

MOBILE AND CLOUD COMPUTING BASED IT STRATEGIC PLANNING (CASE STUDY : PRIMEONE SCHOOL MEDAN)

Satriya Miharja

Master of Information Technology, Binus Graduate Programs,
Bina Nusantara University Jl Kebon Jeruk Raya 27, Jakarta 11530, Indonesia)

satria@marcotania.com

Abstract: PrimeOne is one of the national school in Medan which has used IT application in its operational, however the IT applied hasn't reached the maximum standard and caused the important information couldn't be accessed personally by parents such as checking for the tuition fee paid, checking for the students study progress, etc. So that it might cause some parents object to send their kids to PrimeOne School. This shows that PrimeOne School needs to have good IT Strategic Planning so that the school can serve the best for parents and reach the operational goals effectively. There are some purposes in this research (1) Plan for the good IT Strategic Planning which gets along well with school vision, mission, goals and business process for the next 2 years, which is 2016-2017 period, (2) To gain the Information System and Information Technology solution also recommendation which can support school business strategy to increase the interest of parents and school competition. This research used several methods to analyze which are SWOT analysis, Porter Five Forces Analysis, CSF Analysis and Value Chain Analysis. From these analysis, information system strategy, information technology strategy and IS/IT management strategy are produced. The result of this research is a recommendation or suggestion which is portfolio application which can be used for PrimeOne. The conclusion from this research is PrimeOne School is at the Second Quadrant where it is expected to enlarge the IS/IT strategy applied and produce IS/IT strategy suggestion (Promotion Application with Social Media Cloud Computing, POS Mobile Application, Interactive Learning Application, Facility Application and develop network connection between the school buildings) which will increase parents' interest and school competition.

Key words: Vision, Mission, Mobile, Cloud Computing, IT Planning, PrimeOne School

INTRODUCTION

According to (Munir, 2009), IT application in education development in the future is not only global trend but is a strategic step to increase access and service to society. Internally, organization application and IT development become the basic foundation of education management system to accountable and transparent good governance. The efficiency can be reached through CIT use without destroying the human values. Besides that Munir also stated that CIT contribution is also based on the responsibilities from the education data and facts which can be collected, managed, saved, researched, proved, spread so that the society can get the important information effectively and efficiently.

IT development recently is going to more to its social networking, openness, share, collaborations, mobile, easy maintenance, one click, distributed/spread, scalability, concurrency and transparency, right now there is still technology which is still undergo on IT expert research in the world which are Mobile and Cloud Computing. Accessing data from anywhere and using the fixed application and mobile device from internet cloud as the place to store data, application and others which easily can be taken, downloaded and move to another cloud, this makes the possibility to give application service from mobile in the future. This trend will give many benefits whether from the provider or the user.

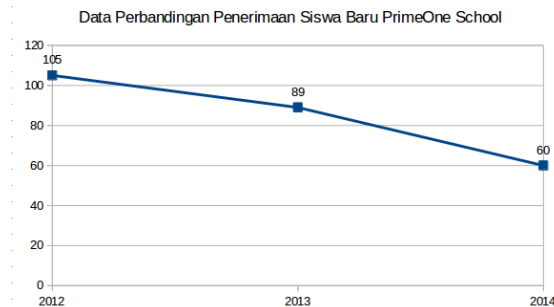
Educators give a huge contribution in the right learning process in the class. Educators need to keep on learning on how to use technology effectively to teach all her students. And they also need to work hard on teaching the students how to use the best technology and communication as the effective facility in interaction among us. (Zhang, Fallon, & Russo, 2014).

PrimeOne School is national school which has facility like international school which has opened for 11 years in Medan. However IT application in this school only limited to the local area connection only, it's proven by there's no application where the parents can use to check on tuition fee need to be paid and students study result report, etc. Even for its own school operational, IT application hasn't been used fully integrated well so that so many manual works still implemented.

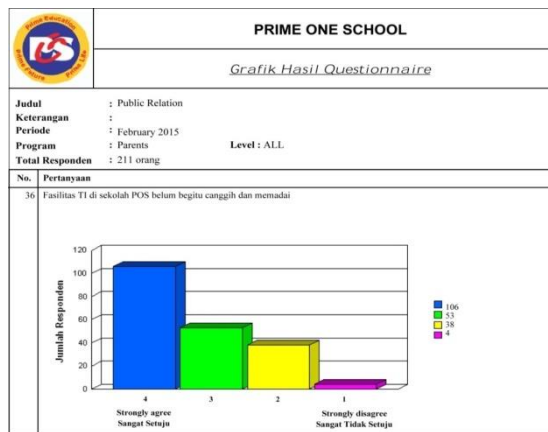
This problem is strengthen with the questionnaires filled in by parents and the number of students which are decreasing for the last three years (2012-2014) where it shows that school really need an IT strategic planning to support school business strategy in giving the optimum service. However the work plan never really arranged well so

far, that's the reason there is no information technology strategic planning yet. If this problem is ignored this school might not survive in the very competitive era in the future.

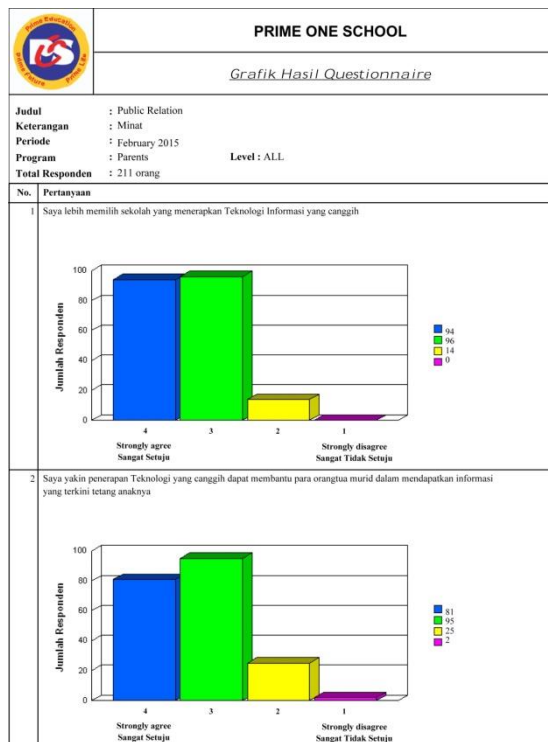
Based on the last three years students intake from 2012-2014, there's a decreasing number of students intake.



Gambar 1 Data Perbandingan Penerimaan Siswa Baru POS



Gambar 2 Hasil Kuesioner Fasilitas IT di POS

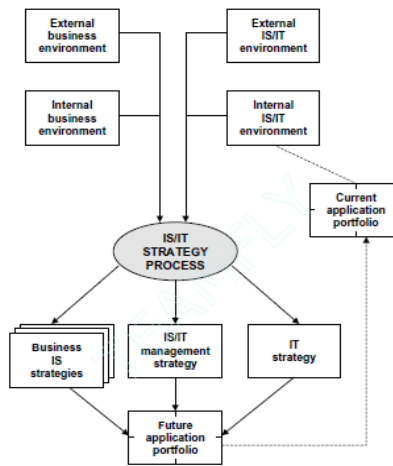


Gambar 3 Hasil Kuesioner Minat Orangtua murid POS

From this problem data, PrimeOne School need a good IT strategic planning so that this school can increase the competitive values to serve the best for its customers and effective work for its own operational.

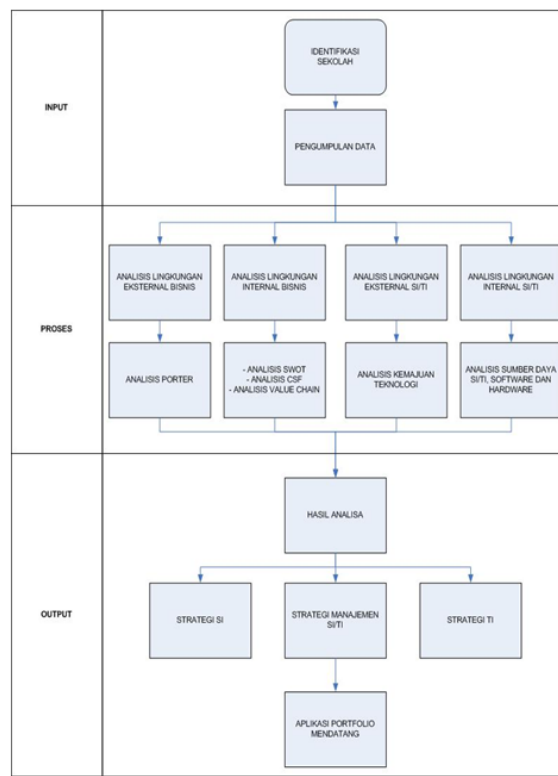
RESEARCH METHODS

In this research, writer followed the IS/IT strategic planning framework introduced by Ward and Peppard (2002).



Gambar 4 Framework IS/IT Strategic Planning (Ward & Peppard , 2002)

From Ward and Peppard strategic planning framework, writer made a thought as been used in this case study research.



Gambar 5 Kerangka Pikir Penelitian

The data used for the analysis and methodology in arranging the IT strategic planning at PrimeOne School are divided into two, they are the primary data which comes from the original source (first hand) this data is gained from doing the observation and interview with the management and company staff to get more objective picture about Company IT Strategic Planning. Secondary data which is obtained from the documents in the company and be analysed.

In the thoughts framework can be shown as below:

1. Environmental External Business Analysis, analysis to the environment external business which is at PrimeOne School like external factors which affect school strategy business. External factors can be seen from the opportunity or threat. This analysis is based on the Potter Five Forces Analysis.
2. Environmental Internal Business Analysis, the analysis to environment internal business which is at PrimeOne School from the internal side which influence the business process of school and fix the internal weakness of school so that won't be any threat in the future. This analysis is based on SWOT analysis, CSF analysis and Value Chain analysis.

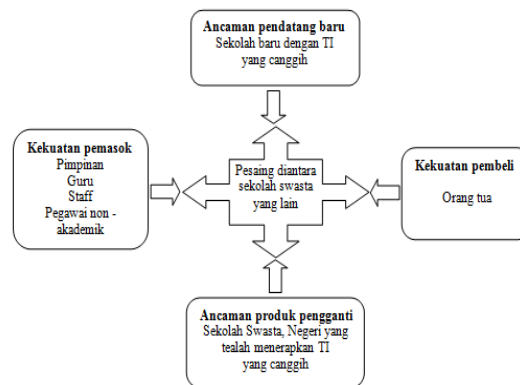
3. IS/IT Environmental External analysis, IS/IT environmental external analysis is the external factors which can affect the strategic planning. I like example the trend technology nowadays where the improving technology which can also support the progressing business. Based on the writer's observation, there are so many smartphone users or even tablet from the parents, teachers and staffs of PrimeOne School. Even for Cloud Computing Technology is no longer a new thing for them. So that the application developing for technology trend can be improved.
4. IS/IT Environmental Internal Analysis, IS/IT Environmental Internal Analysis is the analysis which is exist on every function of school business, application analysis which is used to make application portfolio, and IT facility analysis at PrimeOne School. This is useful to compare with the other needs of IS/IT to reach vision and mission so that we can get the conclusion about the improvement of IT that PrimeOne School needs.
5. IS Strategy, in this stage is the way where information system is used to support every school activity which has something to do with school vision and mission. And will explain various problems to get the solutions, so that the solutions can be implemented. The result on the IS Strategy is the applications suggested to be implemented so that the problems occurred at school can be solved well and can be tools to reach school vision and mission.
6. IT Strategy, in this IT strategy stage where the strategy is used to know how the IT can be used to support and reach the vision and mission, and the main business process at school. These IT Strategy would be software, hardware, platform, and network topology which can be used to support the IS Strategy which has been analyzed before.
7. IS/IT Management Strategy, with this IS/IT Management Strategy stage, we can make a strategy where a decision is made by the top management which related to information technology that can be implemented in the company, where the decision can be the use of human resource, and the development of human resource, IT security plan, and knowledge also skills profile.
8. Application Portfolio Recommendation, the application portfolio is needed to explain every need of the application which is recommended for school after the environmental internal and external analysis at school. Application portfolio is also useful as the foundation to identify the needs of school to the software and hardware in the future.

Result And Discussion

Based on the framework made by the writer, the analysis can be explained as below:

1. Environmental External Analysis Business Analysis

Analysing the environmental external business is focused on the external factors which affect business activity at PrimeOne School that related to the decreasing of parents interest and the competitive school. This analysis used the Potter Five Forces Analysis, this is the result of the analysis at PrimeOne School.



Gambar 6 Analisis Lima Daya Porter Sekolah PrimeOne

2. Environmental Internal Business Analysis

Environmental Internal Business Analysis is the analysis to internal factors that affect business activity at PrimeOne School which is related to the decreasing of parents interest and school competition. Below are some analysis method used:

- a. **SWOT Analysis**, SWOT Analysis is conducted to PrimeOne School to get the formula and strategy by comparing the internal factor (strength and weakness) with the external factor (opportunity and threat). After observation and interview are conducted, we get the result of SWOT Analysis of PrimeOne school like below:

Kode	Strengths (Kekuatan)	Kode	Weakness (Kelemahan)
S1	Tersedianya Perangkat Multimedia yang mendukung proses belajar mengajar.	W1	Kurangnya aplikasi pembelajaran multimedia interaktif yang digunakan untuk mendukung proses belajar mengajar.
S2	Tersedianya jaringan komputer yang menghubungkan semua komputer dalam gedung sekolah.	W2	Jaringan komputer untuk menghubungkan kedua gedung sekolah belum maksimal.
S3	Memiliki SDM yang handal	W3	Tingginya turn over SDM.
S4	Tersedianya sistem informasi untuk urusan administrasi dan pembayaran uang sekolah.	W4	Kurangnya integrasi antara sistem informasi, sehingga penginputan berulang sering terjadi.

Kode	Opportunities (Peluang)	Kode	Threats (Ancaman)
O1	Perkembangan Teknologi Informasi yang sangat pesat, baik software maupun hardware membuka kesempatan untuk meningkatkan kualitas proses belajar-mengajar melalui Aplikasi pembelajaran multimedia interaktif yang menarik.	T1	Sekolah swasta lain yang telah menerapkan teknologi informasi & sistem informasi yang lebih baik dalam hal penyediaan aplikasi pembelajaran yang interaktif.
O2	Masih terbuka kesempatan untuk bekerjasama dengan pihak ketiga dalam pengembangan dan pemanfaatan teknologi informasi.	T2	Bencana Alam
O3	Mengubah kegiatan yang masih manual menjadi terkomputerisasi	T3	Perubahan eksternal seperti peraturan pemerintah dan yang lainnya.
O4	Pemanfaatan sistem informasi berbasis website, mobile computing dan cloud computing dalam semua kegiatan administrasi.	T4	Banyaknya serangan virus dan sejenisnya yang dapat merusak sistem.

Tabel 1 Hasil Analisis SWOT Sekolah PrimeOne

There are some result of IFAS and EFAS Analysis which can be seen as the table below:

Strengths (Kekuatan)		Bobot	Rating	Nilai IFAS
S1	Tersedianya Perangkat Multimedia yang mendukung	0,2465	4	0,98599
S2	Tersedianya jaringan komputer yang menghubungkan semua komputer dalam gedung sekolah.	0,1452	4	0,58067
S3	Memiliki SDM yang handal	0,1185	2	0,23690
S4	Tersedianya sistem informasi untuk urusan administrasi dan pembayaran uang sekolah.	0,1624	3	0,48723
Sub Total				2,2908
Weakness (Kelemahan)		Bobot	Rating	Nilai IFAS
W1	Kurangnya aplikasi pembelajaran multimedia interaktif yang digunakan untuk mendukung proses belajar mengajar.	0,1825	3	0,54764
W2	Jaringan komputer untuk menghubungkan kedua gedung sekolah belum maksimal.	0,0437	2	0,08736
W3	Tingginya turn over SDM.	0,0349	2	0,0699
W4	Kurangnya integrasi antara sistem informasi, sehingga penginputan berulang sering terjadi.	0,0663	3	0,19889
Sub Total				0,90379
TOTAL		1		1,397005

Tabel 2 Matriks IFAS

Opportunities (Kesempatan)		Bobot	Rating	Nilai EFAS
O1	Perkembangan Teknologi Informasi yang sangat pesat, baik software maupun hardware membuka kesempatan untuk meningkatkan kualitas proses belajar-mengajar melalui Aplikasi pembelajaran multimedia interaktif yang menarik.	0,1689	3	0,50662
O2	Masih terbuka kesempatan untuk bekerjasama dengan pihak ketiga dalam pengembangan dan pemanfaatan teknologi informasi.	0,1154	2	0,23081
O3	Mengubah kegiatan yang masih manual menjadi terkomputerisasi	0,1027	2	0,20534
O4	Pemanfaatan sistem informasi berbasis website, mobile computing dan cloud computing dalam semua kegiatan administrasi.	0,2526	3	0,75769
Sub Total				1,70045
Threats (Ancaman)		Bobot	Rating	Nilai EFAS
T1	Sekolah swasta lain yang telah menerapkan teknologi informasi & sistem informasi yang lebih baik dalam hal penyediaan aplikasi pembelajaran yang interaktif	0,1761	4	0,70439
T2	Bencana Alam	0,2330	4	0,93197
T3	Perubahan eksternal seperti peraturan pemerintah dan yang lainnya.	0,0400	2	0,07996
T4	Banyaknya serangan virus dan sejenisnya yang dapat merusak sistem.	0,0557	3	0,16702
Sub Total				1,88334
TOTAL		1		-0,182883

Tabel 3 Matriks EFAS

From the score from table 2 and table 3, the relative position on SWOT diagram through the detail like this:

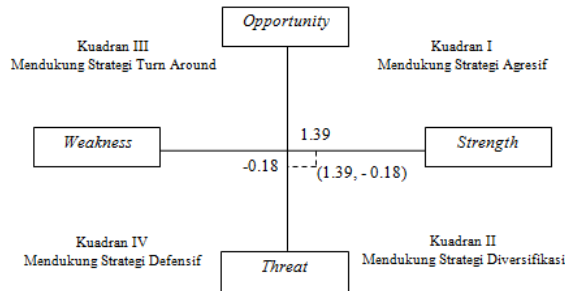
The sum of multiplication from weight and rating from the internal factor is the strength and weakness to get the X point.

$$\begin{aligned} X \text{ Point} &= \text{strength} - \text{weakness} \\ &= 2.2908 - 0.90379 \\ &= 1.387005 \end{aligned}$$

The sum of multiplication from weight and rating from the external factor is the opportunity and threat to get Y point.

$$Y \text{ Point} = \text{opportunity} - \text{threat}$$

= 1.70045 – 1.88334
= -0.182883



Gambar 7 Diagram SWOT Sekolah PrimeOne

Can be seen from picture 7 that PrimeOne School relative position is on the coordinate (1.39 – 0.18) which means at that position, PrimeOne school is at the second quadran, so we need the strategy need to be taken is “Supporting Diversification Strategy” SWOT Analysis is conducted to gain more organisation strategies or school institute to reach an optimal vision mission. Based on IFAS and EFAS table, we can decide the strategic organisation goals to realise the PrimeOne School vision mission. From SWOT identification, can be finally set the strategies SO, WO, ST, and WT of PrimeOne School and the explanation can be seen on the table below:

IFAS	<p><i>Strength</i></p> <ul style="list-style-type: none"> Tersedianya Perangkat Multimedia yang mendukung proses belajar mengajar. Tersedianya Jaringan komputer yang menghubungkan semua komputer dalam gedung sekolah. Memiliki SDM yang handal Tersedianya sistim informasi untuk urusan administrasi dan pembayaran uang sekolah 	<p><i>Weakness</i></p> <ul style="list-style-type: none"> Kurangnya aplikasi pembelajaran multimedia interaktif yang digunakan untuk mendukung proses belajar mengajar. Jaringan komputer untuk menghubungkan kedua gedung sekolah belum maksimal. Tingginya turn over SDM Kurangnya integrasi antara sistim informasi, sehingga penginputan berulang sering terjadi. 	
EFAS	<p><i>Opportunity</i></p> <ul style="list-style-type: none"> Perkembangan TI yang sangat pesat, baik software maupun hardware membuka kesempatan untuk meningkatkan kualitas proses belajar-mengajar melalui aplikasi pembelajaran multimedia interaktif yang menarik. 	<p>Strategi SO</p> <ol style="list-style-type: none"> 1. Melakukan pengembangan sistim informasi yang berbasis web, mobile computing dan cloud computing 2. Melakukan pengembangan aplikasi pembelajaran 	<p>Strategi WO</p> <ol style="list-style-type: none"> 1. Mengembangkan aplikasi pembelajaran sesuai dengan kurikulum sekolah. 2. Membangun jaringan radio link untuk menghubungkan gedung sekolah 3. Melakukan pelatihan SDM
	<ul style="list-style-type: none"> Masih terbuka kesempatan untuk bekerjasama dengan pihak ketiga dalam pengembangan dan pemanfaatan TI. Mengubah kegiatan yang masih manual menjadi terkomputerisasi Pemanfaatan sistim informasi berbasis web, mobile computing dan cloud computing dalam semua kegiatan administrasi. 	<ul style="list-style-type: none"> multimedia interaktif 3. Mengembangkan jaringan komputer untuk memenuhi kebutuhan data dan informasi sekolah. 4. Membangun aplikasi baru untuk komputersasi kegiatan yang masih manual dengan memanfaatkan sumber daya yang ada 	<ul style="list-style-type: none"> sesuai dengan bidang departemen masing-masing 4. Melakukan pemetaan ulang sistim informasi yang sekarang dan dikembangkan sesuai dengan kebutuhan yang tentunya berbasis web, mobile computing dan cloud computing.
	<ul style="list-style-type: none"> Sekolah swasta lain yang telah menerapkan TI dan SI yang lebih baik dalam hal penyediaan aplikasi pembelajaran yang interaktif. Bencana Alam Perubahan eksternal seperti peraturan pemerintah dan yang lainnya. Banyaknya serangan virus dan sejenisnya yang dapat merusak sistim 	<p>Strategi ST</p> <ol style="list-style-type: none"> 1. Meningkatkan sistim keamanan TI dengan memanfaatkan perkembangan TI dalam bidang keamanan jaringan untuk menjaga keutuhan data dan informasi. 2. Meningkatkan pelayanan yang telah ada agar dapat memberikan nilai lebih dan mampu bersaing dengan sekolah lainnya. 	<p>Strategi WT</p> <ol style="list-style-type: none"> 1. Mengadakan pelatihan mengenai penggunaan sistim, aplikasi, Disaster Recovery Plan (DRP) dan keamanan TI kepada seluruh karyawan 2. Menyesuaikan perubahan eksternal dengan keadaan saat ini.

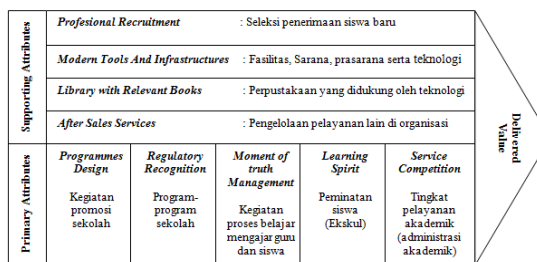
Tabel 4 Matriks Identifikasi SWOT Sekolah PrimeOne

b. **CSF Analysis**, Based on the PrimeOne School organisation vision, Mission and goals, we can do the identification of Critical Success Factor (CSF) for every PrimeOne School goal. The result can be seen as below:

Tujuan utama	Faktor Kunci Keberhasilan (<i>Critical Success Factor</i>)	Metode Pengukuran (<i>Prime Measure</i>)
1. Memberikan kontribusi dengan menghasilkan siswa-siswi yang berprestasi berkualitas baik dan unggulan.	Seleksi penerimaan siswa baru yang ketat	Pendaftaran secara online dan ujian seleksi secara ketat
	Perekrutan guru dalam dan luar negeri dengan standar kualitas akademik dan kompetensi yang maksimal	Seleksi guru sesuai dengan standar kualitas yang baku
	Kurikulum yang relevan dengan kebutuhan pengguna	Kurikulum yang sesuai dengan Diknas
2. Menghasilkan lulusan yang memanfaatkan teknologi mutakhir tepat guna.	Melakukan kerjasama dengan sekolah lain, organisasi publik maupun bisnis	Lulusan yang tepat sesuai dengan keterampilan dan minat untuk melanjutkan ke Perguruan Tinggi
	Tersedianya sarana prasarana, dan teknologi yang mendukung	Sarana prasarana dan teknologi pendukung yang memadai
	Dibekali kemampuan menggunakan teknologi secara positif	Pengembangan kemampuan siswa berlangsung secara terencana dan terkendali
3. Menjadikan Sekolah PrimeOne sebagai komunitas unggulan dimana siswa yang bersekolah sebagian besar adalah para peraih juara nasional dan internasional sehingga tercipta suasana belajar dan berkompetisi yang sehat.	Pembekalan daya pikir dalam menyerap ilmu pengetahuan yang diajarkan melalui proyeksi multimedia selama proses belajar mengajar.	Sarana prasarana dan kemampuan guru untuk menggunakan alat tersebut dalam penyampaian materi pelajaran.
	Partisipasi guru dan siswa dalam melakukan proyek studi kasus sesuai dengan kurikulum.	Kompetisi nasional dan internasional

Tabel 5 Analisis CSF Sekolah PrimeOne

c. **Value Chain Analysis**, value chain analysis for PrimeOne School is conducted based on the O.Gabriel (2005) Value Chain about the Value Chain in Higher Education Sector. The result of Value Chain Analysis can be seen from the picture below:



Gambar 8 Analisis Value Chain Sekolah PrimeOne

3. IS/IT Environmental External Analysis

In analysing the IS/IT environmental external, we need to see the technology trend which is the most dominant recently. Gartner which is one of the institute that work on the technology research predict the ten technology trend which will be the most attentive:

1. Personal Cloud
2. Enterprise Application Store
3. Mobile Device
4. Mobile & HTML5 Application
5. Integrated Ecosystem
6. Internet of things
7. Hybrid IT and Cloud Computing
8. Big Data
9. In-Memory Computing
10. Actionable Analytics

From the result of these prediction, if it's analyzed from the 2015 trend improvement which goes more to mobile trend and cloud computing, so that to ease PrimeOne School to access information and data can consider the external opportunity which is now developing. But besides seeing that opportunity, we also need to see the level of security so that everything can run well and smoothly, so the business process can even run better.

4. IS/IT Environmental Internal Analysis

In this stage, application and infrastructure which is going on at PrimeOne School is analyzed.

a. Nowadays Application Portfolio



Gambar 9 SI Pendaftaran dan Penerimaan Siswa Baru



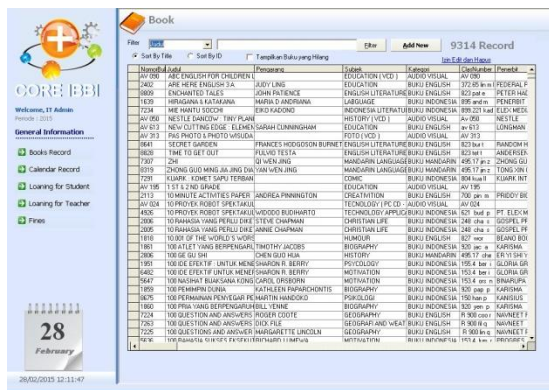
Gambar 10 Aplikasi Pembelajaran Microsoft Encarta



Gambar 11 SI Pembayaran Uang Sekolah



Gambar 12 SI Nilai Siswa



Gambar 13 SI Perpustakaan



Gambar 14 Website Sekolah PrimeOne

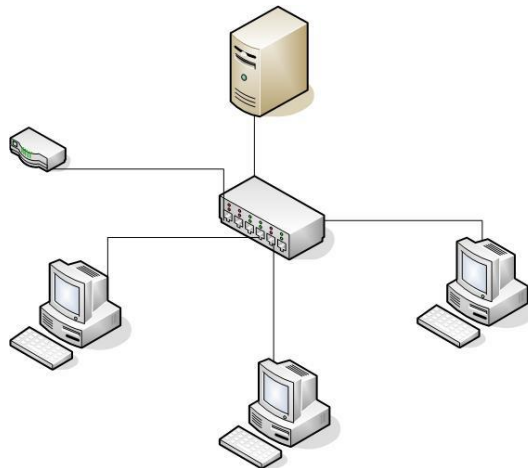
b. Analisis aset SI/TI saat ini

Jenis	Nama	Jumlah
Hardware	Server	2
	Komputer PC Set	390
	Proyektor	92
	Notebook	10
	Switch Hub	15
	Router	2
	Printer Multifunction	20
Software	Windows Server 2003	2
	Windows XP	390
	Linux	10
	Microsoft Office 2007	390
	Office Libre Writer	10
	AVG Antivirus	390
	XAMPP	2

Tabel 6 SI/TI yang sedang berjalan di Sekolah PrimeOne

c. Networking infrustructure

The computer networking infrustructure at each PrimeOne School building is as follow:



Gambar 15 Topologi Jaringan Komputer Sekolah PrimeOne

5. IS Strategic Planning

The purpose of IS Strategic Planning is to get the information system solution including the technology in it. There are information system solution which will be suggested based on PrimeOne School vision, mission and business process. This information system solution is identified based on the CSF analysis and Values Chain.

- IS Solution Identification based on CSF

Tujuan Departemen Operasional	Kebutuhan Informasi	Strategi SI	Prime Measure
Menyediakan seluruh sarana prasarana multimedia yang dibutuhkan untuk mendukung proses belajar mengajar dan menyediakan pelayanan informasi kepada orang tua murid tentang prestasi siswa-siswi di serta melakukan proses penerimaan siswa baru secara tepat	Laporan hasil survey kepuasan siswa-siswi dan orang tua murid	SI Sarana Prasarana	Survei kepuasan siswa-siswi dan orang tua murid serta penanganan kebutuhan pelanggan
	Data sekolah-sekolah, Data alumni, Informasi kerjasama yang pernah dilakukan	SI Promosi	Pelaksanaan program promosi berjalan sukses
	Data hasil riset suara pelanggan	SI Promosi	Penanganan yang baik dan tepat dari ketidakpuasan yang diterima

Tabel 7 Solusi SI untuk Departemen Operasional

Tujuan Departemen Akademik	Kebutuhan Informasi	Sorang SI	Prime Measure
Menyediakan pelayanan akademik yang bermutu.	Informasi jadwal belajar, jadwal ujian, penkulikun, ujian akhir, nilai	SI Akademik SI Nilai Mutud	Persa kegiatan operasional akademik yang meliputi kegiatan belajar mengajar, jadwal mengajar, penkulikun, dan ujian akhir.
	Informasi kegiatan akademik per tahun	SI Akademik	Kalender Akademik Tahunan
	Informasi perubahan jadwal belajar, dan guru	SI Akademik	Evaluasi pemantauan operasional akademik yang dimonitor dengan baik
Menjamin penyediaan proses belajar mengajar	Data sarana dan prasarana	SI Sarana Prasarana	Mengoptimalkan dan memonitor ketersediaan dan kempuhan fasilitas dan lingkungan pendukung sebelum dan selama proses belajar mengajar.
	Laporan guru, kondisi belajar mengajar dan fasilitas	SI Akademik	Monyonggarkan proses belajar mengajar
	Data sarwa dan data soal ujian	SI Akademik	Monyonggarkan proses ujian akhir
	Informasi jadwal ujian dan nilai ujian	SI Akademik SI Nilai Mutud	Monyonggarkan evaluasi hasil proses belajar mengajar
	Data lulusan, alumni	SI Alumni	Monyonggarkan proses penitapan kelulusan peserta didik
Monyonggarkan pelayanan administrasi akademik yang bermutu kepada siswa-siwi	Data register, Data murid reguler dan beasiswa, Data nilai mutud	SI Akademik SI Nilai Mutud	Pelayanan administrasi akademik kepada orang tua murid mendapatkan layanan yang memuaskan

Tabel 8 Solusi SI untuk Departemen Akademik

• **IS/IT Solution Identificatoin based on Value Chain**

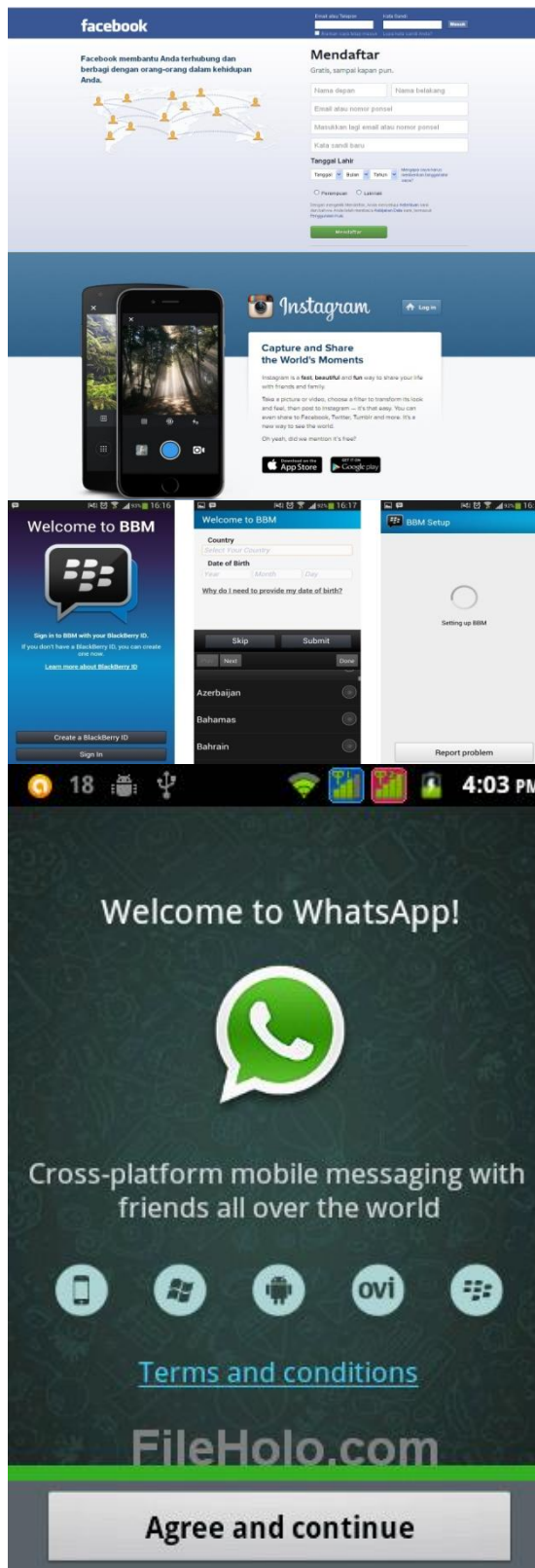
Value Chain	Kegiatan	Bagian	Solusi SI
Programmes Design	Kegiatan promosi sekolah	Departemen Operational	SI Promosi (Baru)
Regulatory Recognition	Program-program sekolah	Kepala sekolah	Website Sekolah (Ada)
Moment of Truth Management	Kegiatan proses belajarmengajar guru dan siswa	Departemen Akademik	Aplikasi Pembelajaran Interaktif (Upgrade)
Learning Spirit	Peminatan siswa	Departemen Akademik	SI Akademik (Upgrade)
Service Competition	Tingkat pelayanan akademik	Departemen Akademik	SI Akademik (Upgrade)
Professional Recruitment	Selaksi penerimaan siswa baru	Departemen Keuangan	SI Pendaftaran & Penerimaan siswa baru (Ada)
Modern Tools and Infrastructures	Fasilitas sarana, prasarana serta teknologi	Departemen Accounting	SI Sarana Prasarana (Baru)
Library with Relevant Books	Pepustakaan yang didukung oleh teknologi	Departemen Akademik	SI Perpustakaan (Ada)
After Sales Services	Pengelolaan pelayanan lain di organisasi	Departemen Keuangan, Departemen Operational	SI Pembayaran Uang Sekolah (Upgrade)

Tabel 10 Solusi SI/IT Sekolah PrimeOne berdasarkan Value Chain

Based on the IS/IT solution gained from the CSF and Value Chain, we can make the suggested portfolio application as follow:

a. Promotion Application

Promotion application which is suggested to PrimeOne School is using the social media cloud computing application which is now booming like Facebook, BlackBerry Meseenger, Line, Whatsapp, Instagram, Tweeter where we can use them to load promotion and many interesting activities which can attract customers attention in marketing field.





Gambar 16 Aplikasi Promosi Sosmed Cloud Computing

b. Interactive Learning Application

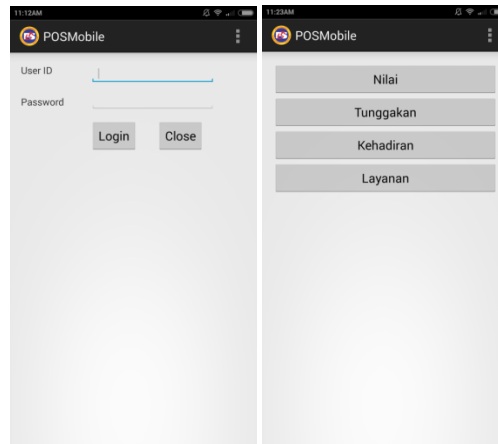
Interactive Learning Application needs to get more special attention where this application can push students interest and project on students learning material so thaaat can be easily understood by students. There are some solutions can be used are using the source which we can use to create learning application based on the curriculum or we can also use the third party service to develop it. Some learning application which can be applied are as follow:



Gambar 17 Aplikasi Pembelajaran Interaktif

c. PrimeOne School Mobile Application

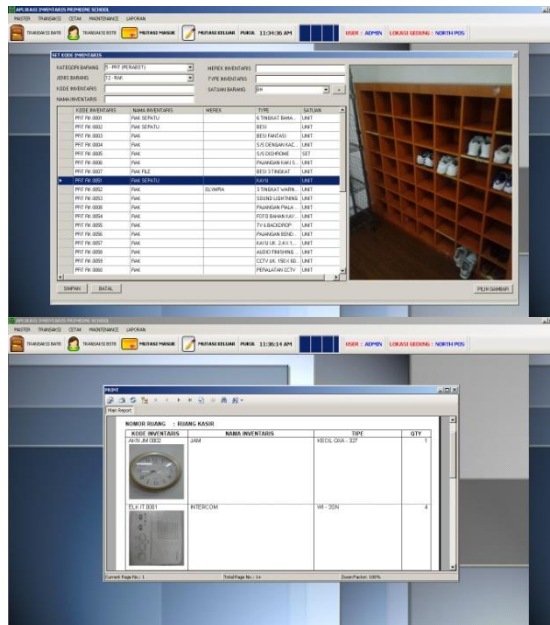
To improve the academic and finance service from the previously information system, the information system then need to be improved by following the newest technology trend, by using the Mobile Application can for sure ease the parents, teachers and students to get more information needed.



Gambar 18 Aplikasi Mobile POS

d. Facility Application

The facility application is suggested to improve the service by monitoring the facility whether in what kind of status and to know the number of facility owned by school now.



Gambar 19 Aplikasi Sarana Prasarana

Based on the previous analysis, all the IS solutions which have been identified is then mapped with the portfolio marix of Mc Farlan’s application, to see tthe picture of each application contribution to PrimeOne School for now and in the future, the mapping can be seen as below:

Strategic	High Potential
- Aplikasi Promosi dengan Social Media Cloud Computing (Baru)	- Aplikasi Mobile POS (Baru)
Key Operasional	Support
- Sistem Informasi Pendaftaran dan Penerimaan Siswa Baru (Ada)	- Sistem Informasi Nilai Murid (Ada)
- Aplikasi pembelajaran Interaktif (Upgrade)	- Sistem Informasi Perpustakaan (Ada)
- Sistem Informasi Pembayaran Uang Sekolah (Ada)	- Website Sekolah PrimeOne (Ada)
	- Sistem Informasi Sarana Prasarana (Baru)

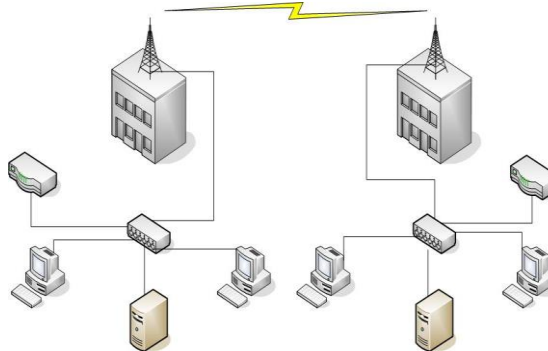
Gambar 20 Portofolio Aplikasi Sekolah PrimeOne Mendatang

5. IT Strategic Planning

In making the IS/IT Strategic Planning, we can make the suggested information strategic technology planning which can be used in the future, so that all the suggested information system can run well. The information technology suggestion explain about the new networking infrastructure suggestion and the change from hardware to and software which will be used.

• **Networking Infrastructure Suggestion**

The networking infrastructure recommendation suggested is to increase the radio link to connect the two buildings which is separated for about 1 kilometer. So that transferring data between the two school can happen comfortably. This are some recommendation networking infrastructure suggestion:



Gambar 21 Usulan Infrastruktur Jaringan Sekolah PrimeOne

• **Hardware and Software Infrastructure Suggestion**

Here are some hardware and software specification which are recommended for the use to support the performance application implementation which is developed as this following:

No	Usulan	Requirement	Harga
1	Aplikasi Promosi (Social Media Cloud Computing)	Jaringan Internet 6 Mbps (Gedung North & Gedung South)	Rp. 6.000.000,- (Rp. 3.000.000,-/gedung)
2	Aplikasi Mobile POS	XAMPP, Eclipse, MySQL Database	Open Sources (Free)
3	Radio Link	Ubiquiti Rocket M5 (Gedung North & Gedung South)	Rp. 12.000.000,- (Rp. 6.000.000,-/gedung)
Total			Rp. 18.000.000,-

Gambar 22 Spesifikasi dan harga Software dan Hardware

6. IS/IT Management Strategic Planning

After making the IS/IT strategic planning suggestion, we can plan the technology suggestion which can support the IS/IT strategic planning for PrimeOne School in the future. The technology application needs to be also supported by the competent IT human resource in his field, with the new technology system and the qualified human resource can be the guaranteed to increase the business process so that can increase the service in each unit work at PrimeOne School.

No	SDM	Jumlah
1	Programmer	2
2	Network Support	2
3	IT Support	2

Tabel 11 Usulan SDM untuk strategi manajemen SI/IT

IS/IT Development Planning Schedule

After making the suggestion in various IS/IT development above, we can make the IS/IT development planning schedule for sure which will take certain time. Because of that we need to create the IS/IT development planning within 2 years (2016-2017). The implementation timeline can be seen in the table below:

No	Kegiatan	Tahun 2016					Tahun 2017						
		2	4	6	8	10	12	2	4	6	8	10	12
1	Radio Link												
2	Penambahan Line Internet												
3	Aplikasi Promosi												
4	Aplikasi Mobile POS												
5	Aplikasi pembelajaran interaktif												
6	SI Sarana Prasarana												

Tabel 12 Perencanaan Jadwal Pengembangan SI/TI

CONCLUSION

1. The IS/IT Strategic Planning for PrimeOne School is arranged based on the internal and external factors analysis whether in the organisation or PrimeOne School so that can produces the information strategic planning and IS/IT management planning which gets along with vision, mission, goals and business process which can improve parents interest and school competition.
2. Based on the SWOT analysis, PrimeOne School is on the second quadran with the coordinate (1.39, -0,18) where the strategy applied in this condition is diversification, where Prime One School in the IS/IT applied is expected to increase its strategy soon.
3. Based on the analysis made and increasing the school competition and also ease the business activity in PrimeOne School, so we can come up with IS/IT suggestion which develops the Promotion Application with Social Media Cloud Computing, POS Mobile Application, Interactive Learning Application, Facility Application and Developing Networking Connection between the two school building. And on each strategy used and conducted with analysis process based on the organisation internal amd external factor and IS/IT internal and external factor.

RECOMMENDATION

1. Improve by putting more attention to IS/IT performance at PrimeOne School so can reach better target in order to improve school competition.
2. In the further discussion about this research, we can make IS/IT development cost analysis and planning.
3. Evaluation is needed to IS/IT development which will be conducted whether it has fulfilled the targets need to be reached.
4. Besides the IS/IT strategic suggestion, management IS/IT also need to be improved so that PrimeOne School can fulfilled the needs of the employee in developing and managing the IS/IT for PrimeOne School competition, technology service and the easy business activity.

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