ATMA JAYA DIGITAL ENVIRONMENT FOR UNIVERSITY SERVICES
(AMADEUS)

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ABSTRAK
Sistem Informasi Manajemen Universitas merupakan tulang punggung yang menyangga berjalannya kegiatan operasional lembaga pendidikan. Berkembang bersama kemajuan teknologi, sistem informasi mengalami evolusi maupun revolusi dari yang telah berjalan ke desain yang mengakomodasi kebutuhan saat ini maupun menganitpasi kebutuhan di masa datang. Meskipun pada suatu waktu telah diperoleh sistem yang berjalan optimal, namun pemeliharaan dan pengembangan sistem informasi universitas tidak boleh dan tidak bisa berhenti. Universitas Katolik Indonesia Atma Jaya melakukan pembaharuan terus menerus sistem informasi manajemen universitasnya dan mencatat berbagai pengalaman berharga yang kiranya bisa bermanfaat bagi institusi pendidikan yang lain.

**Kata kunci:** Sistem Informasi Manajemen Universitas, Lingkungan Pembelajaran.

1. Introduction

Atma Jaya Catholic University is one of the oldest private university in Indonesia. Established in Jakarta in 1960, its vision is to provide an excellent learning environment for the students, to produce trusted high quality graduates with solid ethical and cultural appreciation.

Tutorial activities in a university would be difficult to run efficiently without a good information system. Daily lectures are neatly planned, organized with discipline, such that the students are present at the right time and right classroom, meet the assigned lecturer as planned.

Regularly the students need to register, pursue the lectures and other learning activities with discipline, and step-by-step complete every course and grade, and are finally declared as graduates and become alumni. Undeniably, those lengthy process require a neat recording, especially in academic administration. More than keeping track record of every student, academic administration has to accurately record every mark of the students, the course taken, the lecturers’ name, the semester and year when the courses are taken, as well as record the students’ status, e.g. students and lecturer attendance, the students who are taking semester leave, skipping class, moving out, decided to stop or being dropped out.

In the midst 1980s, whilst computer sets were still expensive, only several large companies, such as banking, telecommunication companies, and mining companies utilized computer in their businesses. A few universities had implemented computer-based information systems. Atma Jaya Catholic University in Jakarta, started to automate the administration and moved away from manual to computerized system. Starting with a staff developing the database system, then with the additional of some programmers, they implemented a working university information system on DOS platform using dBaseIII and FoxPro.

There were significant changes in the business processes, especially in the administration staffs, who previously relied on hand writing and typewriter. The tiring repetitive work which often slipped with typing error could then be avoided.

However, this transition were not always smooth. Limitation on computer speed, printer reliability and also paper compatibility, often created resistance on the user. Other example, while completing forms, the staffs felt easier to immediately typed on the typewriter instead of waiting the computer booting up, or adjusted the paper position as required. Other difficulties were the hesitance and reluctance of the user in using the new technology. This psychological resistance was regarded as the need of training and continuous education toward computer literacy and implementation of computerized information system of Atma Jaya Catholic University. Gradually, this evolution delivered the staffs to semi automatic and finally to automatic computerized system to most of the academic administrative services.

Atma Jaya Catholic University aims to be a digital university. Digital university refers to the successful migration of many key activities from paper-based methods to digital methods. A successful migration means not only that the university will be able to improve the means by which the university does things now, but also that the university and constituencies will have opportunities to do things that the university could not do before. Some of digital university activities are online applications and payment of admissions fees, integrated administrative computing systems, online recruiting of students, staff, and faculty, web-based courses, virtual communities, digital library resources, collaborative research, etc.
2. The Baseline
Challenged with a large amount of data processing of the university with a student body of 13,327, about 1,540 permanent and non-permanent faculty staffs/lecturers, students’ parents and other stakeholders, the implementation of new technology is expected to be swift, fast and thoroughly.

However, stopping the current system and rebuild completely from scratch would be almost impossible, unless the new system is deployed about the same time as the organization started the operation. A realistic approach which was chosen, was gradually evolving the system year-by-year, keeping the process continuity and minimizing the uncomfortable feeling.

3. The Advances
Entering the new millenium, the university management system was regarded as insufficient. The Atma Jaya Catholic University evaluated, identified the problems and limitations, and analyzed the incumbent system, and decided to start a new project based on IT Master Plan for year 2003-2007. This master plan acts as a guideline in five year information system development at Atma Jaya Catholic University, synchronized with the yearly operational plan and 5-year strategic plan.

Early COBIT evaluation in 2003 showed the maturity level of level 1 (out of 5) for the Planning and Organization, Acquisition and Implementation as well as Monitoring, while the maturity level for Delivery and Support slightly above 1.

The previous database was regarded as conventional and difficult to adapt for university new needs. Several ad-hoc and planned improvement carried out in “hard coded”, in the sense that additional modules patched to the previous ones. They risked on deprecating the ultimate system quality and performance. The network infrastructure installed in 2003 was minimal, since the bandwidth was limited to 128 kbps and the specification most of the computer devices were too low. On the other hand, the computer literacy for some staffs and students were relatively low, while they are expected to use the features and facilities of the university information system.

The IT Master Plan describes the details of strategic planning in Atma Jaya Catholic University information system, consists of operational and element domains. The operational domain covers (1) the definition of information system needs related to the domain and the definition of university needs for information system, (2) the specification of information technology to be used, and (3) the strategy of information system management related to university management strategy as expected.

The element domains cover 5 important elements: (1) objective element related to the goal of information system development in the user perspective, (2) activity element relates to various day-to-day business process of the university, mainly in the effort to reach its vision and mission, (3) data element relates to the need of management and stakeholder of the necessary data and information in decision making process, (4) human element refers to the human resources which act as user and the target audience of the system which is being developed, (5) technology element refers to various computer and telecommunication technology which are required to be implemented by the university.

The document also explains several benchmarks as quality measurement, e.g. for operational: correctness, reliability, efficiency, integrity, and usability. Then, for maintenance, the benchmarks are maintainability, flexibility and testability. Last, for transition are portability, reusability and interoperability. Altogether, the concept of the Atma Jaya IT Master Plan 2003-2007 demands a fundamental change as a technological jump which cannot achieve by evolution.

This revolution clearly shown in the complete installation of fundamental infrastructure, namely the replacement of the old computer network with a new intranet based on fiber optic backbone. The network expanded to the buildings through new installed switches which are planned and neatly arranged in the switch racks.

In the beginning of 2004, Atma Jaya upgraded the internet connection to 512 kbps. It was doubled to 1 Mbps in 2005 and quadrupled to 2 Mbps in Dec 2006.

Table 1. Total network node in Atma Jaya

<table>
<thead>
<tr>
<th>Cumulative total node</th>
<th>&lt; 2004</th>
<th>2005</th>
<th>2006</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>759</td>
<td>969</td>
<td>1,161</td>
</tr>
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</table>
The basic specification of computer used at Atma Jaya Catholic University are continuously updated. Old computers are upgraded to a faster processor, larger memory size, and the computers are connected to the campus computer network. Gradually all of the personal computers (PCs) are joined to the Atma Jaya domain.

<table>
<thead>
<tr>
<th>Faculty Bureau/</th>
<th>Lab</th>
<th>Library</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pentium II</td>
<td>9</td>
<td>15</td>
<td>9</td>
</tr>
<tr>
<td>Pentium III</td>
<td>129</td>
<td>122</td>
<td>114</td>
</tr>
<tr>
<td>Pentium IV</td>
<td>239</td>
<td>269</td>
<td>114</td>
</tr>
<tr>
<td>Others</td>
<td>32</td>
<td>49</td>
<td>34</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>409</td>
<td>455</td>
<td>499</td>
</tr>
</tbody>
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The direct consequence of connecting the stand alone computers to the campus network was the ease of access in local communication by email, as well as surfing the internet. However, there had been some troubles involves in virus incidents due to connecting the isolated computers to the single campus network.

New platform of Microsoft Windows Server 2003 and Microsoft XP for most of the clients, and the development of new information system based on C#.NET accompanied in parallel with training of the new system to all staffs, academic and administrative staffs of Atma Jaya.

Trainings are also being held for the students, especially for the new students entering the university.

Atma Jaya Catholic University signed a contract with a professional developer to create the new information system. This university information system developed modularly, starting with the core in 2003: Academic Administration module. The team consists of 1 business analyst, 1 software analyst, 5 programmers with one of them acting as project leader or person in charge (PIC). The following modules were started in 2005: the Human Resource Management (HRM) module, Library module, Content Management module and the Finance module. All modules are supported by reliable infrastructure.

Each module lead by a PIC. All project leader or PIC are responsible to the project manager (PM). To smooth the development process, testing as well as the implementation of the new information system, the university also deployed a team as counterpart, named as IT Project Monitoring and Evaluation Team (Monev IT) who is responsible to the Rector. This team also consists of one PM and a number of PIC corresponds to the modules being developed.

Regularly, the project progress are monitored. Weekly progress evaluation meeting are being held between the developer and the Monev IT team. They discuss the progress, seek solution to the problem arised in the system development or implementation, and coordinate the links between modules to ensure the integrity of the complete system.

Executive progress report were sent regularly every 2-3 months to the Rector and the Foundation who act as project owner/sponsor. COBIT evaluation was done in the middle of the project, namely in 2005, which showed a significant improvement. The maturity level upped to level 3 (out of 5). It is expected by the end of 2007, the maturity level reach the level 4.
Since mid 2006, the transfer of knowledge were in place. The operation and maintenance of the infrastructure and the completed modules were transferred from the developer to the university. The Computer Center Unit, whose consists of 10 persons, 3 of them were dedicated (full time) staff, and 7 lecturers, gradually improved with 3 new full time staffs. It is expected by 2008 the complete operation of the new system by university’s own staffs.

4. Conclusion
Atma Jaya Catholic University had implemented a university management information system. The change management strategy applied was adjusted to the organization’s needs and readiness. The evolution strategy was successfully implemented in transition from semi-automatic to computerized automation, considering the capability of the human resources and the gradual development of information system.

Recently, a revolution strategy was taken since the need to replace thoroughly the old system with a new one. The decision is required to realize a technological jump which accommodates latest needs and anticipate future requirements.

Both evolution and revolution strategy need a serious, planned and continuous efforts in enhancing the human resources, since they will be the user of the system. The higher the information technology literacy, there would be less resistance in the deployment of new system. Therefore besides an integrated new system development, continuous training to the staffs and students are important parts of the change strategy in university management information system.

5. References