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The Impact of Innovative-Supportive Culture on Employee Performance in Software Development Companies of Sri Lanka

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Abstract

The main purpose of this research is to investigate the impact of innovative culture on employee performance at software companies of Sri Lanka. It explores the degree of impact on each factor of innovative culture on employee performance. The research hypothesizes that in software companies, innovative culture has a positive relationship on the employee performance and determinants of innovative culture. This empirical study draws upon a survey from software developers, business analyst, project managers and others who are directly involved in projects from the software development companies. Correlation and Multiple regression analyses proved that the impact innovative culture had on employee performance is strongly positive. Dimensions of innovative culture also had a positive impact on employee performance except the dimension 'trust' which did not have a statistically significant impact. This research study emphasises on the importance of fostering innovation as a way of business philosophy through the organisational culture which results in having a sustainable competitive advantage. It is not limited to the product but extends to employees too. The knowledge created has contributed to the business environment of Sri Lanka in relation to best organisational culture practices. Finally recommendations are given to practically implement some of the cultural practices that are lacking in Sri Lankan software companies.

Keywords: Innovative culture, Employee performance, Organisational culture, Sri Lankan software companies, Innovation

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1. Introduction

Innovative culture is a type of culture that can be seen in many organisations who empower employees. Many articles have been published (Anthony, 2004; Armson, 2008; Daniels, 2011; Hess, 2012) giving value to the culture that encourages innovation which is termed as innovative culture. This millennial concept has manifested due to high competition in the marketplace.

Sri Lanka's Information Technology (IT) sector has grown immensely over the past decade. Sub sectors including software development, IT infrastructure, hardware equipment, web hosting, web designing and mobile application development form the entire industry. Recently government of Sri Lanka had made initiatives (ICTA, 2012) to increase the investment flow to further expand the industry. In future, there will be much more new firms emerging and the demand for employment in the sector is expected to grow. IT firms not only cater the needs of local companies but also focusing on international companies especially through BPO (Business Process Outsourcing). Sri Lankan companies are compelled to adhere to the global standards. As many of the Asian countries are flooding up to capture international market, Sri Lanka should improve its quality in all aspects of its product and processes.

Cooper & Kleinschmidt stated (2010) that innovative culture is one of the critical success factors for new product development. Jassawalla & Sashittal (2002) identified organisations with highly innovation-supportive culture which encourage taking initiative, creativity and risk-taking among its members.

Human Resource concept bestowed a value to the human potential and showed the importance of taking care of the most valuable asset in the company (Armstrong, 2008). Companies understand the mutual benefit between them and employees who working for them. At present, high profile companies are hunting for high calibre employees which require the organisations to be attractive enough to the potential candidates. Many companies make efforts to be one of the 'best places to work' which creates goodwill among young professionals, attract and retain talent more easily (Gibson, 2012). This has resulted in building up the culture in organisations which binds the people together while fostering creative thinking and facilitates innovation within the company. This way companies are able to stand ahead in the competitive marketplace while taking care of their employees. Today as we all aware, IT Companies need to thrive everyday which requires new ideas very often than ever before in history. Ideas are not generated by machines. For ideas, creative minds are essential. Companies are in search of these potential candidates who can take the company and its value to the next level.

It is an explicit fact that innovative culture is aspired by most of the organisation to improve its market position (Hall & Vopel, 1997) through encouraging individuals to perform well. According to Stathakopoulos (1998), individual performance should not be measured using organisational performance. Revenue of the company, profit per annum, market share increase; all such indicators show how much organisation performs in a quantitative manner. How much an employee contributes to this figure is not realistic to measure, this is because above mentioned elements can be the result of market conditions and strategy formulation of the company.

Culture is a qualitative aspect of an organisation and its impact on employee performance in terms of their achievement of individual objectives is quite fair. Individual objectives will include what is

expected by the organisation from that employee (Mindtools, 2012). Organisational culture is about the norms and behaviour seen in the members of organisation that has been cultivated throughout a period. Hence organisation culture determines the commitment of an employee (Naicker, 2008) towards his tasks and behaviour. All the above argument is considered while measuring employee performance. Therefore, the researchers had a question whether innovative culture influences the employee performance in software companies in Sri Lanka.

2. Objectives of the Study

1. To explore the relationships between innovative culture and employee performance in Sri Lankan software companies
2. To identify the level of each factors of an innovative culture influence employee performance at Sri Lankan software companies

3. Scope of the Study

This research is restricted to Sri Lankan software and IT enabled services industry. According to Sri Lanka Association of Software and Services Companies (SLASSCOM) there are companies that are performing extremely well in Sri Lankan software and IT enabled services industry. These organisations are selected for this research. Data is collected from employees consisting of project managers, software developers, quality assurance executives, business analysts and designers who are directly involved in software development projects from each organisation. Innovative culture is considered as the independent variable and employee performance is considered as the dependant variable. An extensive literature review is carried out to find suitable dimensions for both independent and dependant variables. In addition, researchers found and added new dimensions of innovative culture, based on preliminary interviews.

4. Literature Review

4.1 Culture, Organisational Culture and Innovative Culture

Anderson and Taylor (2007) explain culture as ‘a complex system of meaning and behaviour that defines the way of life for a given group or society which includes beliefs, values, knowledge, art, morals, laws, customs, habits, language and dress.’ Culture determines the way of thinking of the members, hence an individual tend to show or behave in line with the culture he is associated from society. This creates a sense of belongingness, give direction on how to do things and instruct how to think and make decisions in different circumstances. These primary societal values, beliefs and practices are absorbed in an individual who carries the same to the organisation, yet organisational culture is not a replica of societal culture, if that is the case all the organisation would have had the same culture (Sinha, 2009).

According to Haybyrne (2002) organisational culture is defined as values, beliefs, and norms that are exhibited in the way that people in the organisation accomplish their work, relate to one another, and solve the problems that confront them on a daily basis. It coordinates members’ behaviour by letting them understand and accept the values and beliefs about how things are done in the organisation (Fernando, 2010). Organisational culture is the expression of the characteristic of the organisation which can be communicated by symbolism, emotions, conduct, meaning behind the words, work setting and even through a piece of art (Martins & Terblanche, 2003).

According to Cameron and Quinn (2011) that organisation can have four main different types of culture where all the other combination of culture can fit. These include creative/ adhocracy culture which depicts a dynamic, entrepreneurial and creative work environment that encourages thinking differently where innovation and risk taking will be embraced by employees and leaders. Innovative culture is a new concept that has been fostered by many companies especially in past few decades. It is the culture where creative thinking is central to organisational values, assumptions and actions (Deloitte, 2005). Main difference between other organisational culture and innovative culture is, latter will encourage creative thinking and innovation while keeping the human values at optimum.

Anthony (2004) argues that innovation is all about inventing things; but has forgotten about the inescapable need to do things in better ways. Innovation was once an end results where only process related or product related innovation was considered, but now due to the high degree of competition, innovation has to be a part of organisation in the form of its culture. Tidd, Bessant, & Pavitt (2005) suggest that innovative culture is where innovation can thrive. Artefacts of culture are structure and processes. Hence, by modifying at the level of these artefacts through reinforcing behavioural patterns creativity can be inhibited followed by successful implementations of innovations.

Hussain & Illyas (2011) argued that innovative culture enables an organisation to react to the dynamic changes in the market, to anticipate future challenges and opportunities. This will result in sustainable competitive advantage. Ahmed (1998) also emphasised on importance of creating appropriate culture and climate that is conducive for human communities to strive towards innovation which ultimately results in sustainable competitive advantage'. Adding further to his point, Sutton (2001) states that innovative culture is seen in an organisation when its employees are encouraged to experiment their ideas and to implement innovations together with their managers. All the arguments of researchers reveal that innovative culture is not only about producing innovative output that are favourable, but also about constantly keeping positive attitude of, thinking out of the box among employees of the organisation.

Armson (2008) stated in her research findings that the key to create a culture of innovation is emergent learning which means unstructured, non-organised learning, engaged in by individuals and/or by groups, that questions the status quo of the organisation. Daniels (2010) argues that innovation should be a strategic priority of the company which encourage change and a visionary leadership is necessary to execute it. Based on her survey (Daniels, 2011) with companies of Boston Consulting Group's top 100 most Innovative Companies list, it was found that there are six different cultural characteristics were showcased by innovative workplaces that include; context rich, creating customer value, confidence building, curious workforce, challenging and collaboration. Dombrowski, Kim, Desouza, Braganza, Papagari, Baloh, & Jha (2007) have discovered eight elements of innovative culture based on their exploratory multiple case study research with 30 American and European companies who have the track records of integrating business partners in their innovation processes. They are innovative mission and vision statements, democratic communication, safe spaces, flexibility, collaboration, boundary spanning, incentives and leadership. In the research done by Swedish researcher Goran Ekwall with 22 managers from software development companies and recent graduates, he has mentioned nine characteristics that are favourable for organisations to employ innovative culture. They are; challenge and involvement, freedom, trust and openness, idea time, playfulness/humour, conflict, idea support, debates and risk-taking (Ekwall, Britz, & Lauer, 2000).

Dombrowski et al. (2007) suggested based on their research on elements that affects innovative culture, democratic communication can happen with encouraging participation at all levels. This also can take a problem centered approach, where people who are interested in and involved in finding solutions for problems may be free of restrictions.

Leigh Thompson (HBR, 2012) states success of the endeavours such as making a new product or implementing a customer service initiative or creative solution that eases work process depends on the effectiveness of collaboration. Daniels (2011) argues that in earlier times innovations are possible by one person such as Einstein and Edison, but in the present era of technology with so many complicated processes, innovation is not possible without team work. She has confirmed that by citing a North-Western University study of 19.9 million scientific papers and 2.1 million patents that showed when more participants are involved in innovation efforts better results were produced (Daniels, 2011). Adler, Hechscher, & Prusak (2011) have mentioned in their research article, people tend to contribute more when they have trust among their team members. It comes from how much each member believes that other member is willing and able to further shared mission of the team. This kind of trust has to be present among team members, not having the fear that someone might steal his idea and say it is theirs. This point is further strengthened by Ekwall et al. (2000) who have mentioned in their research paper of 'Best and worst climate for creativity', when trust is missing people are suspicious and tend to guard each other, hide their plans and ideas. But when trust is there they are able to communicate easily and count on each other for professional and personal support. They are not reluctant to give credit for the co-worker who deserves it.

Daniels (2011) reveals in her 'six C' model for creating innovative culture, that curious individuals question the existing methods or output and tries to find answer through creative ideas. Therefore curiosity is also one of the important trigger for creative thinking. Workplace arrangement have important role in stimulating creativity in an organisation. This can be seen many global organisations such as Google, Apple and many other software development organisations. Their workspaces give abundant places for group discussion and meetings. Cubicles are discouraged to avoid close communication and lack of transparency. They also have facilities such as for entertainment to get a break between jobs as they believe it will freshen up people and they could focus more after such recreational activity. During interviews it was noticed that organisations such as WSO2, E-marketing and CAMMs solutions in Colombo seem to facilitate spaces with such energising activities or more open infrastructure. Research done by a furniture organisation called 'Steelcase' found that organisations who plan workspaces to support collaborative work processes and work styles will be the most likely to produce larger-than-life innovations (Steelcase, 2004). Fyard & Weeks (2011) has done surveys over the 12 years based on effects of design on interaction and found spaces that facilitate proximity, privacy and permission which facilitate interactions results in trust, co-operation and innovation.

Dombrowski et al. (2007) found through his research that flexibility is present in organisation which allows employees to work beyond the normal protocols and procedures. This can include working hours, workstations, usual procedures of getting thing done etc. For a company with strong flexibility, shifting to a problem-centred innovative culture may help to increase democratic, lateral communication and strengthen the likelihood of innovations being heard and experimented with. He found that world-renowned creative organisation 3M provided its employees flexibility to work on the idea right from conceptualization to successful commercialization. Flexible options are not only a

powerful attracting high-calibre people; but also helps retain them by meeting the needs of a "new and different" pool of talent. For example working hours are usually 8.30-5, but when organisations that do not worry about the time people came for work, but worry about whether they have achieved the goal or not, motivates employees especially who are in software development.

Employee development in soft skills was found by researcher through the interviews with prominent software development organisations in Colombo. According to Sri Lankan scenario, most of the employers felt that societal-culture here is such that it makes employees more reserved, self-centred than people-oriented. They also agreed that experienced professionals tend to stick to the old norms that have been worked for them for years and willing to change for the good of organisation and themselves. This has resulted in organisations to move to the trend of recruiting freshers from universities and colleges and training them accordingly that will suit their organisational culture. Many organisations focus mentoring and workshops from this aspect, addition to technical training. They feel the importance of soft skills training for local people as they understood it affects work performance to a great extent.

Dombrowski et al. (2007) state that innovations usually require the organisation to change in some way, hence leaders who are not necessarily from top management will act as change agents and motivate employees time to time to keep up the positive attitude. All big innovators had a few things in common: big aspirations, a flexible definition of their businesses, and a habit of experimentation; but the overall organisational cultures differed dramatically because management styles were strikingly different. Ibarra & Hanson (2011) also mentioned that leadership that encourage innovation need to be different such as encouraging participation from diverse groups, being able to accept feedback, questioning status quo and speed decisions.

4.2 Employee Performance

Most of the literature point out employee performance as the outcome of the efforts made by employees in respective industries (Christen, Iyer, & Soberman, 2006). According to Sonnentag & Fresse (2001), following methods are ways to improve job performance; goal setting, feedback interventions, behaviour modification, improvement of action process, training and job design. But Christen et al. (2006) argue that effort should be distinguished from performance, as effort does not define the outcomes which show if the performance increased or not. Stathakopoulos (1998) defined employee performance actions, decision, motivations and effective behaviour as measurements for. He also stresses on the point how it can defer from organisational perspective. In context employees following was considered; carrying out company policies, attempting to meet performance objectives, managerial performance in solving day to day problems and monitoring competitive behaviour (Stathakopoulos, 1998). According to Rehman (2009) employee performance has two dimensions i.e., working performance and monetary performance. Working performance was defined in terms of employee retention, achievement of the goals of organisation, employee productivity and objectivity of performance evaluation system. Monetary performance was measured in terms of monetary and non-monetary benefits of the employees.

According to Debra & James (2006) organisational citizenship is one of the dimensions in employee performance. This will measure the qualitative aspect of the individual performance. In previous item scale used by Rehman (2009), measure the performance aspects that directly influence

the job objectives of an employee as an individual. But organisational citizenship behaviour emphasizes on collective achievement. This aspect is more suitable for finding the relationship between innovative culture and employee performance. Lievens & Anseel (2004) stated that Organisational citizenship behaviour explains the social and psychological contribution of an employee to the follow members and organisation. He has included dimension such as helping behaviour, sportsmanship and civic virtue. Performance increases only when the employees who rightly fit to organisational culture are being recruited. In other way employees who are struggling adapt them for the organisational culture may find it difficult perform as organisation expects. McShane& Von Glinow (2005) have explained that organisational culture act as a bond among the employees of the organisation and makes them feel integral part of organisation. This will motivate employees to be committed to the work and be able to perform task with the sense of responsibility. Organisational culture also allows effective communication among the members, so that they are able to figure out the task easily. Because employees share a common goal in a sound organisational culture, they are able to corporate with each other and understand them more. All these factors contribute to the increased employee performance. The Table 1 and 2 explain the dimensions of innovative culture and its relationship with the employee performance.

Table 1: Attributes of Innovative Culture

Authors	Year	Attributes/ dimensions of Innovative culture
Daniels (empirical study)	2010	Context rich, creating customer value, confidence building, curious workforce, challenging and collaboration.
Dombrowski et al. (theoretical study)	2007	Innovative mission and vision statements, democratic communication, safe spaces, flexibility, collaboration, boundary spanning, incentives and leadership.
Ekwall et al. (empirical study)	2000	Challenge and involvement, freedom, trust and openness, idea time, playfulness/humour, conflict, idea support, debates and risk-taking .
Fyard and Weeks(empirical study)	2011	Workplace arrangements.

Source: Literature Survey

Table 2: The Relationship between the Innovative Culture and Employee Performance

Findings of Innovative Culture Dimension	Findings of Employee Performance	The Relationship between the Dimensions of Innovative culture
Dombrowski et al. (2007) - Democratic communication, will result in outcomes that are more efficient	When present job has a direct impact on organisational objectives (Rehman, 2009) then employee performance will increase.	Communication ----> Employee Performance
Adler et al. (2011) - collaborative communities harness knowledge workers' creativity and increase their efficiency	Employee performance increases when the efficiency in output increases (Rehman, 2009)	Collaboration ----> Employee Performance
Trust nurture employee relationships and increase engagement of discretionary efforts to contribute to the performance - Sharkie (2009).	Trusting colleagues that ideas will be add up more to make it sound feasible to implement which increases individual/ team output (Adler et al., 2011).	Trust----> Employee Performance

Findings of Innovative Culture Dimension	Findings of Employee Performance	The Relationship between the Dimensions of Innovative culture
Workplace that encouraged and supported brainstorming, increased free exchange of ideas, networks that encourage collaboration, effectiveness of work processes (Steelcase, 2004).	Employee performance increases when the effectiveness increases (Rehman, 2009).	Workplace arrangement ----> Employee Performance
Flexibility has helped millennium generation to be more productive with increased outcomes - Hewlett (2011).	Individual outcomes are consistent with organisational objectives - employee performance (Rehman, 2009).	Flexibility----> Employee Performance
Noor & Dola (2012) have also agreed that productivity increases after training and development is given on employees.	Individual outcomes are consistent with organisational objectives -employee performance (Rehman, 2009).	Employee development - ----> Employee Performance
Leadership which constantly strive innovation helps every employee to be successful in their job which result in increase in performance (Ibarra &Hanson, 2011).	Employee performance increases when the efficiency in output increases (Rehman, 2009).	Leadership ----> Employee Performance

Source: Literature Survey

5. Research Methodology

5.1 Conceptual Model and Hypothesis Development

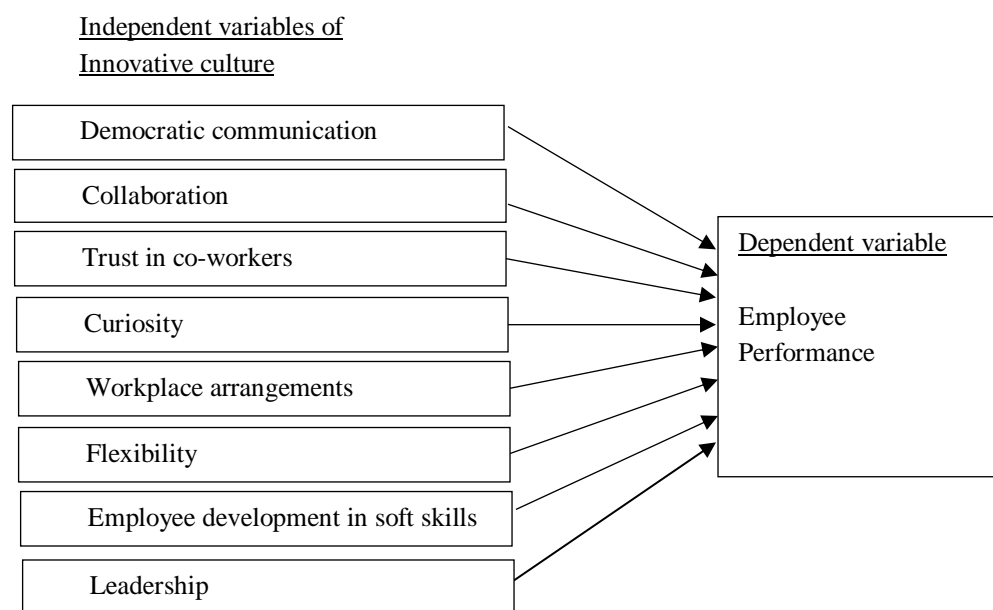
The conceptual model explains the relationship between the dimensions of innovative culture and employee performance. Innovative culture is considered as independent variable and employee performance considered as dependent variable. Independent variable, innovative culture was recently developed construct and has been studied empirically by researchers as mentioned in literature review. Dependent variable, employee performance tested very often throughout business empirical researchers. These two constructs are seldom associated in research, instead researchers have quoted that performance will increase if innovative culture is present. Therefore, innovative culture as an independent variable and employee performance as dependent variable will enable to find out the influence of innovative culture in employee performance. Eight dimension of innovative culture mentioned in framework are based on literature review. Dimensions developed by researcher, employee development in soft skills are to the local software development industry. How each dimension affects employee performance is justified in below section. From the literature and theories related to this study help to develop the following hypotheses.

Dombrowskiet al. (2007) state Democratic communication, an idea from follow member which can be commented positively or suggesting improvements will result in outcomes that are more efficient. When present job has a direct impact on organisational objectives (Rehman, 2009) that is being innovative, then employee performance will increase.

H0- Positive association does not exist between the democratic communication and employee performance

H1- Positive association does exist between the democratic communication and employee performance

Figure 1: Conceptual Model



Source: Developed by the researchers

Adler et al. (2011) also have mentioned that collaborative communities harness knowledge workers' creativity in a flexible but also highly manageable fashion, in their research study based on innovation and efficiency. They stressed on how workers performance can increase due to collaboration. Ibarra & Hansen (2011) have found through the interviews with top-performing companies in US that people from diverse communities in a team, tend to produce unique and diverge ideas.

H0- Positive association does not exist between the curiosity and employee performance

H2- Positive association does exist between the collaboration and employee performance

Sharkie (2009) has insisted on the importance of trust in encouraging employee performance. He found that how trust can nurture employee relationships and in turn results in engagement of discretionary efforts to contribute to the organisational performance. When an employee has a great new idea he first tend to share it with his close colleague, trusting that colleague might mould it or add up more to make it sound feasible to implement (Adler et al., 2011). When there is trust in organisation one will show extra-role behaviour which increases one's performance.

H0- Positive association does not exist between the trust and employee performance

H3- Positive association does exist between the trust and employee performance

Ekwall et al. (2000) agree that employees tend to commit time on tasks other than their own assignment, when they voluntarily come up with questions and ideas out of curiosity. This way more and more ideas are generated which result in a pool of ideas to choose the best out of it. This curiosity will make employees to work long hours to see the outcomes of their project.

These outcomes are consistent with organisational objectives which is one of attribute of employee performance.

H0- Positive association does not exist between the curiosity and employee performance

H4- Positive association does exist between the curiosity and employee performance

When a design firm created a workplace that encouraged and supported brainstorming, peer critiques, and the free exchange of ideas, innovation measures jumped to 15%; networks that encourage collaboration are 14% healthier; effectiveness of work processes is up 37%, (Steelcase, 2004). The research was based 40 different organisations around the world and studies show that teams given visual display devices, easy access to storage, and the right work surfaces, accomplish tasks twice as fast. This shows that workplace arrangements have an impact in employee performance.

H0- Positive association does not exist between the workplace arrangements and employee performance

H5- Positive association does exist between the workplace arrangements and employee performance

Hewlett (2011), President of Centre for Innovations says 'Flex work, including the option of telecommuting, offers employers numerous low-cost, high-return advantages. The most obvious payoff of flexibility: Employees can concentrate without being interrupted by phone calls, meetings, and other workplace distractions'. This has helped millennium generation to be more productive. Because each person will work accordingly with his nature, some maybe productive during late night and some may be productive in early morning or during day time. This will help them to increase their job performance.

H0- Positive association does not exist between the flexibility and employee performance

H6- Positive association does exist between the flexibility and employee performance

Employee development in soft skills is an important aspect in training and development. In Sri Lanka most of the software development graduates are from State universities who has mastered their technical skills exceptionally but failed to see any opportunities to develop their soft skills. Hence many organisations focus more on this aspect while understanding the importance soft skills development has on their employees' performance. Noor & Dola (2012) have also agreed that productivity increases after training and development is given on employees.

H0- Positive association does not exist between the Employee development in soft skills and employee performance

H7- Positive association does exist between the Employee development in soft skills and employee performance

When leader is encouraging members to be creative and come up with ideas as much as possible irrespective of what diverse community they are in, will motivate employees with the sense of inclusion. Without only encouraging only top performers or experienced people or any other discrimination based on diversity, leadership which constantly strive innovation helps every employee to be successful in their career. Mentoring support is often seen informally among leaders who genuinely care for job performance of employees which result in increase in organisational performance (Ibarra and Hanson, 2011).

H0- Leadership that supports innovative behaviour does not positively enhance the employee performance

H8- Leadership that supports innovative behaviour positively enhances the employee performance

Above independent dimensions explain the construct, innovative culture, hence innovative culture and employee performance is tested using below hypothesis.

H0 – Dimensions of innovative culture will not impact on employee performance

H9 – Dimensions of innovative culture will impact on employee performance

5.2 Operationalisation of the Conceptual Model

The Table 3 depicts the operationalisation of the variables of the conceptual model.

Table 3: Operationalisation of the Conceptual Model

	Dimensions	Indicators	Code	Measurement
Innovative culture	Communication	Voluntary participation of all employees	Com1	5 category Likert scale, where 1 = Strongly Disagree, 2 = Disagree, 3 = neutral, 4= Agree and 5 = Strongly Agree
		Organisation encourage informal employee networks	Com2	
		Accepting ideas without role restrictions	Com3	
		No barriers of waiting for approvals to communicate job related matter with member in another team	Com4	
		Employees are able to speak up any issues without worrying about job security and continuity	Com5	
	Collaboration	Employees prefer working in teams	Coll1	
		New ideas were generated more during teamwork than in solitude	Coll2	
		Teams are mostly consist of diverse communities (gender, ethnic, experience, culture, language)	Coll3	
		Employees are motivated by a collective mission than individual achievement	Coll4	
		Employees feel harmony in the group	Coll5	
	Trust in co-workers	Employees are empathy towards team members (care about each other)	Coll6	
		Employees are truthful and honest in their opinions	Tru1	
		Employees do not take any action that is not expected by others that may put other employees in trouble	Tru2	
		Able to make good judgment in interpersonal relationships	Tru3	
		Employees are reflecting consistent behaviour in dealing with others	Tru4	
		Employees do not have the threat that others might copy their idea, so easily share their ideas with co-workers	Tru5	

	Employees are easily able to give credit to the co-worker who deserves it	Tru6
Curiosity	Employees are eager to know new methods	Cur1
	Employees are willing to learn from anyone to improve the output	Cur2
	Company encourages to question existing policies or procedures when it is not supporting ultimate business goals	Cur3
	Employees are encouraged to spend time on tasks other than theirs when they like to know something new out of their scope.	Cur4
Workplace arrangements	Spaces provided for group discussion such discussion rooms	WA1
	Visual display facilities are given such as projector screen during discussions	WA2
	Workspaces allow using objects for brainstorming such as white boards, drawing boards, note cards, post-it notes etc	WA3
	Adequate space provided for visitors at employees workstations	WA4
	Workspace arrangements allow transparency within the team	WA5
	Storage of information is mostly electronic than paper files	WA6
	Displaying and sharing information throughout the workplace is systematic and attractive	WA7
Work Flexibility	Working time is flexible while covering weekly hours	WF1
	Working from home is allowed as and when require	WF2
	Options are given while rewarding employees	WF3
	Flexibility in job sharing is possible within or outside teams	WF4
	Flexibility in choosing workstations, allowing employees to choose space in office which he might feel comfortable	WF5

	Procedures are not rigid, which can be foregone when there is a need in terms of project requirements	WF6
Employee development in soft skills	Formal/ informal training, mentoring given on team building	ED1
	Formal/ informal training, mentoring given on giving constructive feedback to team members	ED2
	Formal/ informal training, mentoring given to team leaders on selecting job candidates for the team	ED3
	Formal/ informal training, mentoring given on how to set effective divisional goals and individual goals	ED4
	Formal/ informal training, mentoring given on how to assess one's own performance	ED5
	Formal/ informal training, mentoring given on negotiating and convincing the other party for accepting one's ideas	ED6
Leadership	Managers have positive attitude toward accepting opinions	Lead1
	Team leaders are not authoritative	Lead2
	Leader is willing to challenge the status quo of the company	Lead3
	Leader expresses personal passion for the changes innovation requires	Lead4
	Leader motivates members time to time by stressing on can-do attitude towards task	Lead5
Employee Performance	Present job gives the opportunity to enhance one's performance on job	EP1
	Present job has a direct impact on achieving the organisational objectives	EP2
	Job performance outcomes are consistent with the goals of the organisation	EP3
	Good performance on job is rewarded financial terms	EP4
	Good performance on job is given formal appreciation by the higher ups	EP5
	Job performance evaluation system is objective	EP6
Organisational Citizenship behaviour –	Helping to make other workers productive	EP/OCB /Help1

helpfulness	Helping colleagues who are with heavy workload	EP/OCB /Help2
	Helping others who have been absent	EP/OCB /Help3
Organisational Citizenship behaviour - Sportsmanship	Complains a lot about trivial matters	EP/OCB /Sp1
	Always finds fault with what the organisation is doing	EP/OCB /Sp2
	Expresses resentment with any changes introduced	EP/OCB /Sp3
	Does not complain about work assignments	EP/OCB /Sp4
Organisational Citizenship behaviour – Civic nature	Stays informed about developments in the company	EP/OCB /Civ1
	Pays no attention to announcements, messages or printed material that provide information about the company	EP/OCB /Civ1

Source: Developed by the researchers

5.3 Research Sample

IT industry is very much wide which comprises of sectors such as hardware, networking and software. It is not appropriate to select IT industry as whole because the level of innovation is perceived different in these sectors (IBM, 2010). Software development sector involves more of creating, designing and idea generation that requires much creativity and innovative approach. Since the objective of the research is to measure the relationship between innovative culture and employee performance, a sector that will match within the IT industry was chosen. Member list of Sri Lanka Association of Software and Services is used as target population. Total of 129 software development companies were listed as members. Companies which had revenue more than US \$ 1000 000 were selected subsequently. It amounted to 33 companies. All 33 companies were contacted for the survey. However 21 companies refused to participate in the study. The main reasons were; in some companies their company policy does not allow sharing information with third parties and rest of them were busy with on-going projects. As a result the sample got reduced to 12 companies. All software developers, business analyst, project managers and other who are directly involved in projects were distributed with questionnaires. Out of 180 questionnaires provided altogether only 99 questionnaires were received resulting in 55% response rate. It is understood that the software industry is volatile and busiest industry. Since most of the companies have asked not to mention the company name, they were not revealed.

Sampling method followed was cluster sampling. It is a method of probabilistic sampling method where target population is divided into meaningful clusters and all the elements in the chosen clusters is taken for the study (Sekaran, 2003). Data is collected though survey method by distributing questionnaires. To analyse the findings from main sample, tests such as correlation and regression were carried out. Findings were not merely based on face values/ observed values, but recommended

statistical tests were used to check if they are significant. Correlation and linear regression is used to find the impact of innovative culture on employee performance. Multiple regression analysis is used to find the impact of each dimension of independent variable on dependant variable.

6. Data Analysis

6.1 Reliability and Validity

The major measurement properties validated here are validity and reliability. According to Nunnaly's standard as restated by Malhotra (2004), Chronbach's alpha should be more than 0.7. It is the average of all split-half coefficients resulting from different ways of splitting the scale items. After carrying out reliability test with the remaining indicators, it was found that all the dimensions are reliable except 4 dimensions which fall into 0.6 – 0.7. Though these are not highly reliable, it is reasonable as Malhotra stated that (2003) generally values below 0.6 are unsatisfactory. For employee performance Chronbach was 0.79 whereas Rehman (2009) obtained Chronbach of 0.77 for employee performance in different setting.

Convergent validity was established by performing factor analysis. According Malhotra (2010), factor loading should be ideally more than 0.7 which means 50% of the dimension is explained by the indicators selected, since $0.7^2 = 50$. He also mentioned that minimum standard of 0.6 can be set (Malhotra, 2010). Furthermore, KMO and Bartlett's test of sphericity were carried out. KMO helps to identify the sampling adequacy where the observed correlation is compared with partial correlation. Value more than 0.5 indicates that correlation is high among the indicators. Bartlete test of sphericity is used to find if the variables are correlated in the population (Malhotra, 2011). It is based on the chi-square transformation of the correlation matrix. If the chi-square is significant at or below 0.05, appropriateness of the factor analysis is confirmed. As a part of Convergent validity, Composite Reliability and Average Variance Extracted (AVE) should be calculated. Composite reliability is defined as the total amount of true score variance in relation to the total score variance (Malhotra, 2011). If the tests produce a value greater than 0.7 items are considered valid.

6.2 Relationship between Innovative Culture and Employee Performance in Sri Lankan Software Development Industry

Table 4: Correlation Analysis

		Innovative culture
Employee Performance	Pearson Correlation	.970**
	Sig. (2-tailed)	.000
	N	99

Source: Survey Data

To examine whether there is an association between the degree of innovative culture and employee performance is high in 49 of the sample. 40 of the sample have moderate innovative culture and among them employee performance is also moderate in 38 of the sample. Only 3 of the sample have low degree of innovative culture and among them employee performance also low in 2 of the sample.

To examine whether there is an association between the degree of innovative culture and employee performance Pearson’s Correlation test was also carried out taking mean values of independent and dependant variables. The results of the test are given in Table 4, r value is 0.970 and significant at alpha = 0.000 level suggesting that the statistically significant association exist between innovative culture and employee performance. As per the sample selected that is high revenue companies in which innovative culture has already been implemented, it is possible to get a high figure such as 0.97 for the total mean. Question items have been properly operationalised and tested through validity and reliability. Hence, this result although it is high it can be accepted. Also it has to be noted that the result is symmetrical relationship, where the 0.97 could mean that employee performance increases when innovative culture dimension increases or innovative culture dimension increases due to employee performance increase. Consequently, correlation merely shows the symmetrical values and does not identify the association between the independent and dependant variable. Therefore regression analysis is carried out by taking innovative culture as independent variable and performance as the dependant variable. Results of the regression analysis are given in Figure 2.

Figure 2: Results of Regression Analysis

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	.970 ^a	.941	.940	.12352	

a. Predictors: (Constant), ICMean

ANOVA ^b						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.569	1	23.569	1544.694	.000 ^a
	Residual	1.480	97	.015		
	Total	25.049	98			

a. Predictors: (Constant), ICMean
b. Dependent Variable: Employee Performance

Coefficients ^a						
Model		Unstandardised Coefficients		Standardised Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-.022	.090		-.241	.810
	ICMean	.969	.025	.970	39.303	.000

a. Dependent Variable: Employee Performance

Source: Survey Data

The results show that adjusted R (Coefficient of determination) is 0.94. Respective F value is 1544, significant at 0.01 levels, which shows strength of relationship is significant. As per Malhotra (2011), if the relationship between independent and dependant variable is significant, it is meaningful to predict the values of dependant variable based on the values of independent variable and to estimate prediction accuracy. Therefore using the above values relationship of innovative culture and employee performance of Sri Lankan software industry can be predicted. According to Figure 2, Beta coefficient (Standardised regression coefficient) of innovative culture is 0.97 which shows the amount of change in the dependant variable employee performance. Further, t value (39.303) is significant at $\alpha = 0.000$ suggesting the change in employee performance due to innovative culture is statistically significant. Therefore innovative culture has a strong positive influence on employee performance of software development organisations.

Hypothesis number one and related null hypothesis were tested based on the results of the simple regression analysis given in Figure 2. The results of the test show a statistically significant strong positive association between innovative culture and employee performance. Therefore, null hypothesis is rejected. Alternative hypothesis is confirmed.

H0 - Positive association does not exist between innovative culture and employee performance

H1- Positive association does exist between innovative culture and employee performance

6.3 The extent of the dimensions of innovative culture influence on employee performance in Sri Lankan software companies

To find out the extent to which the factors of innovative culture influence the employee performance. To examine the influence of each factor of innovative culture on employee performance correlation analysis was performed. Results are given in the Table 5.

Table 5: Correlation Analysis with Each Dimension of Innovative Culture and Employee Performance

	Employee Performance	Communication	Collaboration	Trust	Curiosity	Work arrangement	Flexibility	Employee Development
Communication	.830**							
Collaboration	.822**	.880**						
Trust	.808**	.818**	.847**					
Curiosity	.654**	.521**	.425**	.544**				
Work arrangement	.815**	.777**	.731**	.721**	.503**			
Flexibility	.723**	.670**	.786**	.806**	.359**	.642**		
Employee Development	.880**	.564**	.550**	.586**	.606**	.591**	.470**	
Leadership	.823**	.562**	.507**	.456**	.591**	.544**	.277**	.915**

Source: Survey Data

Table 5 explains the Pearson correlation r values of each dimension of innovative culture with Employee Performance. All the values are above 0.6 and significant at 0.001 level, which show each dimension, is highly correlated with employee performance. Highest among them is employee development which seems to influence employee performance more than the other factors. Communication, leadership, collaboration, workplace arrangements and trust influence the employee performance respectively and have values more than 0.8. Work flexibility is lower than the other criterion. Curiosity results are the lowest still with reasonable correlation with employee performance.

Figure 3: Multiple Regression Analysis of Innovative Culture Dimensions and Employee Performance

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.991 ^a	.983	.981	.06922		
a. Predictors: (Constant), LeadMean, WFMean, CurMean, WAMean, ComMean, TrMean, ColMean, EDMean						
b. Dependent Variable: EmployeePerformance						
ANOVA						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	24.618	8	3.077	642.157	.000 ^a
	Residual	.431	90	.005		
	Total	25.049	98			
a. Predictors: (Constant), LeadMean, WFMean, CurMean, WAMean, ComMean, TrMean, ColMean, EDMean						
b. Dependent Variable: EmployeePerformance						
Coefficients ^a						
Model		Unstandardised Coefficients		Standardised Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-.074	.058		-1.270	.207
	ComMean	.086	.024	.128	3.636	.000
	ColMean	.066	.030	.084	2.179	.032
	TrMean	.020	.031	.022	.640	.524
	CurMean	.046	.016	.057	2.941	.004
	WAMean	.127	.020	.152	6.405	.000
	WFMean	.181	.023	.239	7.960	.000
	EDMean	.244	.047	.248	5.233	.000
	LeadMean	.251	.041	.289	6.047	.000
a. Dependent Variable: Employee Performance						
*Significant at 5%						

Source: Survey Data

However Correlation analysis does not distinguish between independent variable and dependant variable. Therefore multiple regression analysis is carried out, results of which is given in Figure 3. As per regression analysis 98.3 percent of the dependant variable, employee performance is explained by the dimensions of innovative culture. But Trust has significant level above 0.05 which means its variations are not significant at 95% confidence level.

Hypothesis number two and related null hypothesis were tested based on the results of the multiple regression analysis given in Figure 3. The results of the test show a statistically significant strong positive association between communication and employee performance. Therefore, null hypothesis is rejected. Alternative hypothesis *H2* is confirmed.

Hypothesis number three and related null hypothesis were tested based on the results of the multiple regression analysis given in Figure 3. The results of the test show a statistically significant strong positive association between collaboration and employee performance. Therefore, null hypothesis is rejected. Alternative hypothesis *H3* is confirmed.

Hypothesis number four and related null hypothesis were tested based on the results of the multiple regression analysis given in Figure 3. The results of the test show there is no statistically significant strong positive association between trust and employee performance. Therefore, null hypothesis is accepted. Alternative hypothesis *H4* is not confirmed.

Hypothesis number five and related null hypothesis were tested based on the results of the multiple regression analysis given in Figure 3. The results of the test show a statistically significant strong positive association between curiosity and employee performance. Therefore, null hypothesis is rejected. Alternative hypothesis *H5* is confirmed.

Hypothesis number six and related null hypothesis were tested based on the results of the multiple regression analysis given in Figure 3. The results of the test show a statistically significant strong positive association between workplace arrangement and employee performance. Therefore, null hypothesis is rejected. Alternative hypothesis *H6* is confirmed.

Hypothesis number seven and related null hypothesis were tested based on the results of the multiple regression analysis given in Figure 3. The results of the test show a statistically significant strong positive association between work flexibility and employee performance. Therefore, null hypothesis is rejected. Alternative hypothesis *H7* is confirmed.

Hypothesis number eight and related null hypothesis were tested based on the results of the multiple regression analysis given in Figure 3. The results of the test show a statistically significant strong positive association between Employee development in soft skills and employee performance. Therefore, null hypothesis is rejected. Alternative hypothesis *H8* is confirmed.

Hypothesis number nine and related null hypothesis were tested based on the results of the multiple regression analysis given in Figure 3. The results of the test show a statistically significant strong positive association between leadership and employee performance. Therefore, null hypothesis is rejected. Alternative hypothesis *H9* is confirmed.

6.4 Discussion

The rationale of this paper is to answer the fundamental question that arises as to whether innovative culture at software development companies being an instrumental for increasing their employee performance. Findings revealed there is a strong association between the two concepts. In order to answer this question cross tabulation, correlation and regression were carried out. Through cross tabulation it was noticed that most of the respondents who had high innovative culture also shared their employee performance is high. In order to explore further, how strongly two variables are related, correlation was performed. Findings showed that innovative culture and employee performance are highly correlated. It was similar to the findings of Gunawardena & Carte (2007) who have found innovative practices are highly correlated with employee performance. Finally linear regression analysis was carried out to find how much change occurs in employee performance due to the change in innovative culture, and results showed employee performance change drastically due to the change in innovative culture. Findings revealed the similarity with of Dombrovoski et al. (2007) who mentioned superior performance is noticed through innovative culture practices in organisations.

In order to find out the extent of influence of each factor of innovative culture has on employee performance, correlation was performed and findings revealed that each of dimensions of innovative culture is strongly correlated to employee performance. Employee development was highly correlated with employee performance, which is similar to the findings of Armson (2008) who emphasised on learning and development in terms of being innovative. Furthermore, multiple regression analysis was performed to see the comparative influence on employee performance. Since it shows the comparative value, multiple regression best explains the change in employee performance in term of each of eight dimensions take in this study. Findings revealed that each of them has a positive influence on employee performance. It was found leadership has more influence than the employee development. This is going in line with what Dombrovoski et al. (2007) found, who revealed successful innovations need champions who can manage innovation from ideas to successful commercialisation. Hence, the objective to find each factor's influence on employee performance also revealed.

When testing the hypothesis developed based on variables explained in the framework, it was found hypothesis related to trust has to be rejected. Findings revealed that trust did not have a significant relationship with employee performance in Sri Lankan software companies. Though Sri Lankans demonstrate collective behaviour in family context, being able to trust their family members, at workplace they tend to show that trust do not increase their performance. Though Sri Lankan culture is more collective than individualistic, at workplace people try to be individualistic due to the competitiveness. This may be the reason for the findings that showed trust did not have any significant relationship with employee performance.

The main objective of this research was to examine the relationship between innovative culture and employee performance in the software industry of Sri Lanka. Accordingly, several sub objectives were formed and accomplished as mentioned in Section 6. H1; there is a relationship between innovative culture and employee performance, is accepted through performing tests such as correlation and regression. As one of the objective is to find to what extent each factor of innovative culture has influence on employee performance, hypothesis was formed for each dimensions; communication, collaboration, trust, curiosity, workplace arrangements, work flexibility, employee development and leadership. Though correlation matrix showed high Pearson correlation values,

multiple regression analysis showed not all dimensions shows significant relationship. Association of dimension 'Trust' with employee performance is not statistically significant; therefore H4 is rejected. All the other dimensions showed association that is statistically significant; hence H2, H3, H5, H6, H7, H8 and H9 are accepted.

7. Conclusion

The research problem of the study is to identify the impact of innovative culture on employee performance at Sri Lankan software companies. This study explored two main research themes. First, it identified the association between innovative culture and employee performance. Second, it unearthed the impact of dimensions of innovative culture on employee performance. Innovative culture had a strong positive relationship with employee performance. Factors of innovative culture that are derived from literature and factors suggested by researcher are tested using the hypothesis. Results of hypothesis testing revealed that dimensions of innovative culture; communication, collaboration, curiosity, workplace arrangements, work flexibility, employee development and leadership had positive impact on employee performance. Trust did not have a significant impact on employee performance. This research has incorporated the determinants of innovative culture which is an emerging concept in the field of organisational behaviour. Studies have been conducted related to innovative culture during past few years. Since this concept is very volatile, the dimensions can change according to the time period and context. Hence the variable 'employee development' added by the researcher is an additional dimension to be considered within the local context. Further, the finding that innovative culture has a strong positive impact on employee performance is the new contribution to the existing literature on organisational culture. Findings related the dimensions of innovative culture that communication, collaboration, curiosity, workplace arrangements and work flexibility are having a significant impact on employee performance and trust is not having a significant impact gives the additional knowledge about innovative culture in terms of Sri Lankan context. This will help the organisational behaviour practitioners to form change strategies in terms of organisational culture modifications.

Further this research emphasises on the importance of fostering innovation as a way of business philosophy through the organisational culture. This will result in having a sustainable competitive advantage not just in terms of product but also in terms of employees. This idea is strengthened through the research findings. Therefore this will trigger the companies that did not realise innovation can be fostered through culture. The knowledge created through this research has contributed to the business context of Sri Lanka in terms of best organisational culture practices.

8. Limitations of the Research

The research study was carried out for software development industry in Sri Lanka. Target population was 220 employees from software development companies and questionnaires were distributed accordingly. Due to the busy schedule of software developers and others who are involved in projects, only 99 questionnaires were collected as valid questionnaires with maximum effort by the researcher. Therefore the findings were from only 12 companies that represent the target population of 140 firms. Only high performing companies (more than annual revenue of US\$ 1000 000) were selected assuming that they should be innovative in order to encompass competitive advantage that results in more customers and high revenue. This helps to find out the extent of the impact that innovative culture has on employee performance. More objective values such as collecting

remuneration were not possible as the companies are reluctant to reveal them to the third parties. Hence, employee performance measurement is limited to suit the practical difficulties. It should also be noted that all the companies cater for international market. As a result the IT industry is further narrowed down to software development. This study represents only software development industry where conclusions have drawn. Further, research findings may vary in different sectors within the industry. Therefore only software development sector was considered for this study leaving out sectors such as hardware product companies, network management companies or Business Process Outsourcing sector. Companies who were reluctant to participate revealed that third parties were not allowed to collect data unless otherwise it is a research organisation or a consulting firm. Hence, there were many difficulties faced in collecting data, but high importance was given to the sample derived through probabilistic sampling. Moreover, it has to be noted that though maximum consideration was given to follow ideal research methodology but there might be deviations due to knowledge gaps.

9. Directions for Future Research

Many determinants of innovative culture were found through literature survey. However, due to the capacity of the researcher and time limit only 8 dimensions were included. In future, dimensions such as challenging tasks (Daniels, 2010), risk taking, idea support and dynamism (Ekwall et al. 2000) can be included while studying about innovative culture. This research was confined to Sri Lankan software industry. Different industry may produce totally different results. Industries such as fast moving consumer goods, telecommunication, hotels and textile can depict a different extent of impact on employee performance due to innovative culture. Therefore it is fruitful to examine the same constructs in different industries. Innovative culture was taken as independent variable and employee performance as a dependant variable. Moderating variable that could explain the impact was not taken into consideration. This can be considered in future research. Variables such as employee commitment or employee satisfaction can have a moderating effect that leads to employee performance change due to innovative culture are the examples.

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