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BCIA Terminal 3: Getting IT adopted quickly

Background

Airport terminal's main revenue streams can be broadly classified into aeronautical (from airlines) and non-aeronautical (from passengers) streams. In recent years, the industry has become highly competitive with every airport terminal company looking into ways to improve its services and its terminal's capacity. The aim is to become the 'travel' hub for airlines and passengers in its region. This is also the company's vision of the state-owned Beijing Capital International Airport (BCIA) Company Limited that manages the main airport of Beijing, China.

The main airport of Beijing owned by BCIA consists of three terminals namely, Terminal 1, 2 and 3. Terminal 1 was built in 1990 occupying around 90,000 m². Terminal 2 is 3.7 times larger (336,000 m²) than Terminal 1 and was completed in 1999 to take over Terminal 1 while it was closed for refurbishment. Terminal 1 reopened in 2004 at about the same time where the construction of Terminal 3 began. Constructed specially for the 2008 Olympics Games, Terminal 3 occupies a colossal space of 986,000 m². When completed in March 2008, Terminal 3 was the largest airport terminal in the world.

“Capital airport is China's first gate to the world. During the period of the Olympics, it takes on the responsibility and honor of being the first customer contact point for athletes and VIPs from all over the world ... the impression that the airport leaves on the visitors represents the hospitality and congeniality of the country ...” Mr. Hu Jintao, Chinese President (Translated from the book “The 52nd Gold Medal”)

To achieve the goal of seamless customer touch points across all facets of airport operation in Terminal 3 laid down by President Hu, IT became the imperative enabling tool.

IT Systems Involved

The IT department of BCIA has been the key driving force behind the planning and management of all IT projects, day-to-day terminal operations and IT personnel (in-house and outsource staff) in the existing terminal 1 and 2. Hence, it is not surprising that the department is given the important responsibility to manage the entire

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Terminal 3 IT projects implementation. In this case study, we present four representative systems implementation in the Terminal 3 program (as shown in Table 1). These systems are selected for this case study because it is among one of the most complex systems undertaken by the BCIA IT department. It is most complex because of its large scale and of its involvement of a large number of internal and external stakeholders. For the system to be successful, the system must not only be delivered on time but also be adopted by all stakeholders readily.

| Table 1: Brief Background of IT System Implementations | |
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| System Name | Brief System Background |
| Airport Operation Database (AODB) | The 'core hub' that allows information captured within other systems in the airport to be seamlessly stored, analyzed and shared to ensure the smooth running of all aspects of its operations (a.k.a the 'heart' of the airport operations). |
| Airport Departure | System that manages the entire process of checking in and boarding the passengers and their luggage which all airlines in Terminal 3 are required to use. |
| Airport Security | System that handles all forms of security-related processing within Terminal 3. Security system of the airport can be classified into 5 levels of security checks (Airport-int 2009). Due to the huge number of country leaders and foreign visitors involved during the Olympic Games in 2008, the highest level of security 5 was mandated in Terminal 3. |
| Airport Data Centre | System that facilitates the billing for services rendered in Terminal 3 by the BCIA. From BCIA's perspective, this system demands one of the highest priorities because it deals with the company's revenue generating activity. |

Teaching Objectives

The BCIA case can be used in a variety of ways especially in courses on agile IT adoption, co-evolutionary relationship between organizational control and trust and IT program implementation. Depending on the particular course, one or more of the following teaching objectives should be emphasized:

1. To explore the challenges faced when implementing an IT program especially under the high pressure of getting the IT systems adopted quickly.
2. To understand the role of agile IT adoption practices (i.e. practices that allow IT to be rapidly adopted during implementation) in an IT program implementation
3. To understand the co-evolutionary role of organization control and trust in mitigating project risk and its role during IT project implementation

Assignment Information

The following questions could be addressed by students in preparation for the case discussion:

1. Identify all the risks in each of the IT system in the Terminal 3 program and the consequences of these failures.

2. What is agile IT adoption practice? What is the role of agile IT adoption practices in helping BCIA completing the Terminal 3 program implementation on time and on schedule? What constitutes a practice?
3. For each of the IT system implementation, identify the organization control mechanisms that are being used to mitigate the identified risk. Discuss the trust relationship between the management, staff and vendors.

Suggested Background Readings:

1. Hovorka, D.S., and Larsen, K.R. "Enabling agile adoption practices through networked organizations," *European Journal of Information Systems* (15:2) 2006, pp 159-168.
2. Inkpen, A.C., and Currall, S.C. "The Coevolution of Trust, Control, and Learning in Joint Ventures," *Organization Science* (15:5) 2004, p 586.
3. Kirsch, L.J. "Portfolios of Control Modes and IS Project Management," *Information Systems Research* (8:3) 1997, p 215.
4. Van Den Bosch, F.A.J., Volberda, H.W., and De Boer, M. "Coevolution of Firm Absorptive Capacity and Knowledge Environment: Organizational Forms and Combinative Capabilities," *Organization Science* (10:5) 1999, pp 551-568.
5. Sambamurthy, V., Anandhi, B., and Varun, G. "Shaping agility through digital options: Reconceptualizing the role of information technology in contemporary Firms1," *MIS Quarterly* (27:2) 2003, p 237.

Teaching Plan

Case Introduction

The instructor can start the lesson by giving an overview of the Beijing Capital International Airport competitive environment. Due to the high competitive environment and the mandate to complete all the Terminal 3 IT program implementation before Olympics, instructor can tease out the urgency of project completion and the needs to do it right and proper.

The instructor can introduce each of the systems in the case study and highlight the high complexity nature of each system implementation. This is due to the fact that the system needs to integrate with other systems and/or to convince multiple stakeholders to adopt the system rapidly. Project urgency and high complexity give rise to the high perceived risk of the project.

The instructor can introduce the idea of agile IT adoption practices and the role that it can play to help BCIA mitigate the identified risks. In this portion, it is important to highlight that practices inherently involve the use of control mechanisms contingent upon the trust of involved stakeholders to accomplish project objectives.

Class Discussion

1. Identify all the risks in each of the IT system in the Terminal 3 program and the consequences of these failures.

To complete all the IT systems and get it adopted by all stakeholders within a deadline of 2 years in time for Olympics Games. IT systems highlighted in the case are all highly complicated. Failure of any of these systems will mean it will affect the operations of Terminal 3 which in turns will affect the impressions of athlete and VIPs impress of no just BCIA but China. Hence, it is a lost of reputation as a country.

AODB – Integration to multiple systems, thus making it highly complicated. Failure to ensure proper integration with other system will mean the failure of all systems.

Airport Departure System – Integration to all airline systems and all airlines must readily adopt this system, thus making it highly complicated. Without it, airlines will not be able to process passengers' departure request.

Airport Security System – Integration to all security systems and all security-related stakeholders must readily adopt this system, thus making it highly complicated. Possibility of security slips if the system is not appropriate or not rapidly adopted by all stakeholders.

Airport Data Centre – Integration to multiple stakeholders (especially shop owners in Airport Terminal 3) and all these stakeholders must readily adopt this system, thus making it highly complicated. This system is of great importance to BCIA as it is directly linked to its revenue generating activities.

2. What is agile IT adoption practice? What is the role of agile IT adoption practices in helping BCIA completing the Terminal 3 program implementation on time and on schedule? What constitutes a practice?

Agile IT adoption practice is practice that increase an organization's ability to detect opportunities for innovation and to assemble the assets, knowledge, and relationships required for IT innovation adoption (Hovorka and Larsen (2006)).

The role of agile IT adoption practices is it helps the BCIA IT department quickly identify opportunities for IT innovation and getting it adopted quickly through the assemble of assets, knowledge and relationships. Without these practices, the BCIA IT department will run into the risks of schedule slips. This will have dire consequences to the Olympics Games.

Practice evidently involves control mechanisms that are implemented to mitigate the perceived risks of a project. It is therefore, highly contingent upon the trust of the stakeholders involved in the execution of the practice.

3. For each of the IT system implementation, identify the organization control mechanisms that are being used to mitigate the identified risk. Discuss the trust relationship between the management, staff, partners and/or vendors.

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| AODB System | |
| Informal Clan Control | Strong learning culture advocated by leaders. |

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| | Strong knowledge sharing culture. Group initiated knowledge capturing of SOP. |
| Informal Self Control | Empowerment by leader to foster creativity at work. Informal self-initiated mentoring/apprenticeship mechanisms |
| Trust | High level of trust on vendors (because have been working with them for a long period of time) and staff |
| Results | Preemptive agile IT adoption practices – practices that enable organization to rapidly preempt potential problems before it occurred. Thus, help to ensure that smooth execution of project. |

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| Airport Departure System | |
| Formal Outcome Control | Unique backward planning implementation methodology. Mandatory weekly progress tracking meeting. |
| Formal Behavioral Control | Close proximity monitoring of vendor's actions. Detailed daily mandatory work schedule to follow for vendors |
| Trust | High level of trust on partners (because they have been working with them for a long period of time and they also have vested interest to ensure the project run well). Low level of trust on vendors. |
| Results | Precision agile IT adoption practices – practices that enable organization to accurately 'sense' the system requirements before development while keeping future changes to a minimum. |

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| Airport Security System | |
| Formal Behavior Control | Tight auditing control on change and project progress. Frequent inspections to ensure behavioral conformances. Mandatory onsite stay. Use of responsibility deposits to avoid opportunistic behaviors |
| Informal Clan Control | Instillation of shared values through slogans. Leadership by example. 24 x 7 work cycle |
| Trust | Low trust on partners and vendors (because security level implementation is unprecedented) |
| Results | Adeptness agile IT adoption practices – practices that enable an organization to become highly proficient and efficient in responding to uncertainty in both system requirements and its resource allocation capabilities. |

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| Airport Data Centre System | |
| Formal Outcome Control | Informing stakeholders of the mandatory requirements to implement this system. Weekly |

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| | progress tracking meeting. Payment to vendor by phases and only upon satisfactory delivery of project deliverables |
| Informal Self Control | Complete freehand to vendor on handling implementation details. Started the project with vendors even before the contract was signed. Vendor self-imposed reporting routines to update status of project. Vendor took on extra duties without payment. |
| Trust | Low trust on partners and high trust on vendors. |
| Results | Improvement agile IT adoption practices – practices that enable an organization to quickly address system defects and manage disruptive changes during system implementation. |

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