables. The five profiles have perceived the key presence of agility in all the ten CSFs. The perceived mean scores of the respondents in respect of all the ten CSFs were seemed to be high in respect of most of the CSFs. However, the profile factors, Monthly Income and Educational Qualification have differed in their perception by showing insignificant role of OC, and EE. The above two profile factors have perceived remaining CSFs (SS, TCN, CI, KM, & TMC) as significant role player in releasing agility during ASDP. All the ten CSFs have been perceived to be significant carrier of agility by the profile factors "Educational Qualification", "Size of Organization", "Employee Status" and "Age". Different profile factors have rated the CSFs in different levels that are from high significance to low significance level. Whereas, the above five profile factors have consider the CSF-Top Management Commitment (TMC) as the higher contributor of agility during ASDP. The null hypotheses pertaining to the assessment of profile factors, Size of Organization", "Employment Status" and "Age" have been totally rejected. At the same time, the perceptions of two profile factors "Monthly Income" and "Educational Qualification" pertaining to the association of ten CSFs have been mostly rejected. Ultimately, it was clear that the role of CSFs in ASDP could not be avoided in any circumstances and in any type of organization [7, 25, 4, 26].

7. CONCLUSION

In this paper the authors could be concluded, that all the selected ten CSFs have highly endowed with the component "agility" and have significant and positive influence on the process of Integrated Agile Framework Methodology. These results clearly support the earlier studies done by [21, 7, 25, 26]. The obtained mean scores of the ten Critical Success Factors have also confirmed the significant presence of agility in agile software development process. The integrated agile software framework is a comprehensive one to measure the performance of software development process and could be implemented effectively in service and manufacturing industries to meet the dynamic requirements of customers and stakeholders.

7.1 Theoretical Implications

It was observed from several research studies that the authors of all those studies have found significant and positive associations between the ten CSFs and the agility in enhancing the ASDP which have been empirically confirmed in this research work. The gap found in integrating systems with process in theory has been proved to be the best one. Further, this study added one more literature in the concept of Integrated Agile Framework Development.

7.2 Practical Implication

The theoretical part can give outlines of the concepts that have been derived from the expertise and experiments of agile experts. The present research work has considered mainly the two aspects in Agile Software Development Process (ASDP). One aspect is the integration of management and quality systems like MSS and QMS with the process (CSFs). The result of the empirical findings clearly proved that the unique integration is very successful in maintaining quality and sustainability. The findings help understand the pros and cons of the application of CSFs. Further, this study exemplifies that on what conditions and what circumstances, the power or the contribution of agility by the CSFs could easily be enhanced. Importantly, present study revealed the close and significant association between profile factors and the critical success factors. Therefore, the SDOs may evince keen interest in the above CSFs or in any CSFs which are suited and appropriate to the SDOs. Sometimes, few of the SDOs are in the compulsion of identifying and selecting CSFs according to the choice of their employees who in turn to take up the task of software development. Further, the responsibility of the management is very much laid on. Ultimately, the present authors of this article found that the above selected ten CSFs are very common to any size and any type of organization.

7.3 Suggestions

In the event of importance given to Agile Framework Methodology due to the dynamic business environment, it is suggested that the software development organizations (SDOs) must give more attention to the ASDP. Further, it is the prime

responsibility of Top Management to commit to mould the SDOs to be creative to face the business challenges successfully. The suggested and empirically tested uniquely integrated Agile Framework has to be taken up carefully by meeting all the sustainability criteria by giving due considerations to "people" factor. The light weighted characters of agile framework could easily be developed with least time at the instance of customers‟ satisfaction. Few CSFs might posses lesser quantum of agility. This is because, the environmental conditions. If positive and healthy work environment is maintained in the organization, agility could also be enhanced and make it more influential in ASDP.

7.4 Limitations and Scope for Further Research

This study used convenience sampling technique and collected responses through online mode. The survey was based very much on self assessment. Therefore, this may led to bias. Then the profiles of samples were stratified into various categories. The demographic characters of the respondents have been restricted to few. This study applied only "t" and One Way ANOVA tests for data analysis. The geographical area of the study also limited to Southern part of Tamil Nadu State. The authors, in order to limit the study in micro level, attempted to investigate the association of few profile factors using only the above two statistical tools. The authors have considered and selected only few CSFs and few profile factors. The research could be expanded to larger extent by incorporating few more CSFs and few more profile factors. Further, the coverage of study area could be further expanded to cover either the whole of Tamil Nadu State and pan India and even in countries abroad. This study has been conducted in Indian conditions of state; therefore, the same study could be extended to other countries also in different, economical, cultural and business conditions.

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