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Managing Fit between Organizational Functionality, Package Features and Stakeholder Needs during Enterprise Accounting Systems Implementation: A Process Analysis

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Abstract

Multiple stakeholder involvement in Enterprise System implementations makes it challenging. Using Fiedler's (2005) contingency theory of leadership as an analytical lens, this study examines the Organization-Package-Stakeholder (OPS) fit, managing fit between organizational functionality, package features and stakeholder needs during ES implementations. We develop a framework on managing OPS fit in the implementation of Learning Environment Online (LEO) system at the Republic Polytechnic (RP) of Singapore. The leadership styles suited to each of the three system development phases of planning, development and post-implementation are moderated by situational contingency variables. The interplay between the contingency variables power (legitimizing, applying and reserving), knowledge (externalising, utilising, disseminating), identity (specialising, reinforcing, collaborating) and inter-relationship (connecting, augmenting, synergising) at each phase is demonstrated in the case. Our analysis suggests task oriented leadership styles and contingency variable power dominated during the planning phase; task oriented leadership style and contingency variable knowledge took precedence during the development phase while relationship leveraging leadership style and contingency variables identity and inter-relationship were applied during post-implementation.

Introduction

Past Enterprise Systems (ES) research suggests ES implementation projects carry high risks (Davenport, 1998; Parr & Shanks, 2000) with approximately 90% of these projects either late or over-budget (Al-Mashari et al., 2003). A major reason for the high risk is that ES are typically external software packages embedded with vendor-defined best business practices (Luo & Strong, 2004), tailoring to organizations' functional requirements (Soh & Sia, 2005; Light, 2005). The need to integrate ES into business functions involves coordinating multiple stakeholders across the organization (Jones et al., 2006; Soh & Sia, 2004) and external parties such as information systems (IS) vendors and consultants (Wang et al., 2006). The challenging task of coordinating the array of project stakeholders inevitably increases the complexity of project management and as a consequence, higher risk of project failure.

While past ES implementation research has primarily focused on traditional IS project management success factors (Robey et al., 2002), this study aims to examine the Organization-Package-Stakeholder (OPS) fit, which involves managing fit between organizational functionality, package features and stakeholder needs during ES implementation. Traditionally, IS researchers have highlighted the importance of fit between tasks, technologies and actors (Dishaw & Strong, 1999). But little is known about the way to manage fit during an ES implementation. Therefore, our research question is "how is OPS fit managed during ES implementation?" To answer this research question, our study adapts Fiedler's (2005) Contingency theory of leadership as an analytical lens to better understand the phenomenon in question. Contingency theory of leadership is a leadership effectiveness

theory (Mitchell et al., 1970) that acknowledges leadership quality as a key factor that determines success (Fiedler & Garcia, 1987). According to the theory, leaders that design a good fit between leadership orientation and situational characteristics tend to perform more effectively (Fiedler, 2005). By adapting the theory in a project setting, it is therefore important for our study to explore how alignment of leadership style and situational project characteristics is achieved during ES implementation. The case selected for our research is the implementation of Learning Environment Online (LEO) system at the Republic Polytechnic (RP) of Singapore. The reason why we select LEO project is because RP's Problem-Based Learning (PBL) pedagogy was unique in Singapore at the time when we conducted our research. Furthermore, RP was determined to become a leading education institution in using IT to support learning.

The next sections cover the literature review, research methodology, and case description and analysis. We conclude with implications for research and practice, and future research.

Theoretical Foundation

Stakeholder Cooperation during Enterprise Systems Implementation

ES implementation projects are considered socio-technical challenges (Newell et al., 2002; Brown & Vessey, 2003) that involve multiple project stakeholders (Akkermans & van Helden, 2002). These project stakeholders possess diverse knowledge, skills, expertise, backgrounds, goals (Wagner & Newell, 2004) and are involved in different ES implementation phases (Markus & Tanis, 2000). They are highly inter-dependent (Rowley, 1997; Robey et al., 2002) and often involved in negotiations and cooperation (Soh & Sia,

2005) during project implementation. The success or failure of an ES implementation project hinges on whether there is effective collaboration among cross-functional teams that include both internal and external stakeholders (Hitt et al., 2002; Nah et al., 2001).

A stakeholder's identity is based on his or her desire to differentiate and be recognized by the external world (Rowley & Moldoveanu, 2003). Social identities fulfil people's need for order and structure, and ultimately one's self-concept and place within the social world (Hogg & Terry, 2000). Stakeholder identity affects stakeholder behaviour (Ellemers et al., 2004; Frooman, 1999; Jawahar & McLaughlin, 2001), knowledge transfer (Ko et al., 2005), interactions and trust within stakeholder networks (Hislop et al., 2000; McEvily et al., 2003), and cooperation (Gu & Jarvenpaa, 2003). This would also enhance knowledge sharing (Huang at al., 2003) among project stakeholders during ES projects (Akkermans & van Helden, 2002; Robey et al., 2002).

Besides stakeholder identity, firms need to understand the allocation of power among stakeholders (Serafeimidis & Smithson, 2003). This is to allow stakeholders to cooperate for a common purpose (Mitchell et al., 1997), overcome resistance and mobilize support for change, foster stronger ties with stakeholders, and limit negative efforts to disrupt organizational goals by powerful actors (Mitchell et al., 1997; Savage et al., 1991).

Overall, existing research has highlighted the importance of understanding project stakeholders' identity, needs and power, and integrating stakeholders' requirements in the

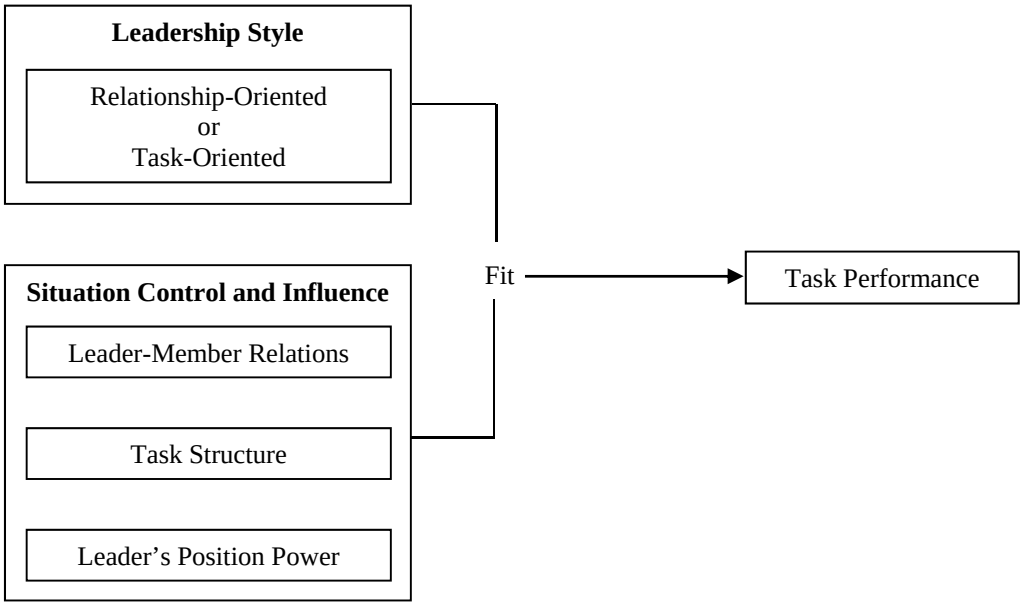
system functionality so as to achieve organization objective. Accordingly, it is important for us to explore the OPS fit during ES implementation.

OPS Fit and Contingency Theory of Leadership

Prior research has examined the organizational fit of ES (Morton & Hu, 2008), the alignment between capabilities of external IS packages and internal organizational needs (Dishaw & Strong, 1999), antecedents of alignment and impact on organizational outcome (Kearns & Sabherwal, 2006; Reich & Benbasat, 2000), sources of misfit (Soh & Sia, 2005) and factors affecting fit (Hong & Kim, 2002). Nevertheless, past research remains fixated on either the alignment of the external package and organizational functionality (Kearns & Sabherwal, 2006), or the external package and user requirements (Light, 2005). Little is known about the process of managing OPS fit during ES implementation which is what our study set out to achieve.

Fiedler's (2005) Contingency theory of leadership (see Figure1), is a major leadership effectiveness theory (Mitchell et al., 1970) that acknowledges leadership quality as a key factor that determines success (Fiedler & Garcia, 1987). Fit and performance are positively related in Contingency theory (Donaldson, 2001; Drazin & Van de Ven, 1985). Leaders with a good match between leadership orientation and situational characteristics tend to perform more effectively, express greater job satisfaction, and report less job stress (Fiedler, 2005). As a result, we adapted Contingency theory of leadership as an analytical lens to understand how managers facilitate OPS fit during ES implementation so as to effectively achieve project objective.

Figure 1: Contingency Theory of Leadership Model (Fiedler, 2005)



Research Methodology

We adopted a qualitative case study approach to examine the contemporary phenomenon of ES implementation in a real-life context (Cadili & Whitley, 2005; Yin, 2003). Interviews were used as the primary source of data (Walsham, 1995). The interviews were taped and transcribed to produce verbatim transcripts for data analysis (Scott & Wagner, 2003). Interviews were supplemented by secondary data from internal documents, archives, direct observation, newspapers, organisation's website and online articles (Walsham, 2001; Yin, 2003). Multiple data sources facilitated triangulation to increase research rigor (Klein & Myers, 1999; Yin, 2003), validity of findings (Pan et al., 2001; Sheu et al., 2004) and to verify emerging categories (Ravasi & Schultz, 2006).

Overall, 25 in-depth, open-ended, face-to-face interviews were conducted. The interviewees involved RP management (i.e., Deputy Principal and 6 Department Directors), internal IS engineer, 4 academic faculty from the academic departments, and Wizlearn staff (IS contractor). A list of key actors in the case is attached in the appendix. Each interview lasted between 30 minutes and 100 minutes. Data were collected during May and October 2005 period.

We described the case in three ES implementation stages – 'selection', 'tailoring', and 'roll-out and maintenance'. The case description was vetted by the Deputy Principal of RP to ensure data accuracy and to enhance construct validity (Lee, 1999; Ravasi & Schultz, 2006).

In this study, the thematic process to code and interpret data in conceptual categories (Denzin & Lincoln, 2000; Neuman, 2003) involved three phases of analysis from recognizing the themes, to encoding and interpreting data (Boyatzis, 1998). Data were analyzed line-by-line, linking points and identifying themes. An organized list of codes was used during the thematic analysis process (Boyatzis, 1998; Denzin & Lincoln, 2000) for consistency. Several themes were identified. They correspond to the conceptual framework shown in Figure 2. Data were compared against extant literature to strengthen internal validity of the findings by identifying contradictions with existing literature (Eisenhardt, 1989).

Case Description

RP, established on 1 August 2002, consisted of three schools and three centres - School of Information & Communications Technology (SIT), School of Applied Science (SAS), School of Engineering (SEG), Centre for Culture and Communication (CCC), Centre for Educational Development (CED), and Centre for Innovation and Enterprise (CIE). It was later expanded to include the School of Technology for the Arts (STA), Centre for Professional Development (CPD) and Centre for Science and Mathematics (CSM). The Office of Academic Affairs (OAA) oversaw RP's curriculum and the Office of Information Services (OIS) was in-charge of managing RP's IT infrastructure.

Learning Environment Online (LEO) system was implemented as part of RP's mission to become a leader in using IT to support learning. According to RP's Deputy Principal,

> *"The use of information technology is central to our campus, administration, learning and culture. It was estimated that 90% of RP's staff and students used LEO daily. LEO is the IT hub of teaching, learning and student administration. LEO provides an online suite of daily transactions conducted by staff and students, including time-tabling, class assignments, etc. LEO achieves over two million hits a day, with 113 e-applications supporting a population of 2000 RP students."*

Project Planning Phase

It was RP's Director of OAA who shaped the PBL vision, methodology, curriculum and educational goals. The Director of OAA was tasked to ensure RP would deliver high quality education that was fully supported by IT. Besides, RP believed in IT outsourcing rather than building internal IT capability.

To implement LEO system, the implementation team had to work closely with the school's and centre's directors to fulfil their system requirements. Generally, the introduction of LEO was welcomed by RP's staff and faculty. RP's Management attributed this positive reception to RP being a young institution that is opened to new innovation. According to the Deputy Principal of RP,

> *"An organization with legacy issues would differ from one that doesn't; At RP, it can introduce new things."*

The OAA Director, faculty, staff and OIS were involved in evaluating various software packages that include Blackboard and Wizlearn. RP's main selection

criteria included relevant package features and fulfillment of technical requirements. In the end, RP's team concluded that none of the on-the-shelf vendor packages would satisfy all RP's user requirements. According to the OAA Director,

> *"We couldn't find a learning management system that could provide a good pedagogical process. We concluded that there wasn't anything that would fit nicely with our education philosophy."*

RP had to turn to a vendor that was flexible and willing to customise its package to suit RP's needs. As it turned out, Wizlearn was the only IT vendor willing to customise its solution for RP. Furthermore, Wizlearn was based in Singapore which made its service provision more accessible to RP. As a result, Wizlearn was selected as RP's LEO system provider.

System Development Phase

RP's LEO development team comprised the Project Manager (PM) and Wizlearn's IT staff (EIS). The PM was selected for his familiarity with online learning platforms and RP's academic structure. The PM's main tasks involved supervising EIS and making major project implementation decisions. He also acted as the interface between EIS and RP's staff. According to the PM,

> *"My job was to communicate users' requirements to the Wizlearn's team leader."*

During the development phase, EIS was based in RP. They were gathering LEO's user requirements from RP's PM, OAA Director and the CED Director. The OAA Director provided the core user requirements that shaped LEO. In order to define

the requirements, the OAA Director had to work closely with the CED Director and other faculty and staff. The OIS staff provided the technical requirements, and managed data storage at RP's servers. EIS modified the system and databases in their test environment, and had to request OIS to import the data as they could not access RP's database. The Wizlearn staff had minimal contact with OIS, except when OIS sought clarifications on some of its package's technical features.

An important aspect of the project implementation was that LEO implementation team had put in great effort to facilitate the fit between the software package and RP's user requirements. This was achieved while balancing the needs of RP's other stakeholders. This required a close working relationship between the PM and EIS. To enhance their working relationship, RP arranged for the PM and EIS to be located next to the OAA Director's office so as to facilitate collaboration. The LEO implementation team had daily project meeting. Changes were enacted to facilitate OPS fit. For example, the original package required minor adjustments such as renaming the "lecturer" field to "facilitator". Also, in-depth modifications were required to support RP's assessment system. LEO was modified to limit internet access at regular Understanding Test. The RP Management advised the LEO team to minimize package modifications, defer less urgent modifications to off-peak periods and expedite system implementation, so as to ensure the system's availability at the start of the new term.

Post-Implementation Phase

Stakeholder Awareness and Education

LEO was only implemented 5 weeks prior to RP's start of the new term. During this period, faculty was also busy finalizing the academic curriculum and the PBL process. As a result, there was insufficient time to conduct user testing. In the end, a system trial run was carried out with new faculty and staff. The LEO team conducted a compulsory basic training session as part of the new faculty and staff's week-long foundation program. The LEO training session lasted about 90 minutes, covering core user functions. Nevertheless, LEO users found the training session rather limited. As a result, the training session was later extended to one full day. The session included some hands-on exercises that allowed faculty and staff to understand the roles of a facilitator, a module chair and a student. During the training session, the RP Management also took the opportunity to educate employees on RP's PBL methodology and learning culture.

These regular training sessions were organized to familiarize faculty and staff with new features on LEO. However, RP's faculty and staff read instructions, used LEO, and learnt the system during daily facilitation sessions conducted by the module chairs. As the training proved to be time consuming, several faculty had to spend at least two semesters before becoming familiar with LEO.

To improve on the learning process, RP advocated informal peer-learning and a formal learning buddy system among senior facilitators, new staff, new module

chairs and peers. Faculty and staff relied on a mix of on-the-job trainings and peer-learning discussion to bolster the understanding of LEO.

System Maintenance

The LEO team was receiving regular feedback from RP's staff and faculty to further improve LEO. Most of their concerns were readily addressed. Staff and faculty were pleased that the LEO team could satisfy most of their requests. In some cases, the LEO team even had to modify the solution way beyond Wizlearn's knowledge.

With LEO, RP was moving towards an integrated organization. For example, the integration between student information system and LEO offered a seamless process and information access. Problem sets for each module are prepared by problem crafters, discussed by module chairs, uploaded to LEO, and used by instructors in class.

Staffs were keen to offer ideas on improving LEO through formal and informal meetings. One of the formal feedback channels was Staff Suggestion Scheme. Once the suggestions were received, the Deputy Principal would route the suggestions to the PM. The PM and EIS would evaluate the suggestions before accepting or rejecting them. Another formal feedback channel was to communicate to programme directors. Staff could submit change requests via official helpLEO email. These requests would automatically be forwarded to the

LEO team for its immediate action. The PM would decide on the priority of these change requests, in consultation with the OAA Director. Overall, Wizlearn enjoyed working with the PM. According to Wizlearn,

> *"When RP staff gave feedback, the PM would consolidate and prioritise for us [Wizlearn]. We did not have to work with different groups of users. It made our job much easier."*

Some suggestions were turned down by the LEO team for the reason that they served personal agenda more than for RP's interest. For example, one department staff was launching his application within the RP community and hoping to tap on LEO for better outreach. The PM understood the importance of consulting key stakeholders such as the OAA Director, faculty and staff who were affected by the system implementation. After consultation, he would assess the suggestions offered by multiple stakeholders before deciding whether to communicate to EIS. Among the change requests, 'code errors' would always be classified as the highest priority. Non critical system changes and complex system enhancements were often deferred till the term break. Once the change requests were received from the PM, EIS would immediately work on the changes. The EIS would either implement the changes on its own or work with OIS for issues related to IT infrastructure.

Implementing system changes was never easy. For example, there was an episode where the OAA Director had requested a system change to enhance the process of evaluating RP's students' academic performance. Apparently, the OAA Director discovered high correlation between students' grades and quiz scores. He

immediately requested the LEO team to restrict facilitators' access to the quiz scores before grading. In that incident, the LEO team did not inform faculty prior to restricting their access. Faculty were only informed via email after the system change was made. As the faculty were caught by surprise, several of them expressed unhappiness over the policy change. OAA immediately conducted a few ad-hoc briefings to explain the rationale behind the decision and promised to render support for faculty who were affected by the system change. The faculty calmed down and agreed with the decision.

During this phase, there were three major system changes. The most common one was code modifications by EIS to include RP stakeholders' requirements. The next major system change involved fulfilling stakeholders' changing needs to fit RP's requirements with system limitations. Not all needs could be addressed by the implementation team. The team had to explain to the particular stakeholders why his or her request was rejected. Besides offering explanation, the LEO team would also suggest alternative solutions to address their needs. The third major system change was a change of RP's educational methodology in response to stakeholders' needs and software limitations. This was only done when there was no other alternative. The PM offered an example:

> *"Initiative was to conduct Understanding Tests online. ... As students were using their notebooks and could not be stopped from accessing information. Therefore, it was decided that for online Understanding Test, it would be conducted in an open book format."*

Fostering RP Identity

RP's strategic direction and the deployment of LEO were considered unique in Singapore at the time of our research and constituted a paradigm shift for RP's staff. According to the Deputy Principal,

> *"The challenge was to ensure staff would align with organization goals."*

RP advocated an informal and flat hierarchy, with an open policy that encourages constructive criticism. Staff frequently contacted peers, IT staff and RP's management via instant messaging, email or face-to-face meetings. According to RP's deputy principal,

> *"I'm opened to any suggestion. Our culture is one of openness and transparency that encourages open discussion."*

RP promoted intra-department interactions and reinforced RP's strategic direction with weekly faculty/staff meetings and online feedback to improve LEO.

In addition, RP held twice a month faculty/staff sessions to update everyone on LEO's progress. Wizlearn staffs were deliberately brought in to work onsite at RP. They were given RP pass, email address, and laptop. They participated in RP's social events and felt connected to RP. Overall, RP's faculty and staff considered the LEO system implementation a success.

Case Analysis

The implementation of LEO at RP revealed that successful OPS fit during ES implementations would hinge on stakeholder interactions and leadership fit to project situations (Fiedler, 2005). Facilitating OPS fit would help to motivate the

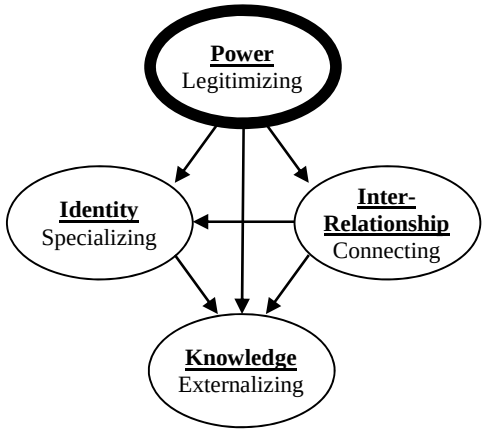
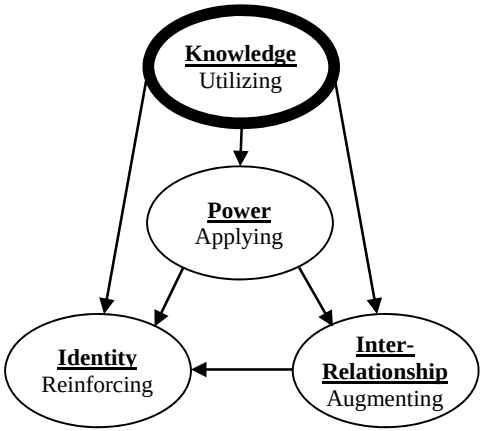
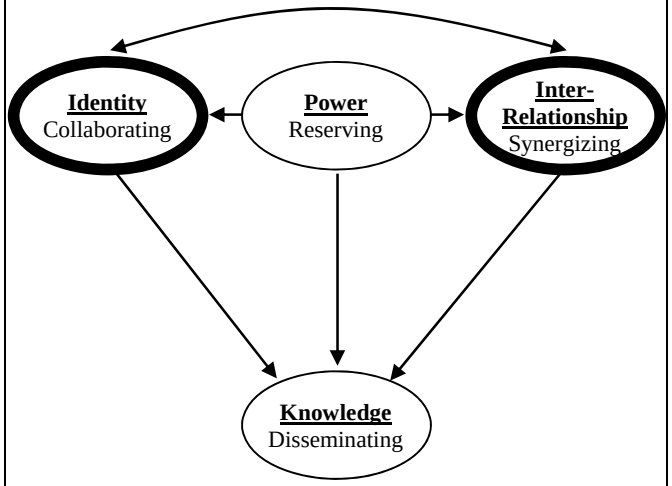
project direction and stakeholder management. Our analysis examined the symbiotic links among 4 contingency variables throughout the 3 implementation phases of LEO. In each phase, a different contingency variable would take precedence and its symbiotic links would vary. Stakeholder behaviour in each phase was motivated by a different OPS fit and required a different leadership style. The conceptual framework on managing OPS fit during LEO implementation is summarized in Figure 2 and explained below.

Planning Phase

OPS Fit Ascertainment Driven Motivation

During the planning phase, RP maintained organizational requirements, without allowing the external vendor, via its software package, dictate its operational practice (Wang et al., 2006). Thus unsurprisingly, once its staff and academic faculty finalized its educational pedagogy and curriculum, RP was able to articulate its requirements for software customisation. This obviously was achieved with internal stakeholders' input. By getting internal stakeholders involved in software selection, it helped to increase users' acceptance towards the software and forged closer project stakeholder relationship (Gable et al., 2001). Overall, the Ascertainment phase involved identifying RP's and its stakeholders' interest in selecting an IT vendor and highlighting any OPS misfit among organisational functionality, package features and stakeholder needs (Dishaw & Strong, 1999; Hong & Kim, 2002).

Figure 2: A Conceptual Framework on Managing OPS Fit during RP's LEO Implementation

Phase	Planning	Development	Post-Implementation
Motivation	OPS Fit Ascertainment	OPS Fit Resolution	OPS Fit Re-Education
Leadership Style	Task-Oriented	Task-Oriented	Relationship-Leveraging-Oriented & Ad-Hoc Task-Oriented
Focal Contingency Variable	Power	Knowledge	Identity and Inter-Relationship
Situational Control and Symbiotic Links among Contingency Variables			

Task-Oriented Leadership Style

The two leaders in our case were the OAA Director and the Deputy Principal. The OAA Director set RP's educational methodology and managed the vendor selection process. The OAA Director also dictated core tenets of PBL pedagogy, educated staff about the pedagogy and sought inputs to realize those tenets. The Deputy Principal was overall responsible for instilling technology-driven culture within RP.

During vendor selection, the staff were asked to provide feedback on vendors' e-learning software packages. RP's Management was sourcing for an online learning system that could fit RP's needs. However, this would require vendor's willingness and cooperation to modify the software. In this case, the leadership style is task-oriented (Fiedler & Garcia, 1987) especially when given the tight deadline, RP's leaders had to focus on task performance and prepare the organization for OPS misfit ascertainment.

Power-Centred Situational Control

Legitimizing Power

RP's management used institutionalised power to influence its staff to embrace RP's direction and select the software package (Schneider, 2002). Power was a primary situational contingency variable during LEO project implementation that affected other variables such as identity (Kochan & Rubinstein, 2000), inter-relationships (Nambisan & Agarwal, 1998) and knowledge (Volkoff et al., 2004).

For instance, RP's IT direction was a paperless organization that would require LEO's electronic document support. The Deputy Principal exercised his authority to remove all printers and impose printing limits. RP's OAA Director had the authority to select the vendor and package. The OAA Director, with his legitimate institutionalised power (Wang et al., 2006), has influenced project stakeholders to address any OPS misfit and facilitated OPS fit ascertainment. In other words, the OAA Director has exercised his institutional power to acknowledge the legitimate right of a stakeholder in influencing another stakeholder (French & Raven, 2004).

Connecting Inter-Relationships

Legitimizing power has affected inter-relationships in our case. For instance, RP's Management has compelled academic staff and internal IT staff to attend the IT vendor's presentations. RP's Directors pushed for feedback from the faculty on modular requirements to assess the LEO features. Activities that fostered closer stakeholder inter-relationships, stakeholder mutual understanding, and a stakeholder web of multilateral dialogues (Friedman & Miles, 2002) would help to facilitate OPS fit ascertainment in LEO implementation.

Specializing Identity

Legitimizing power would affect identity. While the OAA Director was the key proponent of PBL pedagogy, the Department Directors had full authority of curriculum design. Stakeholder identity has influenced the support for RP's strategic direction and curriculum, with personal identity and departmental relational identity affecting the support of LEO features (Brickson,

2000; Flynn, 2005). Generally, specializing identity is focused on an interest area based on one's self-concept, and the department's needs. In our case, specializing identity had clearly facilitated OPS fit ascertainment in LEO project, as stakeholders' interests were subsequently aligned with RP's direction (Rowley & Moldoveanu, 2003).

Externalizing Knowledge

Legitimizing power has affected knowledge. For example, given that RP was a new institute, RP's management could use its authority to specify tenets of PBL pedagogy so as to be consistent with RP's corporate vision.

Specializing identity would affect knowledge. In our case, the OAA Director specified the overall PBL pedagogy and the department stakeholders specified system functionality to support the department curriculum which was consistent with RP's overall direction.

Connecting inter-relationships also affected knowledge. Faculty shared knowledge with one another on PBL pedagogy, RP direction and LEO system via inter-relationships. Externalizing knowledge translates tacit stakeholder knowledge into explicit understandable knowledge (Nonaka, 1994). Externalizing user knowledge has facilitated OPS fit ascertainment (involving RP direction) in LEO project in the case.

Development Phase

OPS Fit Resolution Driven Motivation

Resolution involved actualizing solutions to resolve OPS misfits ascertained in previous phase. In our case, RP abided by stakeholders' requirements and modified the package to fit stakeholders' interests. Since no single stakeholder had all the knowledge, the PM had to consult the OAA Director, Directors, programme chairs, faculty and internal IT on the OPS alignment issues (Schneider, 2002). The Directors provided user requirements while the IT staff offered knowledge on existing IT infrastructure. RP's Management instructed the development team to roll out the LEO system within six months, with non-critical functions and user testings deferred until after the completion of the system. The implementation team focused on modifying LEO to fit RP's OPS. RP's Management also supported software package modification that ensured OPS alignment.

Task-Oriented Leadership Style

In the case, the OAA Director outlined RP's educational methodology which was well supported by LEO. The PM focused on what to customise that would alleviate OPS misfit and to roll out the system within a tight deadline of 6 months. In addition, the PM had communicated regularly to the LEO team. Besides, programme chairs and department representatives also helped to collate inputs from faculty for the LEO team. The task-oriented leadership style enhanced the tasks and structures which helped to resolve the OPS fit within the project deadline.

Knowledge-Centred Situational Control

Utilizing Knowledge

In our case, the project stakeholders' knowledge enhanced the evaluation and adoption of solution to resolve OPS fit among RP functionality, LEO package and stakeholder needs. The knowledge had some effects on the identity variable (Reich & Benbasat, 2000), inter-relationship variable (Kochan & Rubinstein, 2000; Schneider, 2002) and power variable (Kochan & Rubinstein, 2000) in LEO project.

The PM relied on the OAA Director's educational pedagogy knowledge to identify the gaps, while the EIS had to rely on internal IT's knowledge on RP's IT infrastructure to modify the package for OPS fit (Newell et al., 2002). Basically, it was a case of how used knowledge was utilised to facilitate OPS fit ascertainment in the LEO project. Utilizing used knowledge would maximise full potential of knowledge from multiple sources. For instance, the LEO team provided feedback to project stakeholders on how their needs would fit RP in order to address OPS misfits (Kearns & Sabherwal, 2006).

Applying Power

Utilizing knowledge has affected power in our case. The PM acquired knowledge about RP functionality, stakeholder interests from RP staff, and package features from the EIS which allowed him to become a 'central repository' of organization-wide knowledge. This knowledge reinforced his power to manage OPS fit. The OAA Director held educational pedagogy

knowledge which empowered him to veto PM's decisions. These stakeholders used authorised power to mobilise resources and make decisions to achieve OPS fit and roll out the system within the project deadline.

Augmenting Inter-Relationship

Utilizing knowledge would affect inter-relationships. In our case, every department had assigned a department representative to facilitate knowledge dissemination from the department to the LEO team. The LEO team would then provide feedback to this representative who would then liaise with his or her department. This helped to strengthen the relationship between the departments and the LEO team.

Applying power has affected inter-relationships. Since the LEO team's work spaces were located outside the OAA Director's office, the OAA Director's authoritative presence had influenced the LEO team to collaborate effectively.

Overall, augmenting inter-relationships within the LEO project allowed stakeholders to interact frequently and suggest LEO improvements, thereby creating long-term stakeholder partnerships (Gable et al., 2001).

Reinforcing Identity

Utilizing knowledge has affected identity. It could be argued that the PM's motivation was initially personal so as to complete his job of implementing LEO. Subsequently, he acquired collective identity from consolidating stakeholder knowledge and understanding RP's direction, and its organization-wide system.

Applying power would affect identity. It is clear from our case, the PM utilised his authority to make the EIS understand the rationale of change requests and package modification. As a result, EIS had a good understanding of RP's curriculum framework and was emotionally attached to RP.

Augmenting inter-relationships has affected identity. The Directors' close relationships with various departments allowed the PM to analyse the curriculum, and work closely with the departments. As a result, employees became closer and placed the department's interest above their own. Hence, identity was strengthened owing to the affinity of stakeholders with RP and departments.

It is noted that reinforcing relational/collective identity in the LEO project helped to strengthen the affiliation by adopting a department or RP lens to analyse LEO. This helped to resolve any OPS misfit.

Post-Implementation

OPS Fit Re-Education Driven Motivation

Sharing OPS fit knowledge among implementation partners was important in the LEO project (Wang et al., 2006). Knowledge dissemination based on peer learning and on-the-job education during the roll out of LEO proved to be an implementation success factor (Akkermans & van Helden, 2002). Knowledge dissemination also strengthened stakeholder emotional connections with RP's collective community (Ashforth & Mael, 1989). At the same time, Re-education helped to update stakeholders about the new system and enhancements to OPS fit. RP's Management advocated an inter-connected stakeholder web to support stakeholder communications. This has led to greater rapport, consistent interests, and knowledge sharing among stakeholders and OPS misfit resolution (Cale & Eriksen, 1994).

Relationship-Leveraging Oriented Leadership Style

The relationship-leveraging leadership style was evident in our case. The OAA Director enforced a change to align LEO with RP's educational pedagogy. Although the faculty were initially unhappy with the high-handed leadership style, they eventually understood the need to preserve RP's pedagogical direction after re-education. The LEO team leveraged good stakeholder relationships and consulted stakeholders on change requests to assess whether the changes facilitated OPS fit. The PM consulted programme chairs and users that were affected by the implementation. The EIS discussed with internal IT whether RP's IT infrastructure would be able to support the changes. The LEO team discussed with staff that made suggestions. The

series of consultations enabled RP's leaders to tap onto LEO's stakeholder inter-relationships for project stakeholder management.

Identity- and Inter-Relationship-Centred Situational Control

Collaborating Identity and Synergizing Inter-Relationships

RP fostered stakeholder affinity with RP's direction, with stakeholders assuming greater responsibility for making LEO work. RP encouraged a collective stakeholder identity and closer stakeholder links in a flat organisational structure. A collective identity led stakeholders to foster positive identification with other stakeholders' welfare (Wendt, 1994), to provide suggestions proactively. Stakeholder interconnectivity enhanced stakeholder performance in facilitating OPS fit (Kochan & Rubinstein, 2000). Identity and inter-relationships were contingency variables that affected knowledge (Rowley & Moldoveanu, 2003; Serafeimidis & Smithson, 2003).

In our case, a facilitator developed a staff survey application on LEO, and disseminated the results across departments. Despite their unhappiness, the faculty's affinity with RP made them accept Management's restriction on access to student quiz results prior to grading. More stakeholders garnered closer collective identity with LEO and RP, and contributed toward collective endeavours (Levina, 2005). This is made possible with assimilation of new RP employees and split identities of EIS due to their affiliation with Wizlearn.

Collaborating identity is leveraging stakeholders' solidarity with the organization and ES to work for collective welfare, hence facilitating OPS fit re-education. This goes beyond developing convergent beliefs (Hardy et al., 2005) that requires stakeholders to improve OPS fit.

In the initial stage, stakeholders were focused on personal or department interests and learnt OPS fit on-the-job. Subsequently, staff had to work with other departments. The LEO team formed ad-hoc inter-department committees to explore LEO improvements that would benefit RP. This led to more stakeholders embracing peer-learning.

It is clear from the case that stakeholders strengthened the flat stakeholder web (Pan, 2005) during the project to increase inter-relationships and informal idea sharing among stakeholders to improve OPS fit (Rowley, 1997; Serafeimidis & Smithson, 2003). Synergising inter-relationships enhances stakeholder cooperation and self-management (Schneider, 2002), as stakeholders reached consensus before tabling suggestions.

Synergising of inter-relationships has affected identity. Staff understood different modules' needs, peer interests, and RP's direction as they discussed how to enhance OPS fit and had greater relational identity with their departments and RP. The EIS would better understand RP's direction via regular interactions with the PM, and was more willing to support staff change requests and contribute towards OPS fit.

Collaborating of identities has affected inter-relationships for senior staff who internalized RP's direction. They willingly contacted EIS to suggest LEO improvements for everyone's benefit. The Department Directors also requested facilitators to interact and share ideas. Therefore a collective identity led to multi-lateral and coalitional stakeholder inter-relationships (Mitchell et al., 1997), hence promoting OPS fit for RP's benefit.

Reserving Power

Reserving power has affected identity. The OAA Director's top-down directive of denying staff to view the quiz score before grading made RP's staff feel their inputs were unwelcomed and might have weakened their collective affinity. The PM however consulted those affected stakeholders before prioritizing change requests, hence re-regaining their trust (Mitchell et al., 1997).

Reserving power would affect inter-relationships. In the case, all suggestions were routed to Directors via the Deputy Principal for him to know issues in a hub-and-spoke stakeholder relationship. All suggestions submitted via multiple channels reached the PM as the decision-maker. Several stakeholders approached the PM directly. The PM had the highest local centrality score in the stakeholder web among RP stakeholders, (Nambisan & Agarwal, 1998) that provided him with access to stakeholder knowledge for OPS fit. The motivation was to introduce OPS fit re-education for stakeholders to learn LEO and share knowledge. When stakeholder efforts ran counter to OPS fit, management intervened with top-down decisions.

Power was a situational contingency variable during the LEO project. Power enabled leaders to push through OPS fit changes to meet RP's functional requirements. Stakeholders were re-educated to mitigate staff dissatisfaction and encourage stakeholder empowerment and autonomy (Schneider, 2002). Thus in this case, power affected identity variable (Kochan & Rubinstein, 2000), inter-relationship variable (Nambisan & Agarwal, 1998) and knowledge variable (Volkoff et al., 2004).

Knowledge Dissemination

Collaborating of identity has affected knowledge. When staff developed closer bonds, they would share knowledge. Also, senior staffs have educated new staff on LEO and RP's direction and one module chair even organised informal training for new facilitators.

Synergizing inter-relationships affected knowledge through staff feedback suggestions which could help to develop closer links. The feedback would also improve suggestion quality and minimise unfeasible suggestions.

Reserving power would affect knowledge, as demonstrated by the fact that the PM had authority to decide whether a change would require formal training, step-by-step instructions, or self-learning. In addition, when staff provided suggestions to LEO team via programme chairs, the

programme chairs had the power to reject suggestions that were not aligned with the department's requirements.

Knowledge involved gathering feedback on OPS misfit and delivering new LEO knowledge on changes to stakeholders. Effective knowledge sharing depends on stakeholders' ability and willingness to participate. Disseminating used knowledge to control LEO project for OPS fit re-education. Disseminating knowledge was consolidating and distributing ES and organisational knowledge to and fro stakeholders via multiple channels. The challenge was in providing infrastructure to support learning-by-doing (Sharma & Yetton, 2007), learning via social interactions (Serafeimidis & Smithson, 2003), and in fostering stakeholder links and knowledge sharing.

Table 1 summarises 12 contingency variables identified in this case analysis.

Table 1: Definitions of the Contingency Variables in Implementing LEO

Contingency Type	**Contingency Variable**	**Definition**
Power	Legitimising	Formally acknowledging that a stakeholder has a legitimate right to influence another stakeholder, with the latter obligated to accept this influence.
	Applying	Putting into action the legitimate power that key stakeholders possess.
	Reserving	Holding power back for future use with a special purpose.
Knowledge	Externalising	Translating tacit knowledge into explicit knowledge understood by everyone.
	Utilising	Maximising potential of consolidated knowledge from

		multiple sources.
	Disseminating	Consolidating and distributing ES and organisational knowledge to and from stakeholders via multiple channels.
Inter-Relationship	Connecting	Joining stakeholders to establish rapport for better understanding of each other's needs.
	Augmenting	Getting stakeholders to interact more via existing links.
	Synergising	Enhancing links between stakeholders so they willingly cooperate for mutually beneficial outcomes.
Identity	Specialising	Focusing on an area of interest based on one's self-concept.
	Reinforcing	Encouraging people to strengthen their affiliations.
	Collaborating	Leveraging off stakeholders' solidarity with the organisation and ES to work together for the collective welfare.

Conclusion

This paper analysed LEO's implementation process to address our research question of how OPS fit can be managed during ES implementation. We analysed the empirical data on managing OPS fit using the Contingency theory of leadership (Fiedler, 2005) lens, and stakeholder management related contingency variables of power (Coakes & Elliman, 1999), knowledge (Ko et al., 2005), identity (Rowley & Moldoveanu, 2003) and inter-relationship (Friedman & Miles, 2002). A conceptual framework on managing OPS fit in the case of RP's LEO implementation was developed. Our analysis revealed that managing OPS fit comprised three phases – ascertainment, resolution and re-education. Each phase necessitated a different leadership style moderated by a different focal contingency variable that would interplay with other contingency variables.

Our analysis also showed three key leadership styles at different phases of managing OPS fit – task, relationship-forming and relationship-leveraging oriented. Given the differing motivation in each phase, a single leadership style would be inappropriate if consistently applied throughout the implementation process. Different leadership styles were needed from a team of co-leaders. In addition, our analysis found that the leadership style required to manage OPS fit during ES implementation was moderated by four contingency variables – power, knowledge, identity and inter-relationship. These variables were not static in our case. A different variable provided the focal point for each phase in conjunction with the motivation for that phase. The interplay between these variables differed across different phases, reflecting the key activities and performance goals in each phase.

This study has shown how managing OPS fit was a challenge and a driver of ES implementation. During planning, the motivation was to identify organisational functionality, package features, stakeholder interests, and ascertain possible misfit between all three components. During development, the motivation was to find a solution to resolve these misfits. These solutions included reengineering business processes, modifying the package or getting stakeholders to modify their interests. During post-implementation, the motivation was to alleviate OPS misfits and re-educate stakeholders on new package features and organisational processes.

In summary, this study extended the type of leadership styles in Fiedler & Garcia (1987) by separating the relationship-oriented style into two, so as to sharpen the theory's precision and clarify the styles for different contexts in ES implementation phases. Furthermore, the study went beyond the generic contingency variables in Fiedler & Garcia (1987) to embrace four variables – power, knowledge, identity and inter-relationship–more relevant in managing OPS fit. Finally, this study covered dynamic links between these contingency variables across phases, in response to calls to explain links between variables.

Practical Implications

Managing OPS fit during ES implementation was on-going, spanned all phases and was a key driver during the project. During project planning, practitioners may use ascertainment of OPS fit to identify misfit between organisation functions, package features and stakeholder interests, rather than organisation-package discrepancies.

During project development, the main motivation was to resolve OPS fit. Practitioners may go beyond changing organisation functions or package features to consider a mix of OPS fit solutions and changing stakeholder interests. During the post-implementation phase, the main motivation was re-education about OPS fit. Practitioners may consider a mix of formal and informal channels to re-educate stakeholders about OPS fit changes.

This study found three leadership styles – task, relationship-forming and relationship-leveraging oriented –pertinent at different times in managing OPS fit during ES implementation. Given the task of coordinating organisation-wide efforts and needs, selecting a suitable package and making changes to enhance OPS fit, the ideal leadership style is task-oriented. Organisations may use the planning phase to foster closer relationships between stakeholders so a relationship-forming leadership style becomes relevant. After the system roll-out, focus shifts to building stakeholder inter-relationships and encouraging stakeholder involvement to fine-tune OPS fit so a relationship-leveraging leadership style is ideal. Practitioners must know that different leadership styles are required for different activities at different times during ES implementation phases. Practitioners may consider having a team of leaders with a mix of leadership styles and assign different leaders to oversee different phases during the project.

This study showed that the impact of leadership style on performance in each phase of managing OPS fit was moderated by a combination of four contingency variables, with a different focal variable. Practitioners may manage that focal variable's issues rather than peripheral issues. One variable was stakeholder power. Practitioners may go beyond top-down authoritative power to consider power of other stakeholders at different phases. A second variable was knowledge since

ES implementations require many knowledge domains. Practitioners may establish formal and informal communication channels to gather and utilise knowledge for decision-makers during early phases, and disseminate knowledge to stakeholders at later phases.

On identity, practitioners may foster collective stakeholder identification for improving OPS fit beneficial to the organisation. On inter-relationships, practitioners may move beyond a hub-and-spoke model of dyadic relationships with management, towards a stakeholder web of inter-relationships to foster stakeholder interactions and communication. Practitioners may reflect on the dynamic links between these four contingency variables as they change throughout the ES implementation process, with each variable affected by or can affect other variables so their strategies should be multi-tiered and not focused on just one variable.

Future Research

This paper does not claim that the three leadership styles and the four contingency variables covered here are the only pertinent ones while managing OPS fit. Future research may explore other relevant leadership styles or contingency variables, or study each phase to identify key activities at each phase, and correlate them with stakeholder and contingency variables. This study showed how the Contingency theory of leadership may need to be adapted based on the context, such that different leadership styles and contingency variables may be identified. Future research may apply this theory to other areas, adapt this theory in those contexts, and develop a generalizable theory.

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Appendix: List of Key Actors in Case

RP (Republic Polytechnic) (customer)

Deputy Principal

OAA (Office of Academic Affairs) Director

PM (Project Manager of LEO development team)

LEO team members

CED (Centre for Educational Development) Director

OIS (Office of Information Systems) staff

Department Directors

Wizlearn (vendor)

EIS (IT staff in LEO development team)