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探索團隊專案表現於雲計算服務的配置：以印度尼西亞為案例

韓于婷
成功大學

陳國安
成功大學

陳正忠
成功大學

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一些廣泛的文獻表明團隊合作為專案創新成功之重要因素。本研究的目的是進一步了解衝突如何促進團隊合作的品質和導致高專案績效。以研究方面而言，儘管越來越多研究者和實務者關注雲端計算，雲端計算還處於早期階段。本研究強調多元化、衝突和團隊品質之間配合的重要性，以達到來自於信息技術之專案表現影響。因為這項研究具高複雜的預測性但是為低理論信息的情況下之因果關係，故本研究採用 PLS 分析方法。預測分析進行多組 PLS 分析，以提供進一步關於異質性的測試和不可觀測異質性型態的萃取。本研究發現，在組織中的 IS／IT 配置，價值多元化會影響專案表現，與衝突正相關的價值多元化將引入負相關的團隊合作，但是它具備了正面的影響以提升專案績效層級。

關鍵字：價值多元化、衝突理論、團隊品質模型（TQM）、多群 PLS、信息系統配置、雲端計算。

通訊作者**韓于婷**為國立成功大學 GMBA 碩士暨印尼美國有線電視新聞網新聞製作研究者兼印尼政府部門顧問，地址：12330 印尼雅加市達南雅加達賓塔羅查亞 2 百利金 III 街 U6 座 11 號，電話：+62818651749，E-mail：latifah.budi@gmail.com。作者**陳國安**為國立成功大學國際經營管理研究所博士，地址：70101 臺南市東區大學路 1 號，電話：+886-6-2757575，E-mail：andreewidjaja@gmail.com。作者**陳正忠**為國立成功大學國際經營管理研究所所長兼教授，地址：70101 臺南市東區大學路 1 號，電話 +886-6-2757575 轉 53561，E-mail：victor@mail.ncku.edu.tw。

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Exploring Team Project Performance in Deploying Cloud Computing Services: Case of Indonesia

Latifah Budi Pertiwi
National Cheng Kung University

Andree Emmanuel Widjaja
National Cheng Kung University

Victor Jengchung Chen
National Cheng Kung University

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Some extensive literatures indicate the importance of teamwork to the innovative projects success. This study aims to further understand of how conflicts can contribute to teamwork quality and result to high degree of project performance. On the other side, the research context, which is the deployment of cloud computing, is still in its early stage despite the growing attention being given by researchers and practitioners. This research highlights the importance of the fit between diversity, conflict and teamwork quality in achieving project performance impacts from information technology. This study employs partial least square (PLS) because this study is a causal-predictive analysis in situations of high complexity but low theoretical information. Multi-group PLS analysis was performed to give a further picture regarding the examination of heterogeneity and to capture unobserved heterogeneity. This research has demonstrated that in the context of deploying IS/IT in an organization, value diversity can influence project performance. Value diversity that positively correlated to conflict will lead into negative correlation to team work quality but it has positive effect to increase project performance level.

Key Words: ***Value diversity, Conflict theory, Teamwork Quality Model (TQM), Multi-group PLS, Information system deployment, Cloud computing.***

The Corresponding Author, **Latifah Budi Pertiwi**, is a Master from the Institute of International Management, National Cheng Kung University. He is working as News Production Researcher at CNN Indonesia and as a consultant for Indonesian government ministries, Address: U6, No. 11, Jln. Pelikan III Blok, Bintaro Jaya 2, Jakarta Selatan, Jakarta 12330, Indonesia, Tel: +62-818651749, Email: latifah.budi@gmail.com **Andree Emmanuel Widjaja**, is a Doctor from the Institute of International Management, National Cheng Kung University. Address: No. 1, University Rd., East Dist., Tainan City 70101, Taiwan, Tel: +886-6-2757575, Email: andreewidjaja@gmail.com **Victor Jengchung Chen**, is a Professor and Director of the Institute of International Management, National Cheng Kung University. Address: No. 1, University Rd., East Dist., Tainan City 70101, Taiwan, Tel:+886-6-2757575 ext. 53561, Email: victor@mail.ncku.edu.tw

Introduction

Organizations at present moment try to have better forms and try to become much more flexible. Organizations have applied new forms that designed to reduce costs and to maximize the flexibility and responsiveness to customer demands in response to vast changing economic conditions. Thus resulting in flatter and less centralized organizational forms that being built around groups and greater reliance on decentralized authority, teamwork, and supporting incentives (Boyett and Conn, 1991; Donnellon, 1996; Liao et al., 2011). Other result from it, is the richer and greater extent of synchronous communication provided by task forces and teams than traditional centralized and hierarchical organizations (Nohria and Garcia-Pont, 1991). In addition, IS/IT development process involves more human interaction so it depends significantly on team performance (Moe et al., 2012).

The new economy demands the exploitation of new models and paradigms and the Internet has dramatically affected the way of doing business. Businesses, industries, and markets are being transformed by the internet and the existence of other information system. Thus result information system/information technology (IS/IT) now drives businesses and markets. The Internet has become a powerful and ubiquitous communication mechanism to facilitate the consummation and processing of business transactions in the new economy. Firms are attempting to understand and measure the impact of IS/IT so that they can make intelligent and sharp decisions regarding crucial IS/IT investments (DeLone and McLean, 2004).

There is a need for big company to improve the knowledge of the organization’ s decision makers and other employees about the opportunities and risks of IS/IT implementation through a participative process to improved valuable risk-reduction strategy and the consequences, including the initial cost that has to be assigned during the initial assessment. One approach is to move IT services to cloud computing. This step can heavily impact its IT strategy and performance, also reshapes its IT landscape. Selecting the wrong IT services for the cloud can therefore be operationally costly and potentially could harm a business strategy (Loebbecke et al., 2001).

Indonesia as Information Systems Emerging Market

Indonesia is an archipelago country comprises of 13,677 islands, inhabited by 350 different ethnic groups, and has more than 300 different languages. Consequently this gave many different cultures, traditions, and way of lives. Due to this diversity, conflicts are unavoidable. In professional and in team project context, the conflict due to diversity in Indonesia often comes to surface and this issue is interesting to dig deeper

Compared with other Asian countries, Indonesia and Singapore are the only Asian countries where average gross margins (profitability) of the IT services sector improved from 2004 to 2009. One possible reason is that Indonesian companies are entering a larger domestic market that is related to mobile data and social media services despite its relative immaturity. This large domestic market is a fertile ground for applications development in those spaces. Other reason why Indonesia is attractive is because Indonesia is emerging as the low-cost leaders in IT sector. With the forecast that Indonesia is to be one of the best regional IT market growth prospects over BMI's five year forecast period, the Indonesian IT market compound annual growth rate (CAGR) is predicted to grow 18% in 2012-2016. IT spending is forecast to increase to US$6billion in 2012, up from US$4.7billion in 2010 and US$5.3billion in 2011. Some fundamental drivers of these growth prospect includes rising computer penetration and growing affordability. Demand for outsourcing and cloud computing is supported by growing investment in datacenters and other ICT infrastructure, with main sector players such as Telkom Indonesia launching new services started in 2011.

Cloud computing is a key focus for vendors. Telkom has partnered with Microsoft to launch cloud computing services, including platform-as-a-service (PaaS), infrastructure-as-a-service (IaaS) and software-as-a-service (SaaS). In 2011, Microsoft announced that it planned to invest around US$2.5billion in Indonesia to develop cloud-computing systems. The company is also

partnering with Telkom Indonesia and other partners. Several government agencies and large companies have reported interest in its cloud services from this partnership.

Based on the background, below are questions need to be answered by conducting the study about deploying information system in Indonesia:

1.What factors influence project success in deploying cloud computing?

2.How is the effect of diversity and conflict on project performance?

Current development methods argue that conflict can lead into better teamwork quality thus increase project performance. Our objective is to provide a better understanding of the nature of diversity and conflicts. The other objective after understand of the nature of diversity and conflicts is to define the teamwork challenges so we can consider more about diversity before building a team to deploy IT services. The purpose of this study is to further examine the impact of value diversity on conflict, teamwork quality, and information system development performance, in this case, cloud computing. Since all measures specified on the team level, we also want to see whether team leadership moderates the effects of values diversity on conflict. The model in this study tries to explain to which extent that diversity and conflict could lead to better project performance level. From the previous studies, diversity theorists have proposed paths to successful outcomes and also the intermediate factors, but those proposals provide little guidance as to the exact path taken. The ability of problem-solving groups to consistently gather measurable benefits and avoid the negative consequences associated with diversity remains elusive (Jackson et al., 2003; Klein et al., 2011; Mannix and Neale, 2005; van Knippenberg and Schippers, 2007).

Conflict theory has similar considerations of success, including its intermediate factors. But conflict theory only provides partial guidance for a model involving project teams. Task conflict can be beneficial for the organization if they are kept to low levels. Unmanaged task conflict may lead to process conflicts and relationship conflicts. Relationship conflict is considered to be the most negative and dysfunctional type. This research includes process conflict as one of the variable and this variable is rarely examines by other researchers. Value diversity may impact conflict, teamwork quality, and eventual project success. These reasons become motivation for researcher to study more about the relationship between diversity, conflict and project success.

Moreover, effective project performance derives from several fundamental characteristics. One of it is team members need to successfully integrate their individual actions. They have specific and unique roles, where the performance of each role contributes to collective success. This means that the causes of team failure may reside not only in member inability, but also in their collective failure to coordinate and synchronize their individual contributions. Most teams contain certain individuals who are primarily responsible for defining team goals and for developing and structuring the team to accomplish the goals. The success of the leader in defining team directions and organizing the team to maximize progress along such directions contributes significantly to team effectiveness Thus team processes become a critical determinant of team performance (Zaccaroa et al., 2001)

This research focused on how important is project management in context of cloud computing implementation for IT industry and users in Asian context, in this case, Indonesia. We were also formally test the research model and hypotheses that relates Teamwork Quality Model with diversity theory and conflict theory in cloud computing context.

Literature Review

Diversity

Diversity theorists such as Garrison et al. (2001); Harrison and Klein (2007); and van Knippenberg and Schippers (2007) describe the relationship between team diversity, team behaviors, and team performance. Based upon information-processing theory by Ancona and Caldwell (1992), some researchers stated that diverse teams can have a positive impact on group performance through an increase in the knowledge, information, and innovations that diversity brings (Chung and Hossain, 2009; Earley and Mosakowski, 2000; Rink and Ellemers, 2006). On the other hand, few research found that team

diversity reduce team performance based upon a social attraction perspective where people avoid communicating with those who hold views differing from their own as a means of reducing the strain produced by ensuing conflict (Jackson et al., 2003; Mannix and Neale, 2005; Williams et al., 2007).

In the information system development (ISD) project literature, these effects tend to hold (Liang et al., 2010). The values are persistent beliefs that shape behaviors in individuals and groups. Value is an important dimension in understanding attitudes and motivation (Jehn, 1994).Values play an important role in team member relationships and team success (Wang et al., 2006). Consistent values, a lack of value diversity, maintain the interaction and mutual confidence among team members to complete tasks and similarity in team members' values will enhance interpersonal relations, decrease conflicts, and promote success (Dose and Klimoski, 1999; Jehn, 1994; Liang et al., 2012).

Conflict Theory

Conflict is a subjective perception of animosity and negative emotions caused by inconsistent objectives and conceptual differences (Hellriegel et al., 1986). Conflict has been an interesting topic that never outdated and keeps updated. Through research overtime, conflict is classified into three types: task conflict, process conflict, and relationship conflict (Amason and Sapienza, 1997; Cosier and Rose, 1977; Guetzkow and Gyr, 1954; Jehn, 1997; Liang et al., 2010; Wall and Nolan, 1986a).

Task conflict is job-originated disagreement among team members regarding perspectives, thoughts, or opinions on how to complete required tasks or even which tasks need to be performed. Process conflict is an awareness about aspects of how task accomplishment will proceed. More specifically, process conflict pertains to issues of duty and resource delegation such as who should do what or how much one should get. Relationship conflict is rooted in perceived incompatibilities among team members that often result in tension, animosity, and annoyance, thus impeding interpersonal communications and stalling the completion of tasks (Jehn, 1995). Regarding the task conflict, groups that go through task conflict tend to make better decisions because task conflict increased communication in a team and it brings more information to escalate group problem solving capability (Jehn and Bendersky, 2003; Liang et al., 2010; Simons et al., 1999). Team performance also enhanced by drawing a variety of perspectives from the team members (Greer et al., 2008).

Relationship conflict is a more personal factor that limits the information processing ability of the team because team members spend their time and energy focused on each other rather than on project-related problems(Liang et al., 2010). Relationship conflict reduces friendship, communication, and understanding among team members (Deutsch, 1969).Prior empirical evidence consistently indicated that relationship conflict had negative consequences on team communication and harms the quality of team outputs (de Wit et al., 2012; Dijkstra et al., 2005; Jehn and Mannix, 2001). In summary, task conflict may be productive and functional, whereas process conflict that was not treated early and relationship conflict was dysfunctional and strongly reflected in management thought (McShane and Von Glinow, 2010; Robbins, 2000).

Teamwork Quality Model

Teamwork Quality Model (TWQ) is a measure for the quality of collaboration in teams and consists of six facets: communication, coordination, balance of member contributions, mutual support, effort, and cohesion. The complex nature of teamwork is a multifaceted, higher order concept that includes both task related activities (coordination) and social interaction within teams (communication) (Hoegl and Gemuenden, 2001). In general, a high level of teamwork quality leads to a high level of team performance (Hoegl and Parboteah, 2006; Hoegl et al., 2004). The communication factor of teamwork quality was the most crucial, providing a means for the exchange of ideas and information among team members (Adenfelt, 2010; Pinto and Pinto, 1990). Good communication between members of the team reduces the level of uncertainty. Open and direct communication accelerate the integration of knowledge and experience (Baiden and Price, 2011). Interaction quality between different stakeholders is found to be important in ISD projects (Christiaanse and Venkatraman, 2002; Jiang et al., 2006; Wang et al., 2005).

Hoegl and Gemuenden (2001) found that TWQ is significantly associated with team performance as rated by team-members, team leaders, and team-external managers. TWQ succeeds to specify and measure the team' s collaborative work and illustrate how team' s collaborative work related to various aspects of the project performance success.

Variables Definition

Value Diversity

The workforce diversity had dramatically increased nowadays. Many practitioners acknowledge that having a diverse workforce could be a key for sustaining competitive advantage by increasing creativity and innovation (Robergea and van Dick, 2010). Value diversity occured when members of a workgroup differ in terms of what they think the group's real task, goal, target, or mission should be. In many cases, these differences can lead to task conflict disagreements about task content such as disagreements about appropriate advertisements (Jehn, 1994). Value diversity related to different individual beliefs, perspectives, and behaviors within the team members regarding the team's goal or mission (Jehn, 1997; Liang et al., 2012). The value similarity was likely decreased relationship conflict among members (Jehn, 1994).

Task Conflict

Task conflict is an awareness of differences in view points and opinions pertaining to a group task (Amason and Sapienza, 1997; Arazy et al., 2011). Task conflicts may coincide with animated discussions and personal excitement but, by definition, are void of the intense interpersonal negative emotions that are more commonly associated with relationship conflict.

Process Conflict

Recent studies have identified another unique type of conflict, labeled process conflict. Of these conflict types, process conflict has been the least examined. Process conflict is defined as an awareness of controversies about aspects of how task accomplishment is proceed (de Wit et al., 2012; Jehn, 1997; Jehn et al., 1999). More specifically, process conflict pertains to issues of duty and resource delegation, such as who should do what and how much responsibility different people should get. For example, when group members disagree about whose responsibility it is to complete a specific duty, they are experiencing process conflict.

Relationship Conflict

Relationship conflict is an awareness of interpersonal incompatibilities, includes affective components such as feeling tension and friction. Relationship conflict involves personal issues such as dislike among group members and feelings such as annoyance, frustration, and irritation. This definition is consistent with past categorizations of conflict that distinguish between affective and cognitive conflict (Amason, 1996; Pinkley, 1990; van den Berg et val., 2014).

Communication

Communication provides a means for the exchange of information among team members (Hsu et al., 2012; Pinto and Pinto, 1990). The quality of communication within a team can be described in terms of the frequency, formalization, structure, and openness of the information exchange. Frequency refers to how extensively team members communicate (i.e., time spent communicating), the degree of formalization describes how spontaneously team members are able to converse with each other. Formal communication is a communication that requires a large amount of preparation and planning before it can occur (e.g., scheduled meetings, written status reports), whereas informal communication is more spontaneously initiated contacts (e.g., talks in the hallway, quick phone calls, short e-mails). Spontaneous communication shown to be crucial to the work of teams with innovative projects, in this case cloud computing deployment, because ideas and contributions can be shared, discussed, and evaluated with other team members faster and efficiently (Katz, 1982; Pinto and Pinto, 1990). It is widely agreed upon in the literature that the flow of communication within teams influences the success of innovative projects (Griffin and Hauser, 1992). Interaction quality between different stakeholders is found to be important in information system development projects (Christiaanse and Venkatraman, 2002; Jiang et al., 2006; Wang et al., 2005).

Coordination

Hoegl and Gemuenden (2001) argues that coordination is an important aspect of teamwork. Coordination refers to the degree to which individual efforts are well structured and synchronized within the team. Other understanding for coordination is the development and agreement of a team of a common task-related goal structure, with well-defined sub-goals for each member, without any gaps or overlaps. Other research argues that the work done on subtasks within the project was closely harmonized. Teams are developing a collective mindset when they are aware the work of one team member contributes to the work of another member of the team and this lead to better coordination (Crowston and Kammerer, 1998; Weick and Roberts, 1993).

Balance of Member Contributions

Balance of member contributions considers the degree to which team members are able to bring their expertise to their full potential (Hoegl and Gemuenden, 2001). Hackman (1987); and Seers et al. (1995) emphasize that contribution of every team member in all task-relevant knowledge and experience to the team is important to the quality of teamwork. Because they often consist of members whose expertise is in different functional areas (e.g., research and development, finance, marketing, etc.), this becomes critical for teams with innovative tasks. Cross-functional teams would not contribute much and would not increase team performance if some team members could not expresse their views and ideas because other team members were dominating discussions and decision-making processes. It is considered essential to TWQ and success of innovative projects that contributions to the team task are balanced with respect to each member's specific knowledge and experience.

Mutual Support

Mutual support among team members is an essential component of TWQ (Tjosvold, 1984; 1995). Mutual support is needed to reach team goals. The better team members support each other, the more effective and efficient these goals can be reached. Mutual support is the perception within the team regarding mutual respect, granting of assistance when required, and development of other team members' ideas and contributions (Parolia et al., 2013).

The idea of teamwork is based on intensive collaboration and cooperative of individuals rather than a competitive frame of mind. Competition between team members can bring a negative influence on the motivation and performance of individual tasks (Hoegl and Gemuenden, 2001). For interdependent tasks such as software development, mutual support is more productive than are the forces of competition. Thus, team members working on a shared goal should display mutual respect, develop other team members' ideas and give assistance when needed rather than trying to compete with each other. On the other hand, Tjosvold (1995) in his book stated that competitive behaviors in a team lead to distrust and frustration within the team.

Effort

As a civilized person, we are expected to behave according to the norms that are accepted in our environment. Levine and Moreland (1990) define norms in a team as shared expectations regarding the behavior of team members. When we involved in a team-based project, we are expected to get fully pushed to the project and make the project as our highest priority. Norms regarding the effort of team members are important to TWQ while such shared expectations can exist for every observable behavior in teams. Prioritizing of the team's task and workload sharing over other obligations are indicators for the effort team members applied on the common task (Hackman, 1987; Hoegl and Gemuenden, 2001; Pinto and Pinto, 1990). It is important for everyone in the team to know and accept the work norms related to minimum effort put in a project to achieve high TWQ and avoid conflict among team members. Of course a minimum level of effort is not enough, high level of effort by all team members is essential to the quality of team work.

Cohesion

Cohesion represents another important facet of teamwork quality model. Cohesion refers to the degree to which team members desire to remain on the team (Cartwright, 1968). Cohesion also described as members' inclinations to forge social bonds thus

implicate that members tend to stick together and remain unite (Casey-Campbell and Martens, 2009). A meta-analysis that includes 49 empirical studies distinguishes between three cohesive forces, which include interpersonal attraction of team members, commitment to the team task, and group pride-team spirit.

Although the empirical evidence of the influence of team cohesion on performance is not yet conclusive, it is mainly the commitment to the task, as an indicator of cohesion, that shows a significant result on team performance (Mullen and Copper, 1994). Gully et al. (1995) include 51 effects of 46 empirical investigations in their meta-analysis and conclude that cohesion influences performance, especially if the team task need coordination and communication in innovative tasks. These results indicate that the performance of innovation team impacted by some level of team cohesion.

Project Performance

Project performance can be defined as the extent to which a project is able to meet established quality and cost and time objectives (Gemuenden and Lechler, 1997). Setting clear and precise performance objectives of a project is particularly difficult in the case of innovations because the innovative projects tend to have higher complexity and uncertainty (Hauschildt, 1997). In this research, project performance is described in terms of the variables effectiveness and efficiency. Effectiveness refers to the degree to which the team meets expectations regarding the quality of the outcome.

An effective performance regularly entails adherence to predefined qualitative properties of the product, service, or process to be developed, such as functionality, robustness, reliability, performance, etc in the context of innovative project,. The team’ s efficiency is assessed in terms of adherence to schedules, e.g., starting the manufacturing and/or marketing on the target date, and budgets, e.g., staying within target costs with both the project and the finished product. Thus, effectiveness reflects a comparison of actual versus intended outcomes, whereas efficiency ratings are based on a comparison of actual versus intended inputs (Liang et al., 2012).

Hypotheses Development

Mortensen and Hinds (2001) have noted that much of the research has mainly investigated diversity as antecedents of conflict. One of the example is if an individual is different from his/her team members in terms of tenure or race, he/she will be more likely to have conflict with others (Han and Harms, 2010).

Jehn et al., (1997) stated that task conflict may increase performance. Value diversity of team members may lead to a higher degree of relationship conflict, lower group identification, and less social integration (Chou et al., 2008; Lim and Klein, 2006). Based upon diversity theory and the empirical studies, we propose that value diversity among team members will increase task conflict as stated below:

H1a: The level of value diversity on cloud computing deployment project teams positively associated with the level of task conflict.

Previous research concludes that personal conflict may decrease performance (Jehn et al., 1997). Value diversity could lead to process conflicts-disagreements about delegation and resource allocation. Similarity in group members' goals and values enhances interpersonal relations within the group. For example, group members who value effectiveness, such as prioritize more in quality, were likely to have disagreements about duty and resource allocation with group members who value efficiency, prioritize more in output (Hackman, 1990; Jehn et al., 1999). Thus, we propose:

H1b: The level of value diversity on cloud computing deployment project teams positively associated with the level of process conflict.

Diverse values add to conflicts about how to conduct tasks and the perception of team goals and when team members have different values, friction happens and increases the relationship conflict among team members (Liang et al., 2010; Peltokorpi, 2006). In contrary, team members with similar work values are more willing to obey the norms of teamwork, reconcile differences, and reduce any tensions during interpersonal interactions (Homan et al., 2010). With those researches, we propose:

H1c: The level of value diversity on cloud computing deployment project teams positively associated with the level of relationship conflict.

Information system development, in this case cloud computing deployment, is a social-technical process which requires intensive communication among stakeholders (Jones and Harrison, 1996; Mackin, 1994). Team members need to gather and exchange information to clarify current conditions, to understand the external environment and to generate solution in order to reach a consensus on project objectives and means (Dietrich et al., 2010; Hoegl and Gemuenden, 2001). Previous researches showed that task conflicts are positively associated with adopting intensive communication mechanisms for sharing the expertise and information

Table 1 Summary of Variable Definition

Construct Name	Definition	Reference
Value Diversity	Members of a workgroup differ in terms of what they think the group's real task, goal, target, or mission should be	Jehn (1994); Liang et al. (2012).
Task Conflict	An awareness of differences in perspective and opinions attributed to a group task. Similar to cognitive conflict, it attributes to conflict about ideas and differences of opinion about the task.	Amason and Sapienza (1997); Arazy et al. (2011).
Process Conflict	An awareness of controversies about aspects of how task accomplishment will proceed.	Jehn (1997); Jehn et al. (1999); de Wit et al. (2012).
Relationship Conflict	An awareness of interpersonal incompatibilities includes feeling tension and friction. Relationship conflict involves personal issues such as dislike among group members and feelings such as annoyance, frustration, and irritation.	Amason (1996); Pinkley (1990).
Communication	The quality of the exchange of information among team members. Communication within a team can be described in terms of the frequency, formalization, structure, and openness of the information exchange	Pinto and Pinto (1990); Hsu et al. (2012).
Coordination	Quality of collaboration in teams is the harmonization and synchronization of these individual contributions	Hoegl and Gemuenden (2001).
Balance of Member Contribution	Degree to which team members are able to bring their expertise to their full potential	Hackman (1987);Seers et al. (1995); Hoegl and Gemuenden (2001).
Mutual Support	The intensive collaboration of individuals depends upon a cooperative and mutual respect rather than a competitive frame of mind.	Tjosvold (1984); Parolia et al. (2013).
Effort	Shared expectations regarding the behaviour of team members.	Levine and Moreland (1990);Hoegl and Gemuenden (2001).
Cohesion	The degree to which team members desire to remain on the team	Cartwright (1968); Casey-Campbell and Martens (2009).
Project Performance	The extent to which a project is able to meet established quality and cost and time objectives.	Gemuenden and Lechler (1997); Liang et al. (2012).

among team members (Jehn and Mannix, 2001; Liang et al., 2012; Pinto and Pinto, 1990). Communication is also an effective solution for team conflict and helps other members to solve the task problems on hands (Eisenhardt, 1989). Therefore, we propose these following hypotheses:

H2a: The level of task conflict positively associated with the level of communication among cloud computing deployment project team members.

Based on research done by Arazy et al. (2011), conflict in technology-mediated collaboration is viewed as having positive and negative consequences. Teams may experience task conflict because the coordination issue and task conflict could enhance project success in the end.

H2b: The level of task conflict positively associated with the level of coordination by cloud computing deployment project team members.

Contribution of every team member in all task-relevant knowledge and experiences to make the team tasks be completed efficiently and effectively is an important characteristic of a high quality team (Baiden and Price, 2011). It is one of important success factor for tasks teams because they often consist of expertise in different field and can bring out innovative thoughts to promote balanced opportunities for sharing on project problem identification and solution (Baron, 1991; Putnam, 1994). Task conflict gives the team members opportunity to contribute their unique knowledge and experience (Eisenhardt and Schoonhoven, 1990; Jehn and Mannix, 2001). Consequently, when task conflicts are present, greater balance of contribution among team members should be achieved (Amason, 1996; Dietrich et al., 2010; Jehn, 1997). Based on conflict theory and empirical evidence, we propose this following hypothesis:

H2c: The level of task conflict positively associated with the level of balanced contributions by cloud computing deployment project team members.

Mutual support can be reduced by team stress and the increase of anxiety levels (de Dreu and van Vianen, 2001; Jehn and Mannix, 2001).When team stress can be overcome by all team members by discussing and having same perspective regarding conflicting task, it means that task conflict can have positive effect on mutual support in doing project, specifically IS/IT deployment project.

H2d: The level of task conflict positively associated with the level of mutual support by cloud computing deployment project team members.

The uncertainty of groups' task environment, which usually lead to task conflict, suggests that factors linked with overall effort by individuals involve in the IS/IT deployment project positively related to on how team member perceived their performance (Bandura, 1991).

H2e: The level of task conflict positively associated with the level of effort by cloud computing deployment project team members.

Because of homogeneous teams usually shared characteristics, they work well together thus tighten the team cohesion. But study from Horwitz and Horwitz (2007) argued that cohesion improves during the duration of a team project. The meetings frequency and the degree of interactions among members can alleviate negative outcomes. Because members tend to integrate and develop a sense of team identity over time, team dynamics and relationships among diverse team members can shift during project.

H2f: The level of task conflict positively associated with the level of cohesion by cloud computing deployment project team members.

A recent empirical study found that groups who continually disagreed about task assignments were unable to effectively perform their work (Jehn et al., 1999). In line with recent literature reviews and a meta-analysis (de Dreu and Weingart, 2003), process conflict is negatively related to team performance. Other research suggests that conflicts are often linked to negative affect (Jehn and Bendersky, 2003). Therefore, based on these given past research and theorizing, we propose,

H3a: The level of process conflict negatively associated with the level of communication among cloud computing deployment project team members.

Arazy et al. (2011) claimed that conflict in technology-mediated collaboration is viewed as having positive and negative consequences. Teams may experience process conflict because the coordination issue and process conflict could impede project success in the end.

H3b: The level of process conflict negatively associated with the level of coordination among cloud computing deployment project team members.

Contribution of every team member in all relevant knowledge and experience to the team is important to the quality of teamwork (Hackman, 1987; Seers et al., 1995). This is especially critical for teams with innovative tasks because they often consist of members whose expertise is in different functional areas. Hence, if only few people dominating discussions and decision-making process that may lead to process conflict.

H3c: The level of process conflict negatively associated with the level of balanced contributions by cloud computing deployment project team members.

Negative emotions such as lack of mutual support arise more dramatically from process conflict (Janss et al., 2012). Process conflict is also one of the most important sources of work stressor (Giebels and Janssen, 2005; Spector and Jex, 1998). From empirical evidence above, thus we propose:

H3d: The level of process conflict negatively associated with the level of mutual support among cloud computing deployment project team members.

Because effort is offset by disagreements and inefficiencies result from confusion about resources and responsibilities, process conflict appears (Jehn, 1997). Process conflict will decrease team members' effort to convey information and improve the extent to which their teammates understand their context(Hinds and Bailey, 2003).

H3e: The level of process conflict negatively associated with the level of effort among cloud computing deployment project team members.

Process conflict was associated with a lower level of group morale as well as with decreased productivity. Process conflict tends to be associated with decreased productivity because of ineffective task performance (Jehn et al., 1999), and dissatisfaction that can escalate a desire amongst members to abandon the team (Jehn and Mannix, 2001).

H3f: The level of process conflict negatively associated with the level of cohesion by cloud computing deployment project team members.

Relationship conflicts are associated with negative effects on the harmonious interaction of team members, unlike task conflicts which provide opportunities for team members to contribute their task-relevant expertise (Staw et al., 1981). Liang et al. (2010) stated that relational conflicts are accompanied by negative emotions and behaviors that lead to negative impacts on overall communication process. These lead us to expect that relationship conflict is caused damage to communication from team members. Based on empirical evidence and conflict theories:

H4a: The level of relationship conflict negatively associated with the level of communication among cloud computing deployment project team members.

Similar with previous statement on hypothesis 3b that stated teams may experience relationship conflict because the coordination issue thus relationship conflict could slowdown project success in the end as the negative impact of conflict as a whole (Arazy et al., 2011).

H4b: The level of relationship conflict negatively associated with the level of coordination among cloud computing deployment project team members.

Relationship conflicts are associated with negative effects on the harmonious interaction of team members, unlike task conflicts (Staw et al., 1981). Previous researches show that relational conflicts are linked to negative emotions and behaviors that lead to negative impacts on overall knowledge contribution (Liang et al., 2010). These lead us to expect that relationship conflict is

harmful to a balanced input from team members.

H4c: The level of relationship conflict negatively associated with the level of balanced contributions among cloud computing deployment project team members.

Giebels and Janssen (2005) and Spector and Jex (1998) assumed that relationship conflict is one of the most important sources of work stressor. When team members start to disagree and there is no appropriate resource to overcome the relationship conflict, it becomes the trigger of team stress (Benitez, 2011). This team stress and the increase of anxiety levels caused mutual support being reduced (de Dreu and van Vianen, 2001; Jehn and Mannix, 2001).

H4d: The level of relationship conflict negatively associated with the level of mutual support among cloud computing deployment project team members.

de Dreu and Weingart (2003) meta-analysis showed that relationship conflict has negative effects on team work quality and group performance. Thus, we expect that relationship conflict have negative effects on norms regarding the effort, which includes in TWQ facets, of team members.

H4e: The level of relationship conflict negatively associated with the level of effort among cloud computing deployment project team members.

In the research done by Black (1990), he identified how the sociologists use relationship conflict to reinforce the distribution of power in an organization by framing relationship conflict as threats to group cohesion. Therefore, we propose hypothesis H4f as stated below:

H4f: The level of relationship conflict negatively associated with the level of cohesion among cloud computing deployment project team members.

Based on few studies, communication mechanisms and team members balance of contributions are essential to the successful design and implementation of innovative projects (Adenfelt, 2010; Hoegl and Gemuenden, 2001; Liang et al., 2012; Seers, 1989). Other empirical evidence showed that a high quality of teamwork is positively associated with team performance (Dayan and Di Benedetto, 2008; 2009).Thus, we propose:

H5a: The level of communication among cloud computing deployment project team members positively associated with the level of project performance.

Team coordination is important and required for team productivity and team performance. Lack of coordination in teams could lead into reduced team performance caused by delayed projects, unfinished work products, poor quality deliverables, cost overruns, unsatisfied customer and unhealthy competition(Sudhakar, 2013).

H5b: The level of coordination among cloud computing deployment project team members positively associated with the level of project performance.

Individuals are gradually understand the unique knowledge, skills, and abilities of certain group members by working together (Liang et al., 1995; Pearsall and Ellis, 2006). Individuals also can establish a relationship with other team member and approach them for help and advice. These individuals usually have greater access to the entire knowledge set of the group and also have greater access to the help and resources of all team members. This kind of relationship can improve project performance (Parise and Rollag, 2010).

H5c: The level of balanced contributions in a cloud computing deployment project team positively associated with the level of project performance.

Competition between team members can bring a negative influence on the motivation and performance of individual tasks (Hoegl and Gemuenden, 2001). Mutual support is more productive than are the forces of competition for interdependent tasks such as IS/IT development. Team members working on a shared goal should display mutual respect, give assistance when needed, and develop other team members' ideas will eventually increase the level of project performance.

H5d: The level of mutual support among cloud computing deployment project team members positively associated with the level of project performance.

Effort as a part of TWQ facet plays important role on project performance. Prioritizing of the team' s task and workload sharing over other obligations are indicators for the effort team members applied on the common task. To achieve higher quality of team work and project performance, high level of effort by all team members is essential (Hoegl and Gemuenden, 2001; Pinto and Pinto, 1990).

H5e: The level of effort among cloud computing deployment project team members positively associated with the level of project performance.

Beal et al. (2003) assume that a dense and continuous work relationships can help build a sense of group cohesion sense among team members, thus can lead to higher project performance. Higher commitment to the group in order to achieve shared goals and also not to disappoint their teammate scan increase team members' motivation to work harder and help each other (Parise and Rollag, 2010).

H5f: The level of cohesion in a cloud computing deployment project team positively associated with the level of project performance.

Research Design and Methodology

Each cloud computing deployment project was represented by a project manager and one project member to provide separate key informants because we also want to analyze project performance from two perspectives. This relationship based on a hierarchical relationship (project manager and project member) which both have the ability to influence each other. Based on that assumption, we employed multigroup analysis. This analysis can provide set roles in the relationship. The stronger the diversity, the bigger impact the influence of the other has. By using multigroup analysis, researcher can either confirm that their results are not distorted by unobserved heterogeneity or identify neglected variables that describe the uncovered data segments. Analysis of the model and data mainly followed standards of structural modeling employing partial least square (PLS) techniques and using SmartPLS2.0 software.

The questionnaires were non-randomized so all questionnaires for all respondents, which includes team leader and team member is following the same order. Survey questions were designed based from the past researches. A seven-point Likert scale range from 1 (strongly disagree) to 7 (strongly agree) is used to measure each items in the questionnaire. The first part included questions about the respondent and the project. Afterwards, questions measured the value diversity, the conflicts, the six TWQ factors, and the level of team performance. Finally, respondents were thanked for their participation.

Sampling Plan and Data Collection

Target respondents of this research include team leaders and team members of information systems development projects, specifically cloud computing deployment. All constructs in this research refer to the team as the unit of analysis. All measures are also specified on the team level. Respondents were asked to evaluate behaviors of the team as a whole. In this research, we sent request to Indonesia cloud computing service providers such as PT. Telkom Indonesia to ask for their cloud computing client list and ask them for the contact information. We also sent request to related associations in Indonesia e.g., Indonesia Internet Service Provider Association (Asosiasi Penyelenggara Jasa Internet Indonesia/APJII) and Indonesia Cloud Computing Community. All data are confidential and only use for this research purpose. If chosen subjects (respondents) were willing to complete a survey then he/she identified one team member to complete an identical survey. Confidentiality of all responses for both subjects will be assured. No mechanism is in place to track individual responses to completed surveys.

We used two approaches to collect the data, individual

approach and firm approach. For individual approach, we sent out preliminary emails to targeted project leaders through their private email addresses then asked them to distribute the second questionnaire to one key project team member. As we mentioned in previous chapter, we used two ways to administer the survey, paper-based and online-base questionnaire. We asked the chosen subjects to choose which survey they preferred. All of team leader chose to use online-based questionnaire. For firm approach, we sent emails to firm' s corporate secretary and ask them for contact person then the rest of the procedure was the same with the individual approach. The individual approach worked better because researcher knew most of the respondent in person so the respondents responded faster while sometimes there was no respond from firms that we approached through firm approach.

Researchers provided bilingual questionnaire in English and Bahasa Indonesia to give flexibility to the respondents and to choose which language they felt comfortable with and 96.3% percent of the respondents chose to fill the questionnaire in Bahasa Indonesia and the rest of respondent, 3.7% chose to fill the questionnaire in English.

The data collection started May, 1st 2014 and ended June15th, 2014 which was approximately six weeks. At the beginning, we targeted 100 respondents from 50 teams that deployed cloud computing in Indonesia but because of the time constraint and lack of bureaucracy easiness, we can only gathered 84 respondents from 42 teams. Since we also included industry in questionnaire items, we can track down from which company the respondents are. But the respondent itself is maintained anonymous so there supposed to be no worry about privacy of the respondents in this research.

Research Results

Demographic

Gender percentage is dominated by male respondents which occupied 69.05% from total respondent while female respondents is 30.95%. The largest age group is 26 – 35 years old (44.05%), followed by ≤ 25 years old (20.24%), 35 – 45 years old (17.86%) and 46 – 55 years old (17.86%). There is quite balance percentage for married respondent (57.14%) and single respondent (42.86%). Most respondents are Javanese (42.86%), followed by respondents with mixed ethnicity (14.29%). Most of respondents are Moslem (72.62%).The highest education for most respondents is undergraduate degree (46.43%) and master degree (44.05%). In accordance

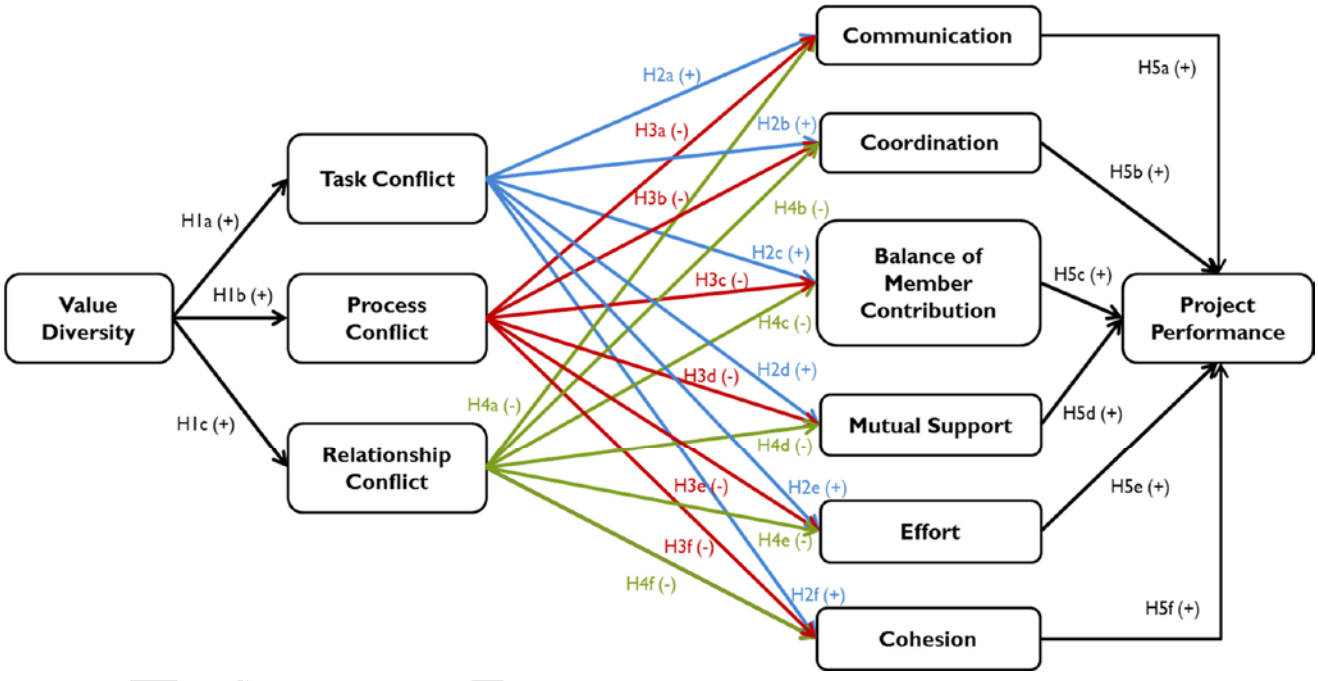

Figure 1 Conceptual model

with research context, most of the respondents are from research and development department (27.38%) and IS/IT department (26.19%). While the major industry involved in this research is from telecommunication/IT industry (42.86).

Regarding the industry involved in this research, the majority of the respondent is come from telecommunication/IT industry. Most of them are PT. Telekomunikasi Indonesia (Telkom) employees that work under Telkom Research and Development Center (RDC) and involved in deploying cloud computing services for Indonesian government and private banking services. For government, the specific cloud computing that they deploy is mostly SaaS solutions that consist of Telkomcloud email by Zimbra (e-mail system), Arium Network SMART (network monitoring tools), e-Official

Table 2 Characteristics of the Respondents

Characteristics		Frequency	Percent	Characteristics		Frequency	Percent
Gender	Male	58	69.05	Education	Diploma	2	2.38
	Female	26	30.95		Undergraduate	39	46.43
Age	< 25	17	20.24		Master	37	44.05
	26 - 35	37	44.05		Doctorate	6	7.14
	36 - 45	15	17.86	Current Position	Technician	2	2.38
	46 - 55	15	17.86		Professional	16	19.05
Status	Single	36	42.86		Staff	33	39.29
	Married	48	57.14		Manager	20	23.81
Ethnicity	Javanese	36	42.86		Others	13	15.48
	Indonesian	12	14.29	Origin Department	Marketing	4	4.76
	Malay	7	8.33		Finance	11	13.10
	Sundanese	7	8.33		RandD	23	27.38
	Batak	7	8.33		Engineering	6	7.14
	Chinese	8	9.52		IS/IT	22	26.19
	Sumatran	5	5.95		Others	18	21.43
	Balinese	1	1.19	Industry	Telecommunication/IT	36	42.86
	Bugis	1	1.19		Government	10	11.90
Religion	Islam	61	72.62		Retail	10	11.90
	Christian	14	16.67		Education	4	4.76
	Catholic	7	8.33		Service	8	9.52
	Buddhist	1	1.19		Banking and Finance	4	4.76
	Hindu	1	1.19		Mining	10	11.90
					Pharmacy	2	2.38

Memo (delivering memo), Marketplace (application store for SME) and e-project (project management tools).

Majority of the respondent that come from government in this research is IS/IT consultant for government. They are not civil servant and hired professionally by government to deploy cloud computing in ministries and local governments. Respondents from retail industry are employees from e-commerce sites in Indonesia and most of them are Tokopedia employees, a C2C marketplace in Indonesia. Surprisingly, mining industry in Indonesia is already deploying cloud computing widely as SaaS. The respondents from this industry are from various mining companies in Indonesia, including international mining companies that operated in Indonesia.

Descriptive Analysis

Table 3 shows the standard deviations and means of the questionnaire items. Standard deviation measures the amount of variation or dispersion from the average. A high standard deviation indicates that the data points are spread out over a large range of values, while allow standard deviation indicates that the data points tend to be very close to the mean and it also called expected value.

Common Method Bias

We conduct Common Method Bias (CMB) test to make sure that there is no systematic bias influencing the data. We ran the data in SPSS 16.0 since SmartPLS does not have option to test the CMB. In order to test common method variance, principal component analysis was performed. In SPSS, we analyze factor analysis correlation matrix with principal axis factoring method and we extract 1 fixed number of factor. We also not do any rotation and the result needs to be less than 0.50. This analysis involved all undeleted items and the result reveals that the first factor explained 38.637% of variance which is less than 50% of total explained variance Therefore, there is no common method variance problem that can contaminate the result of this study.

PLS Measurement Model

Examination of the measurement model results indicates that the hypothesized measures are at best suspect. There was 39 of the 51 measures exceed the minimum criterion suggested for exploratory research. Low loadings provide further evidence that the measurement model could be improved. Construct Validity measures each item correlation with related construct. One way to estimate the construct validity is through the Factorial Validity and in this case researcher chooses to use Confirmatory Factor Analysis (CFA). SmartPLS is used to perform confirmatory factor analysis (CFA) in order to examine the measurement model. In addition, factor loadings, communality and average variance extracted (AVE) are computed in order to validate of the construct. Convergent validity is shown when each of the measurement items loads within the construct. Convergent validity refers to the degree to which two measures of constructs that theoretically should be related (Trochim, 2000). Typically, the p-value of a significant t-value on its latent construct should be significant at least at the 0.05 alpha protection levels. It is shown when each measurement item correlates weakly with all other constructs except for the one to which it is theoretically associated. The correlation of the latent variable scores with the measurement items needs to show an appropriate pattern of loadings. Gefen et al. (2000) showed that minimum loadings in PLS could be as low as 0.50.

After we built our model, we inserted items into each construct then run the PLS algorithm with path weighting scheme. According to Hair et al. (2011), factor loadings should be 0.50 or higher and ideally 0.70 or higher. In this study, factor loading threshold of 0.70 is used to determine which measurement items are deleted. Using this threshold, 12 items were deleted; 8 items of value diversity construct, 1 items of task conflict, 1 item of coordination, 1 item of balance of member contribution and 2 items of mutual support construct were deleted. An item will be considered good if its value does not exceed 0.70 on unrelated constructs.

Average Variance Extracted (AVE) measures the variance captured by a latent construct, which is accounted for by the construct relative to the amount due to the measurement error that is the explained variance. AVEs are generated automatically using the bootstrap technique. The rule of the thumb of AVE is that the square root of the AVE of each construct should be much

Table 3 Descriptive Analysis

Construct	Item Code	Items	Mean	S.D.
Value Diversity	A1	The values of all team members were diverse.	5.110	1.222
	A2	The age gap makes values diverse within the team members.	4.480	1.548
	A3	Different marital status makes values diverse within the team members.	3.610	1.489
	A4	Different nationality makes values diverse within the team members.	4.300	1.713
	A5	Different ethnicity makes values diverse within the team members.	4.020	1.735
	A6	Different religion makes values diverse within the team members.	3.690	1.598
	A7	Different department makes values diverse within the team members.	5.000	1.280
	A8	The team as a whole had similar work values.	4.650	1.410
	A9	The team as whole had similar goals.	5.200	1.210
	A10	Team members had strongly held beliefs about what is important within the team.	5.390	0.892
	A11	All members agreed on what is important to the team.	5.600	1.099
Task Conflict	B1	Team member often disagree about opinions regarding the project content.	4.140	1.272
	B2	Team members have different ideas about project content and project goal.	4.500	1.167
	B3	Team members have different viewpoints about project content and project goal.	4.400	1.398
Process Conflict	C1	There is disagreement(s) about who should do what in your team.	3.100	1.341
	C2	There is a conflict(s) in your group about task responsibilities.	3.110	1.489
	C3	There is a disagreement(s) about resource allocation in your team.	3.320	1.433
Relationship Conflict	D1	There is much personality conflict evident in your team.	2.950	1.455
	D2	There is much tension among members of your team.	2.920	1.328
	D3	Team members envious and counter each other.	2.450	1.236
	D4	Some team members don't like each other.	2.830	1.396
Communication	E1	There was frequent communication within the team.	5.860	0.852
	E2	The team members communicated often in spontaneous meetings, phone conversations, etc.	5.830	0.774
	E3	The team members communicated mostly directly and personally with each other.	5.880	0.684
	E4	Project-relevant information was shared openly by all team members.	5.520	1.081
	E5	The team members were happy with the timeliness in which they received information from other team members.	5.430	1.133
	E6	The team members were happy with the precision and usefulness of the information received from other team members.	5.490	0.938
Coordination	F1	Team members know who on the team has specialized skills and knowledge that is relevant to their work.	5.550	0.949
	F2	The work done on subtasks within the project was closely harmonized.	5.290	1.036
	F3	There were clear and fully comprehended goals for subtasks within our team.	5.610	0.892
	F4	The goals for subtasks were accepted by all team members.	5.450	1.023
	F5	There were no conflicting interests in our team regarding subtasks/subgoals.	4.800	1.360

Table 3 Descriptive Analysis (Cont.)

Construct	Item Code	Items	Mean	S.D.
Balance of Member Contribution	G1	The team recognized the specific potentials (strengths and weaknesses) of individual team members.	4.850	1.322
	G2	The team members were contributing to the achievement of the team's goals in accordance with their specific potential.	5.180	1.132
	G3	Imbalance of member contributions caused conflicts in our team.	3.900	1.754
Mutual Support	H1	The team members helped and supported each other.	5.380	1.396
	H2	The team member request assistance from fellow staff when they feel overwhelmed.	5.500	1.146
	H3	If conflicts came up, they were easily and quickly resolved.	5.170	0.980
	H4	Discussion and feedback between the team members is delivered in a way that promotes positive interactions and future change.	5.440	0.998
Effort	I1	Every team member fully pushed the project.	5.240	1.228
	I2	Every team member made the project their highest priority.	4.940	1.320
	I3	Our team put much effort into the project.	5.260	1.121
	I4	There were no conflicts regarding the effort that team members put into the project.	4.690	1.151
Cohesion	J1	My team is cohesive.	5.180	0.996
	J2	My team has team spirit.	5.490	0.885
	J3	I talk this team to my other friend that this team is a great team to work.	5.360	0.977
Project Performance	K1	Projected goals were met.	5.630	0.788
	K2	The expected amount (scope) of work was completed.	5.620	0.877
	K3	The schedule was adhered to.	5.350	1.207
	K4	Task operations were carried out efficiently.	5.130	1.015
	K5	The members maintain the high morale during the project process.	5.540	0.963

larger than the correlation of the specific construct with any of the other constructs in the model (Chin, 1998) and should be at least 0.50 (Fornell and Larcker, 1981). Using undeleted items, AVE were computed. Hair et al. (1998) suggested that for good convergent validity, AVE should be greater than 0.50. The result shows that for all each constructs, all AVE are greater than 0.50 which is conform to the recommendation. Thus, all constructs in the model have adequate convergent validity and we can conclude that the data used in this research is valid. Coefficient of Determination (R^2) indicates how well data points fit a statistical model. The coefficient of determination usually ranges from 0 to 1. The rule of thumb is R^2 should be above 0.10. There are significant correlation between dependent and independent variables except for task conflict and balance of member contribution. So in this study, two constructs are not correlated, task conflict and balance of member contribution.

Bootstrapping Procedure and Multi-Group Analysis

Bootstrapping is a method for assigning measures of accuracy to sample estimates. Bootstrapping is the practice of estimating properties of a variance by measuring those properties when sampling from an approximating distribution. One standard choice for an approximating distribution is the empirical distribution of the observed data (Efron and Tibshirani, 1993). Bootstrapping is used to assess the path coefficients' significance. We calculated the bootstrapped data we had

Table 4 Cross Loading

	Value Diversity	Task Conflict	Process Conflict	Relationship Conflict	Commu-nication	Coordi-nation	BoMC	Mutual Support	Effort	Cohesion	Project Performance
A9	0.697	0.072	-0.254	-0.244	0.559	0.673	0.397	0.491	0.624	0.585	0.583
A10	0.895	0.182	-0.345	-0.334	0.586	0.729	0.446	0.656	0.690	0.692	0.674
A11	0.900	0.215	-0.310	-0.376	0.667	0.740	0.494	0.592	0.607	0.583	0.633
B2	0.238	0.983	0.219	0.204	0.283	0.116	0.019	0.148	0.296	0.043	0.178
B3	0.006	0.791	0.343	0.293	0.139	-0.084	-0.017	-0.053	0.159	-0.069	0.092
C1	-0.278	0.282	0.915	0.701	-0.457	-0.395	0.141	-0.396	-0.266	-0.322	-0.267
C2	-0.367	0.310	0.933	0.803	-0.489	-0.468	0.080	-0.433	-0.330	-0.410	-0.340
C3	-0.346	0.139	0.893	0.713	-0.534	-0.511	0.053	-0.411	-0.383	-0.392	-0.365
D1	-0.342	0.274	0.766	0.899	-0.509	-0.478	0.014	-0.559	-0.378	-0.449	-0.405
D2	-0.384	0.266	0.782	0.920	-0.499	-0.539	0.005	-0.536	-0.397	-0.433	-0.488
D3	-0.266	0.225	0.700	0.918	-0.477	-0.455	-0.015	-0.533	-0.380	-0.388	-0.509
D4	-0.399	0.107	0.689	0.888	-0.515	-0.525	-0.093	-0.506	-0.497	-0.428	-0.471
E1	0.640	0.243	-0.527	-0.553	0.881	0.713	0.268	0.696	0.588	0.651	0.738
E2	0.600	0.275	-0.476	-0.470	0.896	0.697	0.180	0.671	0.580	0.592	0.663
E3	0.578	0.285	-0.512	-0.536	0.921	0.688	0.135	0.675	0.573	0.538	0.675
E4	0.606	0.179	-0.396	-0.379	0.851	0.749	0.310	0.630	0.550	0.604	0.658
E5	0.662	0.137	-0.407	-0.391	0.753	0.766	0.229	0.616	0.648	0.655	0.599
E6	0.662	0.238	-0.478	-0.505	0.870	0.808	0.217	0.780	0.670	0.672	0.697
F1	0.651	0.183	-0.356	-0.346	0.649	0.765	0.229	0.648	0.564	0.583	0.605
F2	0.664	0.004	-0.503	-0.562	0.739	0.840	0.417	0.794	0.686	0.755	0.768
F3	0.859	0.119	-0.371	-0.424	0.799	0.930	0.638	0.786	0.760	0.806	0.848
F4	0.767	-0.017	-0.514	-0.563	0.755	0.930	0.529	0.758	0.743	0.769	0.817
G1	0.367	-0.086	0.101	-0.002	0.127	0.384	0.945	0.306	0.274	0.336	0.368
G2	0.609	0.073	0.089	-0.039	0.322	0.601	0.978	0.511	0.539	0.534	0.610
H3	0.574	0.076	-0.476	-0.584	0.709	0.741	0.313	0.889	0.632	0.643	0.663
H4	0.673	0.117	-0.345	-0.478	0.705	0.805	0.483	0.908	0.712	0.854	0.838
I1	0.640	0.250	-0.358	-0.391	0.632	0.665	0.234	0.648	0.874	0.725	0.700
I3	0.739	0.351	-0.211	-0.340	0.625	0.718	0.369	0.623	0.887	0.680	0.716
I4	0.514	0.089	-0.347	-0.426	0.478	0.618	0.553	0.616	0.745	0.623	0.644
J1	0.552	-0.100	-0.384	-0.418	0.562	0.657	0.245	0.634	0.624	0.781	0.562
J2	0.742	0.087	-0.315	-0.375	0.671	0.808	0.557	0.803	0.744	0.941	0.808
J3	0.640	0.034	-0.404	-0.455	0.647	0.759	0.417	0.765	0.757	0.912	0.781
K1	0.719	0.267	-0.190	-0.293	0.717	0.812	0.545	0.733	0.660	0.719	0.893
K2	0.712	0.084	-0.380	-0.542	0.728	0.844	0.555	0.757	0.736	0.755	0.935
K3	0.599	0.258	-0.314	-0.438	0.647	0.701	0.288	0.699	0.753	0.630	0.846
K4	0.643	0.157	-0.354	-0.532	0.685	0.768	0.440	0.787	0.805	0.771	0.887
K5	0.669	0.000	-0.357	-0.489	0.697	0.797	0.539	0.762	0.707	0.793	0.895

using the construct level changes with 84 samples and 5000 cases as suggested by Hair et al. (2011).

Table 8 Bootstrap Result and PLS Path Estimators for the Complete Sample and the Role in the Team Subsamples

Hypotheses 1 are mostly supported: hypothesis 1b (β = -0.893 with p-value < .005) and hypothesis 1c (β = -0.404 with p-value <0.005)except for hypothesis 1a(β = 0.183 with p-value 0.256), relationship between value diversity with task conflict. In this case, we can see that conflicts are not managed well yet. Conflicts in this research are more to decrease trust and can lead into mistrust. Thus, it will damage relationships and the potential for knowledge sharing, learning and knowledge creation rather than engaging team members, strengthen relationships and trust, and facilitate knowledge sharing, learning and knowledge creation.

Hypotheses 2 are half supported: hypothesis 2a (β = 0.435 with p-value < 0.005), hypothesis 2d (β = 0.245 with p-value < 0.05) and hypothesis 2e(β = 0.402 with p-value < 0.01) are supported while hypothesis 2b (β = 0.218 with p-value 0.060), hypothesis 2c (β = -0.004 with p-value 0.961) and hypothesis 2f (β = 0.140 with p-value 0.178) are not supported. Some previous studies showed the negative effect of task conflict on performance (Saavedra et al., 1993; Wall and Nolan, 1986b). This research also proved that task conflict had negative effect on performance through lack of coordination, balance of member contribution and cohesion. In the other hand, task conflict that moderates by communication, mutual support and effort facet in teamwork quality had positive effect on performance.

Only hypotheses 3a (β = -0.378 with p-value < 0.05) is supported while hypotheses 3b (β = -0.230 with p-value 0.214), 3c (β = 0.339 with p-value 0.092), 3d (β = 0.021 with p-value 0.924), 3e (β = -0.059 with p-value 0.683) and 3f (β = -0.133with p-value 0.534) are not supported. Hypotheses 4 is mostly supported: 4a (β = -0.351 with p-value <0.05), 4b(β = -0.416 with p-value < 0.05), 4d(β = -0.660 with p-value < 0.005),4e (β = -0.508 with p-value < 0.005), 4f(β = -0.399 with p-value < 0.05) and are supported. Only hypotheses 4c(β = -0.303 with p-value 0.068) is not supported. Hypotheses 5c (β = 0.124 with p-value <0.01) and 5e(β = 0.247 with p-value <0.05) are supported while the rest are not supported (hypothesis 5a : β = 0.152 with p-value 0.095, hypothesis 5b: β = 0.242 with p-value 0.094, hypothesis 5d: β = 0.194 with p-value 0.109 and hypothesis 5f: β = 0.090 with p-value 0.476).

There are several approaches, both parametric and non-parametric for doing multigroup analysis in PLS. We split the data into the two groups that we are comparing, run the same model on each separate data set, and then calculate all of the differences in the path coefficients. Then we determine whether each path coefficient difference is statistically significant.

We used the complete dataset and ran the PLS algorithm with path weighting scheme then we bootstrapped it with no sign of changes. We did the same treatment to the data that we split into two datasets based on the values of the moderator. In this research, we are using role in the team as the moderating variable. So, we created two datasets, one for team leader (n=41) and one for team member (n=41). We loaded both datasets into SmartPLS and then ran a bootstrap analysis on each dataset using the same model then we compared both report after running the bootstrap for each role in the team.

Using the formula provided on Wynne Chin's PLS FAQ website:

$$t = \frac{Path_{sample\_1} - Path_{sample\_2}}{\left[\sqrt{\frac{(m-1)^2}{(m+n-2)} * S.E._{sample1}^2 + \frac{(n-1)^2}{(m+n-2)} * S.E._{sample2}^2}\right] * \left[\sqrt{\frac{1}{m} + \frac{1}{n}}\right]}$$

We calculated the t-statistic for the difference between the effects. The t-values were obtained by subtract the paths of two samples and divide their difference by pooled estimator for the variance where m represent team leader sample size and n represent team member sample size. The formula requires the sample size of each group, as well as the regression weights and the standard errors for the path being tested. The formula also converts the t-statistic into a two-tailed probability value. One caveat

Table 5 Average Variance Extracted and Reliability

	AVE	Communality	Cronbach's Alpha	Composite Reliability (CR)
Value Diversity	0.699	0.699	0.781	0.873
Task Conflict	0.796	0.796	0.799	0.885
Process Conflict	0.834	0.834	0.901	0.938
Relationship Conflict	0.822	0.822	0.928	0.949
Communication	0.746	0.746	0.931	0.946
Coordination	0.755	0.755	0.890	0.924
Balance of Member Contribution	0.925	0.925	0.923	0.961
Mutual Support	0.807	0.807	0.761	0.893
Cohesion	0.702	0.702	0.853	0.911
Effort	0.775	0.775	0.784	0.875
Project Performance	0.795	0.795	0.935	0.951

Table 6 Correlation of Latent Variables

	AVE	Value Diversity	Task Conflict	Process Conflict	Relationship Conflict	Commu-nication	Coor-dination	Member Contribution	Mutual Support	Effort	Cohesion	Project Performance
Value Diversity	0.699	0.836*										
Task Conflict	0.796	0.197	0.892*									
Process Conflict	0.834	-0.365	0.264	0.913*								
Relationship Conflict	0.822	-0.387	0.240	0.811	0.906*							
Communication	0.746	0.720	0.266	-0.543	-0.553	0.864*						
Coordination	0.755	0.849	0.075	-0.505	-0.552	0.849	0.869*					
Member Contribution	0.925	0.533	0.012	0.097	-0.025	0.256	0.536	0.962*				
Mutual Support	0.807	0.697	0.108	-0.454	-0.589	0.786	0.862	0.447	0.898*			
Effort	0.702	0.758	0.281	-0.361	-0.457	0.694	0.798	0.452	0.750	0.838*		
Cohesion	0.775	0.736	0.018	-0.413	-0.469	0.713	0.844	0.474	0.838	0.808	0.881*	
Project Performance	0.795	0.750	0.168	-0.359	-0.516	0.780	0.881	0.535	0.839	0.820	0.825	0.892*

in this approach is that there is an assumption that the underlying weights in the formation of constructs for each grouping are approximately equivalent.

Conclusion and Discussions

In the context of deploying IS/IT in an organization, value diversity can influence project performance. Value diversity that positively correlated to conflict will lead into negative correlation to team work quality but it has positive effect to increase project performance level. Most researches assume that all aspects of differences among people affect team work in the same way. But Horwitz and Horwitz (2007) stated that different types of diversity may influence team outcomes in different ways, it could be in positive ways or negative ways.

Through an increase in the innovations, information, and knowledge that diversity brings, diverse teams can have a positive and negative impact on project performance. Task conflict can be beneficial for the organization if they are kept to low levels, this also implied in cloud computing deployment. Past research suggests that task conflict may improve team performance under certain condition, such as psychological safety. Specifically, task conflict and team performance were positively associated under conditions of high psychological safety (Bradley et al., 2012). In this research we conclude that task conflict is not significant. Since we assume that condition is held constant and we predict that there is certain condition that is not fulfilled, thus can be a direction for future research. This findings is congruent with statement that said that cloud computing is still in early stage and this stage is a crucial stage to define and to search the best form to deploy cloud computing successfully. This findings is also congruent with de Dreu and Weingart (2003) research that stated task conflict have strong and negative correlations with team performance and team member satisfaction. Jehn (1997) also noted that although moderate task conflict is often linked with positive performance, high levels of task conflict has been noted to be detrimental to members' satisfaction and team performance.

In distributed teams, the impact of process conflict is magnified due to difficulties in communication, effort and cohesion. Empirical evidence in this research indicated that process conflict correlated negatively to coordination, balance of member contribution and mutual support as expected. Empirical evidence in this research indicated that relationship conflict has negative consequences on TWQ and harms the quality of project performance since relationship conflict reduces communication, balance of member contribution and mutual support among team members.

This research found inconsistent results regarding the effect of diversity and it has positive and negative outcomes. The results provide new insight on the

Table 7 Correlation of Latent Variables

	R2
Value Diversity	
Task Conflict	0.039
Process Conflict	0.133
Relationship Conflict	0.150
Communication	0.520
Coordination	0.366
Balance of Member Contribution	0.041
Mutual Support	0.412
Effort	0.244
Cohesion	0.373
Project Performance	0.840

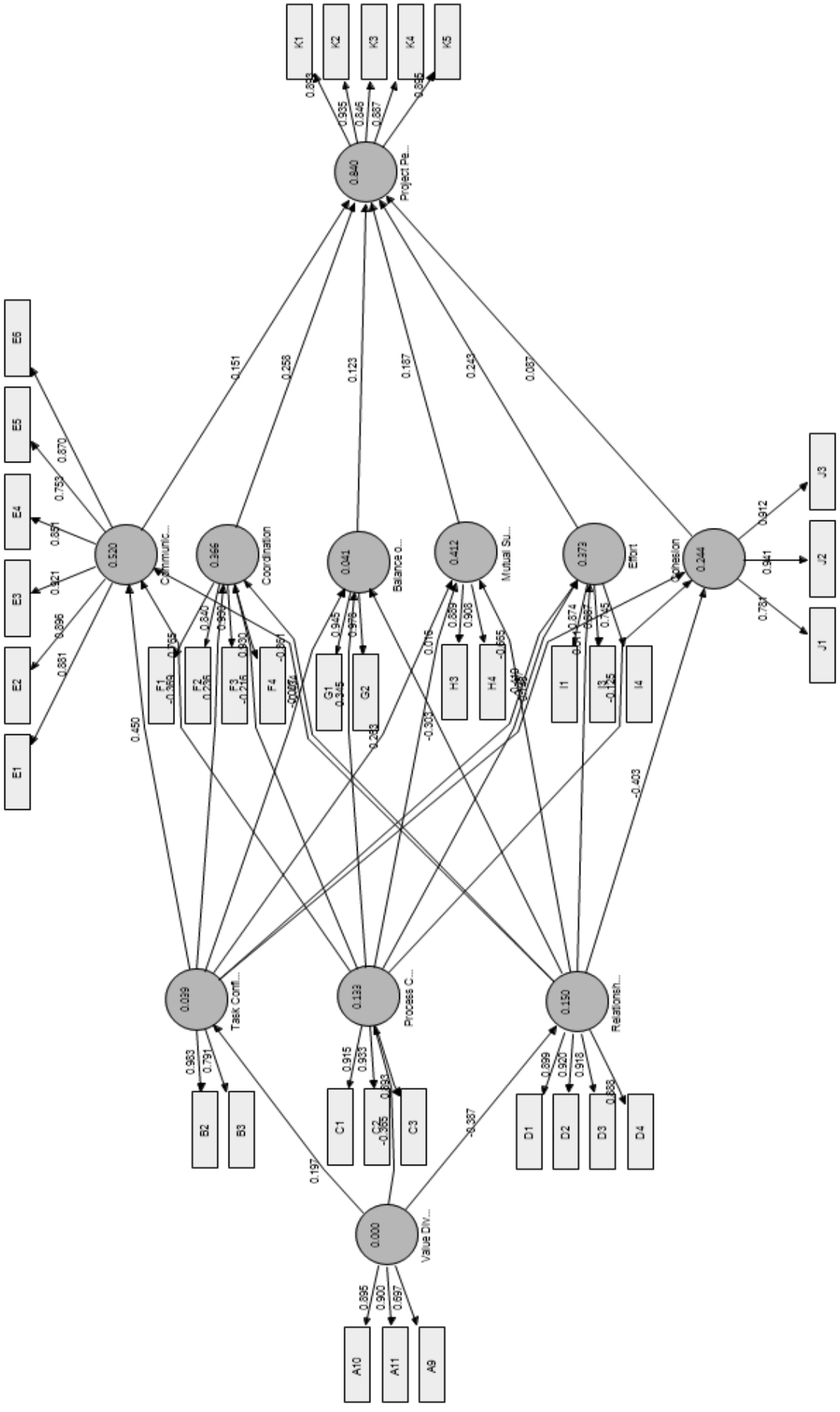

Figure 2 Conceptual Model Breakdown and PLS modeling

Table 8 Bootstrap Result and PLS Path Estimators for the Complete Sample and the Role in the Team Subsamples

Hypotheses		S. C.	(STERR)	O/STERR	p-Value	t-Stats	p-Value	t-Stats	p-Value
H1a	Value Diversity -> Task Conflict	0.183	0.171	1.153	0.256	0.070	0.945	1.777	0.083
H1b	Value Diversity -> Relationship Conflict	-0.383	0.094	3.893***	0.000	2.665*	0.011	2.749**	0.009
H1c	Value Diversity -> Process Conflict	-0.404	0.096	4.043***	0.000	2.251*	0.030	3.006***	0.005
H2a	Task Conflict -> Communication	-0.230	0.171	4.282***	0.000	2.591*	0.013	4.635***	0.000
H2b	Task Conflict -> Coordination	0.339	0.199	1.943	0.060	0.664	0.511	2.321*	0.025
H2c	Task Conflict -> Balance of Member Contribution	0.021	0.166	0.049	0.961	0.335	0.739	1.692	0.098
H2d	Task Conflict -> Mutual Support	-0.059	0.139	2.170*	0.036	0.633	0.530	3.988***	0.000
H2e	Task Conflict -> Effort	-0.133	0.200	3.172**	0.003	1.443	0.157	2.804*	0.008
H2f	Task Conflict -> Cohesion	-0.351	0.152	1.372	0.178	0.045	0.964	2.199*	0.034
H3a	Process Conflict -> Communication	-0.303	0.161	2.289*	0.028	2.119*	0.040	1.160	0.253
H3b	Process Conflict -> Coordination	-0.660	0.148	1.264	0.214	1.016	0.316	1.325	0.193
H3c	Process Conflict -> Balance of Member Contribution	-0.508	0.132	1.730	0.092	2.309*	0.026	1.093	0.281
H3d	Process Conflict -> Mutual Support	-0.399	0.182	0.096	0.924	0.016	0.988	0.519	0.606
H3e	Process Conflict -> Effort	0.152	0.088	0.411	0.683	0.055	0.956	0.915	0.366
H3f	Process Conflict -> Cohesion	0.242	0.150	0.627	0.534	1.104	0.276	0.306	0.761
H4a	Relationship Conflict -> Communication	0.194	0.114	2.370*	0.023	1.668	0.103	2.344*	0.024
H4b	Relationship Conflict -> Coordination	0.247	0.097	2.633*	0.012	1.146	0.259	2.672*	0.011
H4c	Relationship Conflict -> Balance of Member Contribution	0.090	0.121	1.883	0.068	0.271	0.788	1.793	0.080
H4d	Relationship Conflict -> Mutual Support	0.183	0.171	4.503***	0.000	2.187*	0.035	3.633**	0.001
H4e	Relationship Conflict -> Effort	-0.383	0.094	3.882***	0.000	2.068*	0.045	2.761**	0.009
H4f	Relationship Conflict -> Cohesion	-0.404	0.096	2.220*	0.033	0.432	0.668	2.632*	0.012
H5a	Communication -> Project Performance	0.218	0.121	1.712	0.095	0.226	0.822	0.753	0.456
H5b	Coordination -> Project Performance	-0.004	0.136	1.717	0.094	0.825	0.414	0.504	0.617
H5c	Balance of Member Contribution -> Project Performance	0.243	0.121	2.793**	0.008	0.706	0.484	2.715**	0.010
H5d	Mutual Support -> Project Performance	0.402	0.132	1.644	0.109	1.273	0.210	2.251*	0.030
H5e	Effort -> Project Performance	0.140	0.108	2.503*	0.017	1.307	0.199	0.693	0.493
H5f	Cohesion -> Project Performance	-0.378	0.161	0.720	0.476	0.111	0.912	1.254	0.217

Table 9 Multigroup analysis result

Hypotheses	Team Leader, n=42			Team Member, n=42			Team Significant Difference, n=82	
	S. C.	t-Stats	p-Value	S. C.	t-Stats	p-Value	t-Stats	p-Value
Value Diversity -> Task Conflict	0.240	0.070	0.945	0.176	1.777	0.083	1.167	0.247
Value Diversity -> Process Conflict	0.149	2.665*	0.011	0.148	2.749**	0.009	3.966***	0.000
Value Diversity -> Relationship Conflict	0.156	2.251*	0.030	0.133	3.006***	0.005	3.838***	0.000
Task Conflict -> Communication	0.161	2.591*	0.013	0.123	4.635***	0.000	0.943	0.348
Task Conflict -> Coordination	0.168	0.664	0.511	0.131	2.321*	0.025	1.099	0.275
Task Conflict -> Balance of Member Contribution	0.160	0.335	0.739	0.162	1.692	0.098	1.177	0.243
Task Conflict -> Mutual Support	0.277	0.633	0.530	0.116	3.988***	0.000	2.284*	0.025
Task Conflict -> Effort	0.278	1.443	0.157	0.143	2.804***	0.008	0.189	0.850
Task Conflict -> Cohesion	0.142	0.045	0.964	0.133	2.199*	0.034	1.784	0.078
Process Conflict -> Communication	0.267	2.119*	0.040	0.183	1.160	0.253	1.180	0.242
Process Conflict -> Coordination	0.315	1.016	0.316	0.206	1.325	0.193	0.130	0.897
Process Conflict -> Balance of Member Contribution	0.253	2.309*	0.026	0.216	1.093	0.281	2.626**	0.010
Process Conflict -> Mutual Support	0.334	0.016	0.988	0.195	0.519	0.606	0.326	0.745
Process Conflict -> Effort	0.268	0.055	0.956	0.194	0.915	0.366	0.479	0.633
Process Conflict -> Cohesion	0.345	1.104	0.276	0.241	0.306	0.761	0.714	0.477
Relationship Conflict -> Communication	0.268	1.668	0.103	0.175	2.344*	0.024	0.099	0.922
Relationship Conflict -> Coordination	0.313	1.146	0.259	0.181	2.672*	0.011	0.449	0.654
Relationship Conflict -> Balance of Member Contribution	0.330	0.271	0.788	0.195	1.793	0.080	0.632	0.529
Relationship Conflict -> Mutual Support	0.302	2.187*	0.035	0.167	3.633***	0.001	0.141	0.888
Relationship Conflict -> Effort	0.277	2.068*	0.045	0.173	2.761**	0.009	0.002	0.998
Relationship Conflict -> Cohesion	0.326	0.432	0.668	0.212	2.632	0.012	1.161	0.249
Communication -> Project Performance	0.259	0.226	0.822	0.104	0.753	0.456	0.133	0.895
Coordination -> Project Performance	0.392	0.825	0.414	0.247	0.504	0.617	0.846	0.400
Balance of Member Contribution -> Project Performance	0.122	0.706	0.484	0.159	2.715**	0.010	1.887	0.063
Mutual Support -> Project Performance	0.227	1.273	0.210	0.160	2.251*	0.030	0.277	0.783
Effort -> Project Performance	0.182	1.307	0.199	0.114	0.693	0.493	0.758	0.451
Cohesion -> Project Performance	0.235	0.111	0.912	0.163	1.254	0.217	0.163	0.738

Table 10 Summary of Research Hypotheses

Hypothesis	Statement	Result
H1a	Value Diversity will positively influence Task Conflict.	Not Supported
H1b	Value Diversity will positively influence Process Conflict.	Supported
H1c	Value Diversity will positively influence Relationship Conflict.	Supported
H2a	Task Conflict will positively influence Communication.	Not Supported
H2b	Task Conflict will positively influence Coordination.	Not Supported
H2c	Task Conflict will positively influence Balance of Member Contribution.	Not Supported
H2d	Task Conflict will positively influence Mutual Support.	Not Supported
H2e	Task Conflict will positively influence Effort.	Not Supported
H2f	Task Conflict will positively influence Cohesion.	Supported
H3a	Process Conflict will negatively influence Communication.	Not Supported
H3b	Process Conflict will negatively influence Coordination.	Supported
H3c	Process Conflict will negatively influence Balance of Member Contribution.	Supported
H3d	Process Conflict will negatively influence Mutual Support.	Supported
H3e	Process Conflict will negatively influence Effort.	Not Supported
H3f	Process Conflict will negatively influence Cohesion.	Not Supported
H4a	Relationship Conflict will negatively influence Communication.	Not Supported
H4b	Relationship Conflict will negatively influence Coordination.	Supported
H4c	Relationship Conflict will negatively influence Balance of Member Contribution.	Not Supported
H4d	Relationship Conflict will negatively influence Mutual Support.	Not Supported
H4e	Relationship Conflict will negatively influence Effort.	Supported
H4f	Relationship Conflict will negatively influence Cohesion.	Supported
H5a	Communication will positively influence Project Performance.	Not Supported
H5b	Coordination will positively influence Project Performance.	Not Supported
H5c	Balance of Member Contribution will positively influence Project Performance.	Supported
H5d	Mutual Support will positively influence Project Performance.	Supported
H5e	Effort will positively influence Project Performance.	Not Supported
H5f	Cohesion will positively influence Project Performance.	Supported

additional impacts of value diversity on task conflict, process conflict and relationship conflict. Given these mixed results, how diversity influences project performance is remain unclear and need to explore more. Respondents in this research are people involved in cloud computing deployment with diverse backgrounds, experiences and hold different belief structures and values, this may affect their prioritization, interpretation and response to stimuli so the conflict that happens will also diverse.

Organizations should involve management, employees and technology and service providers, in order to make diversity as advantage to improve cloud computing deployment performance. Organization had to build systems and control change management, which includes value diversity and conflicts, within their corporate. And it is better for management board to create environment that allows employees to be entrepreneurial and innovative using IT in order to maximize the utility of IS/IT implementation, in this case, cloud computing.

Researcher decided to test the second order construct to simplify and elude confusion in a structural model. The setup model was completed by include all TWQ facet to be one construct, which is Team Work Quality. The result showed that only two hypotheses are not supported while the rest is supported. Regarding hypothesis 1a, the p-value of this hypothesis value diversity is only slightly above 0.05. This finding indicates that value diversity has a big possibility to influence task conflict if condition in the deploying cloud computing services is already well established. Unfortunately, this research still cannot prove that process conflict has negative influence to team work quality.

Research Implications

Since no researcher has done complete study regarding diversity that influence project performance with complete conflict theory and TWQ model constructs, this research could be the pioneer of this kind of research. This research also enriched previous studies that still cannot decide whether conflict has positive or negative influence for TWQ and project performance. This research also applied multigroup analysis with PLS. Testing measurement invariance is quite new in PLS and seldom seen in PLS research at the moment. So this assumption also becomes this research contribution. A prerequisite for multigroup comparison is measurement invariance which it is often assumed that the measurement invariance is given if you use the same items for the latent variables measurement in each group.

In a diverse team, we also need to see whether the individual background which reflected in the value diversity plays important role in the project performance (Windeler et al., 2015). This study investigates factors that encourage and discourage team work quality. By examining it, the company can formulate the strategy to combine better team to deploy IS/IT in the company since IS/IT investment usually takes lots of resources, capital resources and human resources. This study confirms that value diversity can lead to undesirable conflict. Thus, a project manager must consider and be prepared to control resulting conflicts that may arise (Chou et al., 2008; Lim and Klein, 2006).

Aside that Indonesia is a market that currently has average gross margins (profitability) of the IT services sector improved from 2004 to 2009 with the help of domestic IS/IT consumption, this study also gives insight about diversity and its relation to conflict that tends to be happening in a project in Indonesia. This can be a consideration to invest and deploy IS/IT in Indonesia. Project performance is still crucial because it is really closely related to business success. Value diversity gives team leader chance to maximize the potential to real project goals. This is how IS/IT deployment, in this context is cloud computing, becomes very valuable investment to any company in the world.

Research Limitations and Suggestions for Future Research

There are several limitations of this research that should be considered when interpreting its findings and might contribute as to why the study was not able to explore the hypotheses proposed earlier. Firstly we excluded team size as a control variable in our analysis because we want to focus on variables in Team Work Quality model. Another reason is the length of the questionnaire which was considered to be lengthy by the respondents. Some feedback from the respondents mentioned that a more comprehensive questionnaire is better as it will be easier to fill and to read. We conducted the research as a whole set of value diversity so we did not perform research regarding the background diversity one by one and its relation with conflict.

This research is the first attempt to combine diversity theory, conflict theory and team work quality model together as a whole. Therefore, there might be some shortcoming from the variable relationship and control variable which has not been addressed yet. Even though this research topic is a bit outdated, but this research become valuable because it can be applied in many different updated context in a dynamic world these days.

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韓于婷為國立成功大學國際經營管理研究所碩士，目前為印尼美國有線電視新聞網的新聞製作研究者，也是印尼政府部門的顧問。

Latifah Budi Pertiwi received her Master degree from the Institute of International Management, National Cheng Kung University, Taiwan. Currently, she works in News Production Researcher at CNN Indonesia and as a consultant for Indonesian government ministries.

陳國安為國立成功大學國際經營管理研究所博士，其研究論文於企業信息系統（Enterprise Information Systems Information)，信息系統前沿 (Systems Frontier)，和人機交互國際期刊 (International Journal of Human-Computer Interaction) 發表之。曾獲得決策中信息技術研究所（DSI）第 43 屆年會的最佳路徑的論文之獎項。

Andree Emmanuel Widjaja received his Doctor degree from the Institute of International Management, National Cheng Kung University, Taiwan. His research has appeared in Enterprise Information Systems, Information Systems Frontier, and International Journal of Human-Computer Interaction. He had received the award for the best track paper in Information Technology of Decision Sciences Institute (DSI) 43th Annual Meeting.

陳正忠為國立成功大學國際經營管理研究所的所長，夏威夷大學博士。已於權威期刊登刊了五十幾篇的論文 , 包含資訊與管理（Information & Management），決策支持系統 (Decision Support Systems)，歐洲期刊信息系統 (European Journal of Information Systems) 等期刊。

Victor Jengchung Chen is a Director of the Institute of International Management, National Cheng Kung University, Taiwan. He received his Doctoral degree in the University of Hawaii. He has published over 50 papers in refereed journals, including Information & Management, Decision Support Systems, European Journal of Information Systems, and many others.