Ateneo de Manila University

John Gokongwei School of Management

Project Information Cataloging System (PICS)

**Class Project Information and Cover Sheet**

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| Client: IBPAP (Information Technology and Business Process Association of the Philippines) | *Comments:* | | |
| Industry Category: Education |

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| **Abstract**  This project is dedicated to addressing the current issues present within BPAP(Business Process Association of the Philippines) in their engagement with CHED and SEI wherein BPAP is in charge of training teachers who will in turn educate students to be more capable in today's working environment. From interviews and analysis of their current working model for this engagement, the group has recommended a Registry Repository System act as the main data gathering tool participant tracking of the four different programs of BPAP with their engagement with CHED and SEI.  Processes involved within this is 1. the importation of data sent by AAI, 2. Web enabled distribution of PINS for e-AdEPT and BEST, that at the same time collects the data of "claimers" of PINS, and 3. A functionality to import data sent from all the SUC's to the BPAP handler/encoder in charge of them.  Included in this would be the creation of a Business Process Reengineering plan for the distribution of BEST and e-AdEPT programs. Being focused on the initial stage of the CHED-SEI-BPAP program, this system will serve as a springboard for further functionalities needed by the program that will be developed by outputting a database of all the data needed for proper monitoring, tracking, and reporting of BPAP’s engagement. |

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| **Author(s)’ Recommended Key Words**  BPO, System, IT, Education |



2013

**Project Scope Document**

**CHED-BPAP System**

**Casurao, Cruz, Fajardo, Gerobiese, Jaldon, Luces**

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**CERTIFICATE OF AUTHORSHIP**

We hereby certify that this submission Double Tap Project Scope Document abides by the principles stipulated in the DISCS’ Academic Integrity Policy document. We further certify that we are the authors of this paper and that any assistance we received in its preparation is fully acknowledged and disclosed in the documentation. We have also cited all sources from which we obtained data, ideas, or words that are directly copied or paraphrased in this document. Sources are properly credited according to accepted standards for professional publication.

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# Business Case

## Company Overview

### Background and Short History

Business Process Association of the Philippines, or BPAP, is a non-profit organization founded in 2004 supported by many stakeholders which is comprised of the Philippine Government, Chambers of Commerce, and other allied industries.[[1]](#footnote-1) It has grown significantly starting from a two-person operation, located in a managed service facility, to having Executive Directors for information and research, talent development, industry affairs, and external affairs. Their staffs work full-time to support investment and expansion. Currently, it serves as a one-stop information and advocacy gateway for the industry and has been credited for the major role it played in the massive growth of the BPO industry in the Philippines.[[2]](#footnote-2)

### Organization Vision and Mission

**Vision:** To make the Philippines the number one destination for voice and non-voice services worldwide

**Mission:** Promote the competitive advantages and the growth potential of the Philippines in existing and new areas of outsourcing and support the industry in areas such as offshore marketing, education and training, security and privacy, legislation and public policy, among others.

### Organizational Structure

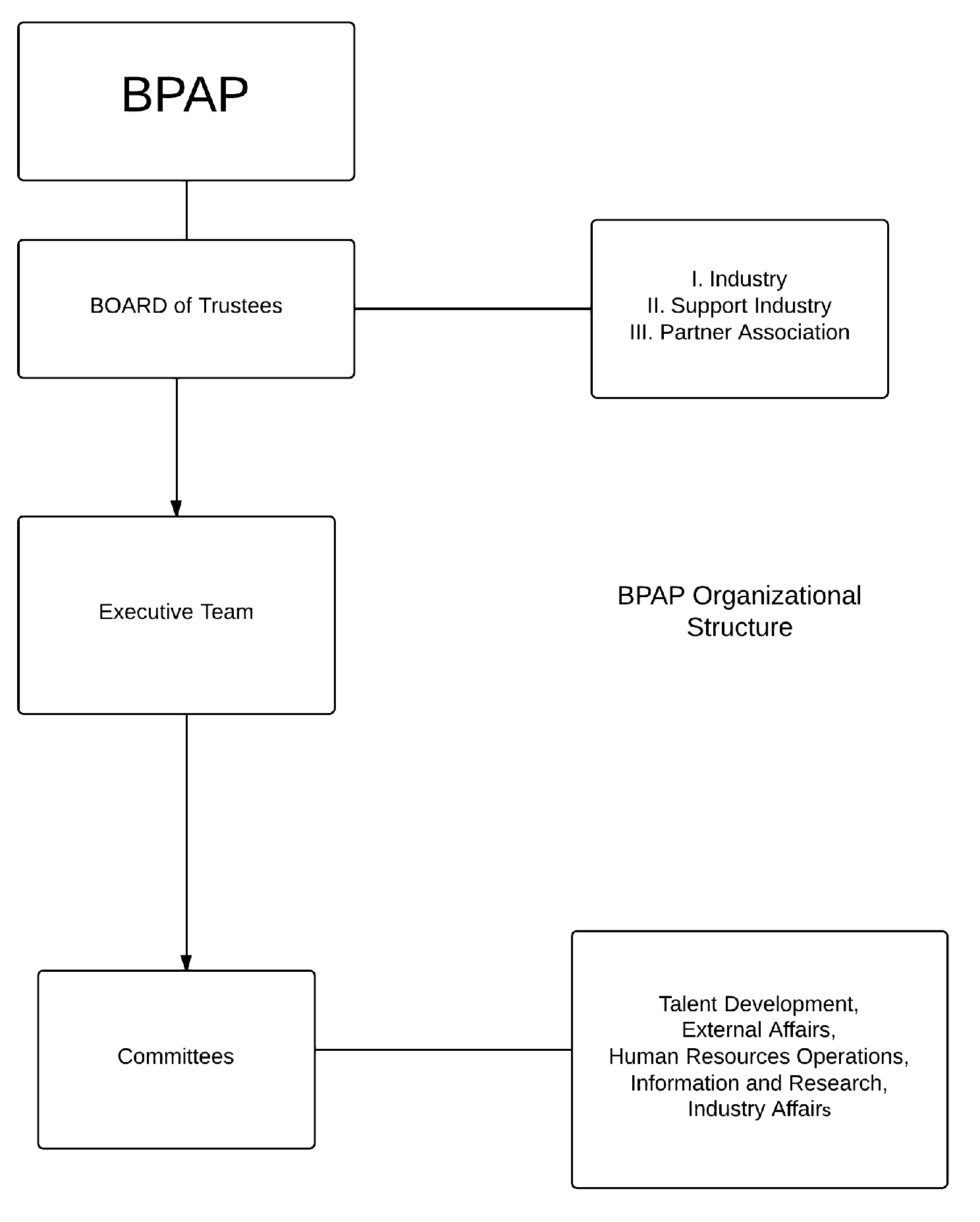


Fig. 1 Diagram of BPAP’s organizational structure

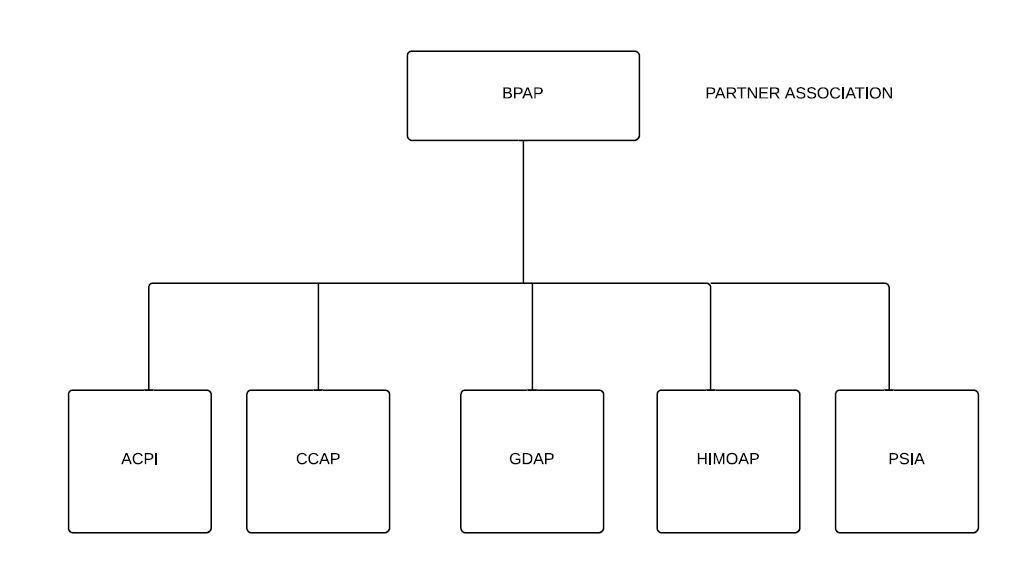


Fig. 2 Diagram of BPAP’s Partner Association Structure

Brief Summary on the Organizational Structure

i. Board of Trustees

The Board of Trustees is elected by the IBPAP members to oversee the activities of the association. The Board governs the association by setting policies and objectives and ensuring the financial stability of the association. Each director is also assigned a specific supervisory role for major initiatives.[[3]](#footnote-3)

The board members are divided into three by the key role they represent: industry, supporting industry, and partner association. Five board members represent industry players, three represent supporting industries, and four represent partner associations. The IBPAP President and CEO also sit on the board.[[4]](#footnote-4)

ii. Executive Team

    The Executive Team leads the organization to its intended objectives and strategies. The President leads marketing initiatives to promote the Philippines as an outsourcing destination. In IBPAP the Chairman of the Executive Committee executes BPAP’s strategic initiatives, the Senior Executive Director is in charge of the marketing research line, and the Executive Directors for Talent Development, External Affairs, Project Management Office, and Human Resources are responsible in leading their respective committees.[[5]](#footnote-5)

iii. Partner Associations

* Animation Council of the Philippines (ACPI)
  + ACPI aims to create an identity for the Philippines as the preferred country for the provision of professional services to the global animation industry. It is a non-profit organization that is recognized and supported by the Philippine government.[[6]](#footnote-6)
* Contact Center of the Philippines (CCAP)
  + CCAP aims to promote the Philippines as the preferred country for contact center services, development of professional standards and practices, organization of learning and networking events, and working with various stakeholders to improve the industry’s contribution to national economy and strengthen its worldwide market position.[[7]](#footnote-7)
* Game Developers Association of the Philippines (GDAP)
  + GDAP aims to promote the game development industry in the Philippines. It is a non-profit organization with strong ties to various entities including the government and the International Game Developers Association.[[8]](#footnote-8)
* Healthcare Information Management Outsourcing Association of the Philippines
  + HIMOAP aims to promote the Philippines as the preferred destination for quality Healthcare Information Management (HIM) outsourcing services. It is a non-profit organization recognized by the Philippine government.[[9]](#footnote-9)
* Philippine Software Industry Association (PSIA)
  + PSIA aims to promote the software industry of the Philippines.[[10]](#footnote-10)

### Products/Service of the Organization

The organization assists the industry’s investor in order for them to set up easily and quickly here in the Philippines. They also provide support service to their partner companies by providing relevant research, programs for HR development and business development, knowledge sharing and network opportunities.[[11]](#footnote-11)

### Customers of the Organization

   The organization primarily serves foreign investors looking to outsource their business processes here in the country and BPO companies where they provide support in order to maintain the competitiveness of these companies in order to maintain its growth.[[12]](#footnote-12) They also partner with the Philippine government to create policies in order to provide an environment where the BPO industry will thrive.

### BPAP-CHED-SEI Project

#### Overview

           Currently, BPAP and SEI partnered with CHED in a P132M education and training program in an effort to help selected SUCs across the nation to produce higher quality graduates especially in IT and Business Administration courses to maintain the growth of the BPO industry in the Philippines. (Dulce, 2013. Interview) In order to bridge the gap between “Education” and “Industry”, this effort is currently in its implementation phase and if successful, will open the possibility to create similar programs for other courses and industries.

           The CHED project is in its first year of implementation in 17 State University and Colleges (SUC) all across the country, with the teachers and students enrolled in the following talent development programs: T3, SMP, e-AdEPT, BEST, and GCAT (Dulce, 2013. Interview). These programs are coached by the industry professionals provided by BPAP, who are tasked to train the teachers, who in turn then teaches the students (Dulce, 2013. Interview).

#### Project Partners:

**CHED**

CHED was created on May 18, 1994. It is responsible for the formulation and implementation of policies, plans, and programs to better develop quality education systems for tertiary and graduate students. CHED is working in partnership with other higher education stakeholders to develop the skill set  and competencies of the country’s human capital. [[13]](#footnote-13)

**DOST-SEI**

The Science Education Institute (SEI) is one of the attached agencies of DOST under the Scientific and Technological Services Division. They are created as part of Executive Order 128, “REORGANIZING THE NATIONAL SCIENCE AND TECHNOLOGY AUTHORITY,”in order to make National Science and Technology Authority more effective and responsive to the scientific and technological needs of the country. DOST-SEI partners with educational institutions to propel the growth of science education and research for nation building.[[14]](#footnote-14)

#### What value do they want from BPAP?

Together, CHED and SEI approached BPAP to implement a project to students of State Universities and Colleges (SUCs). Being a business processing industry, BPAP is expected to bring value and excellence in developing the skill sets of IT & BA students who would eventually bring their learnings with them after graduation and even during their seeking of employment. Moreover, programs and courses rolled out by BPAP can bring a significant amount of progress, acting as a tool or medium in teaching and training students and teachers.

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## The Current Situation

BPAP Project Title: Developing State University and College Graduates Towards Global Competitiveness, National Productivity and Development Project

The impact of this BPAP project is divided among the project goals, purpose, and resources. As a result of achieving the program objectives, it is expected that there will be an increase in the employment percentage of male and female graduates from the participating SUCs in the IT-BPM sector (ideally 70%). Other than that, it is also expected that the program will be fully implemented in the 17 SUCs involved. This is done through the teacher training and student participation in the different programs that BPAP implements. These programs, also called products, are the following: Global Competitiveness Assessment Tool (GCAT), Basic English Skills Training (BEST), Electronic Advanced English Proficiency Training (e-AdEPT), Service Management Program (SMP).

**In-depth look at the programs/products offered by BPAP:**

**GCAT** (Global Competitiveness Assessment Tool) is an online profiling test that appraises the competence of the test taker in certain qualities deemed useful in the field of employment. Characteristics such as English proficiency, empathy, communication, and reliability skills are measured by this test.

BPAP has partnered with AAI (Advanced Analytics Institute) to provide this assessment tool to the students wanting to take part in the test. GCAT testing is done by batches where students have to register with their respective SUC and the test itself is done within computer labs of the SUC. Only upon registering will the student be provided with the given access to this online test.  AAI then evaluates, and sends the results to BPAP to be stored and kept track of.

**BEST** (Basic English Skills Training) is another program implemented by BPAP to the respective SUC’s. BEST is an e-learning platform designed to enhance one’s communication skills through feedback of the user’s skill in the English language. BEST however, is a self-paced program wherein progress is up to the owner of the key itself on when he or she would like to complete it within the designated period

.

To utilize BEST, a participant is given a CD along with a card containing a product key that activates the program good for 4 months. For this, BPAP has partnered with Edulynx to provide this software and the product keys needed. BPAP then has to keep track and make sure that the product keys they obtain goes to an individual as well. This is also then kept track of and serves as a marker to say that the student has undertaken BEST.

**e-AdEPT**(electronic- Advanced English Proficiency Training) is another software provided by Edulynx designed to target the student’s English skills. Similar to BEST, this is more advanced and designed as a further improvement of English skills. The process for distribution is also the same, and BPAP has to keep track of the product keys and their respective recipients as well. Those who do receive the e-Adept platform are then considered to have taken this.

**SMP**

Service Management Program is a minor program that is offered within the different SUC’s which is integrated to the students’ course (with eligible students coming from either Information Technology or Business Administration degrees). To attain this minor, a total of 21 units consisting of 7 different subjects/courses must have been taken and qualified for by the student. The curriculum for SMP is as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| THIRD YEAR | | FOURTH YEAR | |
| First Semester | Second Semester | First Semester | Second Semester |
| Business Communication | Service culture | n/a | n/a |
| BPO101 | BPO102 | Systems Thinking | Internship |

This curriculum for minor has already been approved by CHED and is being implemented. Currently, students have undertaken some of the early subjects included in the third year curriculum given the early stage of the project.  BPAP then has to keep track of these students and their performance.

**Problem overview:**

**Student Rollout**

As already stated, an estimated tracking of 20,000 students per year is expected upon the full implementation of the programs from BPAP (GCAT, BEST, e-Adept, SMP).  To be considered part of BPAP’s intervention, and with it to be registered and tracked by BPAP itself, a student must have participated in AT LEAST one of these programs. However, each of these programs has different qualifications to register and with it different requirements and data to be tracked.

|  |  |  |  |
| --- | --- | --- | --- |
| **Program** | **Requirement to be tracked** | **Data to be tracked** | **Source** |
| GCAT | Test must be taken | Performance | SUC’s registration/signup and AAI data |
| BEST | Student received product key | Reception of key | Manually filled up list of key and owner |
| e-Adept | Student received product key | Reception of key | Manually filled up list of key and owner |
| SMP | Course of IT or BA, taken up the subject for minor | Courses undertaken, performance | SUC data |

The fact that the 17 SUC’s are in different locations nationwide, and have different administrations, following different methods of recording, transmitting and saving said data is an issue of the initial stage of the CHED-BPAP project which has been identified to have two levels.

The first level would be the micro level where the SUC’s data are gathered from.

An example is the way BEST and e-AdEPT is implemented. For some of the SUC’s, these are credited units which students have to sign up for and as such, the SUC can provide the details of the project manager from BPAP who is keeping track of this data. However, it can only be considered as an extra-curricular involvement for other SUCs.The data would have to be taken in a different method, outside of the school’s records.

On the second, more macro level, different data is also collected with respect to the different programs present.

One example would be the difference in the implementation between BEST and SMP programs. With BEST being a software that has to be given to students, BPAP only keeps track of its reception by the manual process of noting down the product key received by a student as it is physically handed out. However, for SMP a program consisting of actual courses, the SUC has to take not of records that can be given to BPAP project managers for them to keep track of.

**T3**

Though the end target of the BPAP-CHED project is geared towards the college students, the main part of the BPAP intervention effort is directed at training the teachers involved hence “T3”. With this in mind, trainers are also hired by BPAP to introduce new courses and enhance the teaching skills of a targeted 500++ teachers. These teachers will be trained depending on which program or subject they are assigned to teach. BPAP gives a 2-day training for BEST, a 6-day training for e-AdEPT, and finally, a training course for each subject under SMP.

To determine project effectiveness, BPAP also has to keep track of the relationships of the trainings given to the teacher, and the teacher and the names of students he/she is handling. These relationships, performance measures, and even the status of having participated in a program would help in determining the level of impact of each program and of the interventions as a whole.

This engagement of BPAP is currently in its early stage, with students having taken GCAT, BEST, e-ADEPT, and the early half of the SMP intended for the 3rd year students. However, in spite of the already running implementation of the BPAP project, recording the data mentioned earlier falls behind, with their current process being a translate-to-Excel arrangement. This has already caused problems with reporting and information organization with the project managers expressing their difficulty in accessing specific data.

## The Possible Projects

    1. Central Reporting and Information Systems for Participants and/or Programs (CRISP)

As stated in the previous sections, this SEI and CHED project has many student, teachers, and products under it. As of now, there is an estimated total of 54,000 participants from the four programs. By themselves, the data should not be too problematic; however, the problem with these data is how they will look like mapped out when viewed from a relational perspective. BPAP has to keep track of the relationships between trainers to teachers, and teachers to students. Additionally, a participant can enter and acquire multiple products. Due to the project’s enormity and complexity, it might be the better option to build a system best fit for BPAP’s process.

The needs of the company are as of follows: capturing the data, monitoring the data, and providing reports. The system the three groups are proposing answers all three of those through three separate subsystems. CRISP is composed of the following: (1) Registry Reporting System, (2) Online Integrated Monitoring System, and (3) Report Generation System.

The Registry Repository System (RRS) is in charge of capturing transactional data. It will be developing the means in which the system acquires the necessary data from the different SUCs and the third-party participants mentioned before this section (Edulynx and AAI) through the use of software packages. Considering the fact that data coming from different SUC's aren't necessarily exactly the same, there needs to be a means in which these data gathered are stored in a standardized manner.

The RRS involves three activities: (1) importing data sent by Edulynx and AAI, (2) enabling web distribution of PINs for e-Adept and BEST products and collection of data stemming from this, and (3) importing data from the SUCs to the BPAP representative who is handling these data items. The data will then be sent to the next system for processing.

The Online Integrated Monitoring System (OIMS) is in charge of monitoring the data provided by the RRS by aggregating said data items in a single location. It has two functions: (1) extracting, transforming, and loading the data, and (2) monitoring the data through an interface.

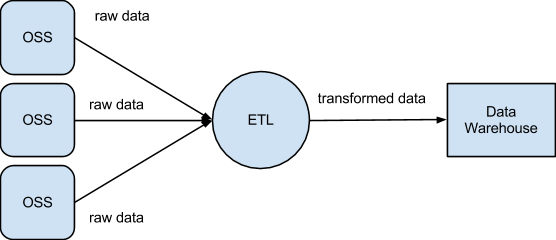
Tracking and consolidating a high volume of participants from different schools will be problematic as data consistency and integrity might become an issue. For instance, there might be duplication of primary keys. The first process of this subsystem will ensure that the data input is correct and consistent by extracting the data from the sources over the cloud and validating them by checking if it’s in the right format, transforming them to be consistent with the rest of the data set, and loading them into a data warehouse for storage and querying, this is known as the ETL process of the data warehouse concept which the group will employ. In this concept, the source of the raw data is the OSS. A data warehouse is the place in which all the data from the databases are placed.

Figure 3. The Data Warehouse Concept as explained in the text.

As mentioned above, the users of the system will be able to control and manage the data through an interface which will take the form of a web application. This web application will have different functionalities such as viewing the data, having means of communicating with the different SUCs, giving notifications of data abnormalities ,and approving entry to the data warehouse. In a nutshell, it is a managerial dashboard.

The Computer-Aided Reporting System (CARS) is in charge of generating reports from the data warehouse. On an executive level, BPAP will need a tool to help them in assessing the progress of each participant and each program. To do this, BPAP will need figures and numbers. The CARS will answer this need by generating relevant reports.

**Costs**

The total cost of ownership (TCO) of the data warehouse goes beyond initial implementation. Over a period of years, the continuing cost will very likely exceed the cost of the initial implementation. The annual cost for the maintenance of the data warehouse often runs between 40% to 60% of the implementation cost.[[15]](#footnote-15)

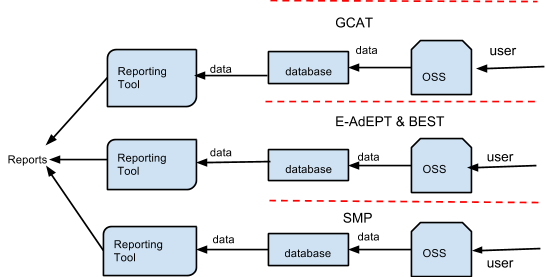
Maintenance includes the contractual maintenance cost of the hardware and software, usually 15% to 20% of the software retail or purchase price. If the hardware was purchased, the depreciation of the hardware should be included. For leased hardware, the leasing costs must be included. New or upgraded software and hardware may be required if the system does not perform as expected or if the usage and complexity go beyond initial estimates. Technical personnel will always be required to establish and run backup and recovery procedures, to monitor and tune the system. With the normal turnover, there will be an additional cost with the introduction of new technical people. There will always be requirements for, and costs associated with, assimilating new data, new capabilities, and new users into any successful data warehouse.[[16]](#footnote-16)

New data will be added, sometimes more than what was added for the initial implementation. The design most likely will change, and the database will need to be tuned. Additional historical data will increase CPU and disk requirements. New software will be introduced, new releases will be installed and some interfaces will have to be rewritten. As the data warehouse grows, the hardware and network will have to be upgraded.

The typical cost of building and running a sufficient data warehouse on your own is 19,000 USD to 25,000 USD per terabyte per year. On the other hand, cloud-based data warehouses can be cheaper. Amazon offers a cloud based data warehouse, Amazon Redshift, which provides 2 terabytes of data per year for 2000 USD.[[17]](#footnote-17)

#### Alternative Projects:

**1. Separate Systems for each program / product.**



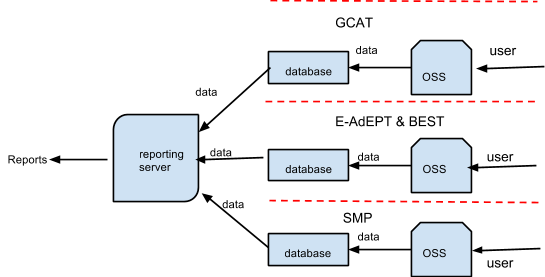
*Figure 4*

This project will construct separate systems for e-AdEPT and BEST and, for SMP. Each product will have its own data-gathering, data monitoring, and reporting service. The reporting service will use reporting tools such as SQL Reporting Services, Crystal Reports and other software. Each system will also have its own database. This will eliminate the need for a single repository of data such as a data warehouse. An employee in BPAP may gather all these.

    One advantage of this is the elimination of the need to construct a large data warehouse, which is costly. In addition to that, reports needed for each of BPAP’s products (GCAT, BEST, E-AdEPT, SMP) will produce its own reports faster because the data relationships are less compared to a single repository that contains all the data from other programs. This kind of design is best when the organization is focusing on the programs as separate entities.

    The main disadvantage is that reporting tools alone cannot process large data efficiently. Gathering individual data from the different systems would come as a challenge since records are stored in different locations. It would also be very hard to consolidate all the records and reports since each has its own system. Furthermore, data becomes redundant if participants are enrolled in multiple programs.

2. **Multiple-Database Reporting System using a Reporting Server.**



*Figure 5*

A web server for reporting configures data sources from each database of the separate systems of GCAT, e-AdEPT and BEST and SMP. Then, the server will copy all the data using various [database replication tools](http://en.wikipedia.org/wiki/Database_replication#Database_replication) that will allow for the sharing of information to ensure consistency and accessibility. This gets all necessary data onto one server. It will not be contained in a single set of tables. Rather, it will combine data from sources to be generated into reports. Depending on how many queries are built, it usually cleans and processes data more efficiently than regular reporting tools. The logical design is almost the same as the first alternative; however, instead of using reporting tools, a reporting server will be used to create reports.[[18]](#footnote-18)

When there are lots of reports to be generated and there is a constant growth of data, this project will not be as effective as using a data warehouse. Data of interest is spread across several databases and might not be cleaned so the server might find it difficult to query. This results to slower generation of reports.

**3. Excel based operations**

Developed by Microsoft Corporation, Excel is an application that has a spreadsheet and database capability. Excel is generally easy to use but it also has its own limitations. Using the enterprise features of Excel, users can easily sort, filter, reorganize, add, and upload records over a network. It can be used as a database for keeping track of certain information and basic business processes. In addition, reporting and data analysis tools are also available within the program. However, the problem occurs whenever the file gets bigger over time. BPAP expects the records to grow to around fifty five thousand (55k+) records for all of the participants of the learning program in a few years. Excel files would not be able to handle the amount of data.

|  |
| --- |
|  |

Non-numeric model

Qualitative Project Selection using Quick Sort Method

Following the comparative benefit model (quick sort method), the group considered four projects and the one that proves to be most beneficial to the program will be selected.

|  |  |  |
| --- | --- | --- |
| Projects | Pros | Cons |
| **Central Reporting and Information Systems for Participants and/or Programs (CRISP)** | * Data retrieval is faster * Will enable queries to access data from different sources * Can integrate data from multiple source systems * User friendly interface * Provides ease with regards to consolidating. | * Users may be unfamiliar with queries * Needs internet connection * Users may be resistant to change * Complex relationships and architecture * Project may contain security flaws due to bad security design and existence of sensitive information * High costs due to maintenance cost and payment to IT personnel * May need people knowledgeable about databases. |
| Project Teams | * Can customize the functionalities that would better address the needs of the organization * Can work with different processes (ex. additional programs and profiling) * Software and resources are provided by the client * Restructure the data so that it delivers excellent query performance, even for complex analytic queries, without impacting the [operational systems](http://en.wikipedia.org/wiki/Operational_system).[[19]](#footnote-19) * Can provide a single common data model for all data of interest regardless of the data's source * Can present the organization's information consistently * Can be used to improvedata quality by providing consistent codes and descriptions, flagging or even fixing bad data |  |
| BPAP | * Help mitigate the problems and inconsistencies in the source systems * Extensibility of the system can provide them with more projects. * Would be able to keep track of historical data and access at a relatively faster rate. |  |

**Separate System for Products**

|  |  |  |
| --- | --- | --- |
|  | Pros | Cons |
| Users (BPAP and SUCs) |  |  |
| Project Teams |  | Complexity of the data relationships needed can be a toll to the system performance.   * A challenge to gather individual data from different sources and consolidate them into a single report. |
| BPAP |  | Redundancy: Profiles can be repeated across the different systems. |
|  | * Elimination of the need to construct a large data warehouse * More focus on the products * Data retrieval and reporting for a single program is relatively faster * Reusable and extensible | * Data mining can be a challenge |
| **Reporting Server** | * gets data onto one server improving performance * cleans and processes data more efficiently | * slow performance when there are several reports * not as effective as a data warehouse * difficult to query since data of interest might spread across many databases * slower report generation |
| **Excel-based Operations** | * usability: easy to create, update, and maintain, program (e.g. Excel VBA Programming) * familiar environment to encoders * portability: easy to upload, share, and open in different hardware * easy to acquire * relatively cheaper * more secure: excel files can be secured with a password * easy connection to OLAP databases | * slow program execution * hard to form relationships and consolidate across different Excel files * susceptible to human errors * calculations done on spreadsheets will be wrong if there are errors in the formula * cannot create reports like those of databases * risk of file corruption * does not give the levels of confidence in case of data duplication * not scalable for accessing and manipulating large data volumes * obstructive to regulations and compliances * unfit for expansion and merges * vulnerability:   + Viruses can be attached in the macros   + Cells and formulas can easily be altered |

Numeric model

Quantitative project selection using the scoring model

    A weighted factor scoring model is used to rate the different proposed projects that could be used to determine the value of each when compared with the other alternatives. Using a template taken from the *Project Management: Achieving Competitive Advantage* textbook by Jeffrey K. Pinto, criteria are made according to factors that may affect the development and value of the project as a whole.[[20]](#footnote-20) The previously mentioned alternatives would be weighed in according to risk, commercial, internal operation, and other related aspects.

    Ranking in each category depends on whether the criteria is beneficial or detrimental to the project. For example, a three (3) on costs means that the product is low on cash outlay. The following section outlines the aspects and concerns that would directly and indirectly impact the whole project:

**Risk aspects:[[21]](#footnote-21)**

    1. Technical Risk - Risks involved in developing a new or untested system or technology.

    2. Financial Risk - Unforeseen expenses that may incur that may in the duration of the project.

    3. Quality Risk - Risks associated with the image of BPAP due to the quality of the project.

    4. Legal Exposure - Risks involved in case of non-compliance or any other legal matters.

**Commercial Aspects:[[22]](#footnote-22)**

    1. Potential Market Share - potentiality of the project to increase BPAP’s competency and market share.

    2. Initial cash outlay - Funds needed to develop the project.

    3. Ability to generate future business/new markets / Profit potential - Potentiality to increase BPAP’s portfolio through the project.

**Internal Operating Aspects:[[23]](#footnote-23)**

    1. Need to develop or train employees - The need to develop or train the employees in the implementation would depend on the complexity of the project.

    2.Change in workforce size or composition - The need to hire additional employees for the project.

**Other Aspects:[[24]](#footnote-24)**

    1. Impact on company’s image - Answers the question, how much would BPAP’s image be affected through the said project.

    2. Strategic fit:

        -Extensibility - Answers whether the project allows the future expansion with regards to the products or the clients that are using the same framework.

        -Scalability - Answers whether the project has the ability in catering bigger amounts of data. (Aside from what is expected or targeted.)

    3. Time to finish the project - Answers the question, is there a pressure on finishing on time given the complexity of the project?

Importance Weight:

1 - Low Importance

2 - Medium Importance

3 - High Importance

|  |  |  |
| --- | --- | --- |
| **Criteria** | **Importance Weight** | **Score Indicators** |
| Technical Risk | 2 | 3 - Low Risk |
| Financial Risk | 3 | 3 - Low Risk |
| Quality Risk | 3 | 3 - Low Risk |
| Legal Risk | 3 | 3 - Low Risk |
| Potential Market Share | 1 | 3 - High potentiality |
| Initial cash outlay | 2 | 3 - Low |
| Ability to generate future business/new markets / Profit potential | 1 | 3 - High Potentiality |
| Need to develop/ train employees | 2 | 3 - Low  Priority |
| Change in workforce size | 1 | 3 - Low Priority |
| impact on the company’s image | 3 | 3 - High Impact |
| Extensibility | 2 | 3 - Highly Extensible |
| Scalability | 3 | 3 - Highly Extensible |
| Time finish the project | 2 | 3 - Low Priority |

Weighted Scoring for Different Projects

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Project** | **Criteria** | **Weight** | **Score** | **Weighted Score** |
| **CRISP** | Technical Risk | 2 | 2 | 4 |
|  | Financial Risk | 3 | 1 | 3 |
| Quality Risk | 3 | 2 | 6 |
| Legal Risk | 3 | 2 | 6 |
| Potential Market Share | 1 | 1 | 1 |
| Initial cash outlay | 2 | 2 | 4 |
| Ability to generate future business/new markets / Profit potential | 1 | 3 | 3 |
| Need to develop/ train employees | 2 | 2 | 4 |
| Change in workforce size | 1 | 1 | 1 |
| impact on the company’s image | 3 | 3 | 9 |
| Extensibility | 2 | 3 | 6 |
| Scalability | 3 | 3 | 9 |
| Time finish the project | 2 | 2 | 4 |
|  | | **TOTAL** | 60 |
| **Separate System for Products** | Technical Risk | 2 | 2 | 4 |
|  | Financial Risk | 3 | 3 | 9 |
| Quality Risk | 3 | 1 | 3 |
| Legal Risk | 3 | 2 | 6 |
| Potential Market Share | 1 | 1 | 1 |
| Initial cash outlay | 2 | 2 | 4 |
| Ability to generate future business/new markets / Profit potential | 1 | 3 | 3 |
| Need to develop/ train employees | 2 | 2 | 4 |
| Change in workforce size | 1 | 1 | 1 |
| impact on the company’s image | 3 | 3 | 9 |
| Extensibility | 2 | 2 | 4 |
| Scalability | 3 | 2 | 6 |
| Time finish the project | 2 | 2 | 4 |
|  |  | **TOTAL** | 58 |
| **Reporting Server** | Technical Risk | 2 | 2 | 4 |
|  | Financial Risk | 3 | 1 | 3 |
| Quality Risk | 3 | 1 | 3 |
| Legal Risk | 3 | 2 | 6 |
| Potential Market Share | 1 | 1 | 1 |
| Initial cash outlay | 2 | 2 | 4 |
| Ability to generate future business/new markets / Profit potential | 1 | 3 | 3 |
| Need to develop/ train employees | 2 | 3 | 6 |
| Change in workforce size | 1 | 1 | 1 |
| impact on the company’s image | 3 | 3 | 9 |
| Extensibility | 2 | 2 | 4 |
| Scalability | 3 | 2 | 6 |
| Time finish the project | 2 | 3 | 6 |
|  | | **TOTAL** | 56 |
| **Excel-based operations** | Technical Risk | 2 | 3 | 6 |
|  | Financial Risk | 3 | 3 | 9 |
| Quality Risk | 3 | 1 | 3 |
| Legal Risk | 3 | 2 | 6 |
| Potential Market Share | 1 | **1** | 1 |
| Initial cash outlay | 2 | **3** | 6 |
| Ability to generate future business/new markets / Profit potential | 1 | **1** | 1 |
| Need to develop/ train employees | 2 | **3** | 6 |
| Change in workforce size | 1 | **3** | 3 |
| impact on the company’s image | 3 | **1** | 3 |
| Extensibility | 2 | **1** | 2 |
| Scalability | 3 | **1** | 3 |
| Time finish the project | 2 | **2** | 6 |
|  | | **TOTAL** | 55 |

Based on the results, the CRISP project ranks the highest and is therefore the project that would most likely be carried out by the project groups. Judging from the scoring, the CRISP captures all the base objectives that are necessary in the development.

**Net Present Value (NPV) and Return on Investment (ROI Models):**

Looking at the quantitative one-year analysis of the project, the group considered certain factors and assumptions for the computation of the NPV and ROI:

•   Additional personnel from BPAP who will be in charge of encoding and handling the system or file to different SUCs are considered. As for the encoding cost for SUC employees, the values allocated for them are derived from the amount of participants or programs.

•   Cost reductions are omitted since the actual costs of the operations are not fully realized as of the moment. The expenses (i.e. unwarranted expenses) are not fully disclosed by the client so the group could not project any savings if the former factor cannot be declared yet.

•   Since the BPAP-SEI-CHED program is a government project, the computation is not geared towards revenue. Reiterating the main purpose of this program, it aims to bridge the gap between education and employability by investing and zeroing in on students' trainings and career growth for the future.

•   However, in some respects the project marginally predicts an income that is gained through taxation. The project's revenue is presumed to be based from income tax and can be calculated by:

|  |  |  |
| --- | --- | --- |
| Amount of Net Taxable Income |  | Rate |
| Over | But Not Over |  |
|  | P10,000 | 5% |
| P10,000 | P30,000 | P500 + 10% of the Excess over P10,000 |
| P30,000 | P70,000 | P2,500 + 15% of the Excess over P30,000 |
| P70,000 | P140,000 | P8,500 + 20% of the Excess over P70,000 |
| P140,000 | P250,000 | P22,500 + 25% of the Excess over P140,000 |
| P250,000 | P500,000 | P50,000 + 30% of the Excess over P250,000 |
| P500,000 |  | P125,000 + 32% of the Excess over P500,000 in 2000 and onward |

Income tax rates[[25]](#footnote-25)

Assumptions:

•   The numbers for the database prices are derived from online research and consultation with Mr. Dulce.

•   According to the Central Bank rates, the discount rate for the Philippines is 3.5%.[[26]](#footnote-26)

•   Figures are referred from the financial plan stated in the Memorandum of Agreement of BPAP and CHED.

•   Since the development of an IT solution is not allocated in the financial plan, additional costs have been added on top of the budget.

•   The budget, as set in the financial plan, is only good for 2 years, thus all expenses are assumed to be fully consumed on by the end of that period.

\*cost includes the price and the electricity used

\*cost includes the price and the electricity used

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **COST\*** | **QUANTITY** | **TOTAL** |  |
| **Implementation for Teachers** |  |  |  |  |
| GCAT 1ST BATCH | 100 | 750 | 75,000 |  |
| GCAT 2ND BATCH | 100 | 650 | 65,000 |  |
| BEST T3 1ST BATCH | 100 | 750 | 75,000 |  |
| BEST T3 2ND BATCH | 100 | 650 | 65,000 |  |
| e-AdEPT 1ST BATCH | 100 | 750 | 75,000 |  |
| e-AdEPT 2nd batch | 100 | 650 | 65,000 |  |
| ELITES 1st batch | 100 | 275 | 27,500 |  |
| ELITES 2nd batch | 100 | 225 | 22,500 |  |
| Medical/Animation/Game 1st batch | 100 | 75 | 7,500 |  |
| Medical/Animation/Game 2nd batch | 100 | 75 | 7,500 |  |
| SMP 1st batch | 100 | 275 | 27,500 |  |
| SMP 2nd batch | 100 | 275 | 27,500 |  |
| INTERNSHIP: GCAT,BEST, e-AdEPT MIS and Tracking |  |  | 1,359,700 |  |
| INTERNSHIP: SMP MIS and Tracking | 900 | 500 | 450,000 |  |
| **TOTAL** | | | **2,349,700** |  |
| **Implementation for Students** |  |  |  |  |
| BEST 1ST BATCH | 100 | 7500 | 750,000 |  |
| BEST 2ND BATCH | 100 | 7500 | 750,000 |  |
| e-AdEPT 1ST BATCH | 100 | 2500 | 250,000 |  |
| e-AdEPT 2ND BATCH | 100 | 2500 | 250,000 |  |
| SMP COURSEWARE | 500 | 500 | 250,000 |  |
| GCAT | 100 | 20000 | 2,000,000 |  |
| **TOTAL** | | | **4,250,000** |  |
| **Others** |  |  | **Months** | **Total** |
| DSL Monthly Subscription | 3000 | 13 | 18 | 702,000 |
| PC Leasing | 4000 | 13 | 12 | 624,000 |
| TOTAL | | | | **1,326,000** |

Revenue

|  |  |
| --- | --- |
| Students (Assuming target goal of 70%) | 14,000 |
| Salary per month | P20,000 |
| Income Tax | P1,500 |
| Months | 12 |
| Total (Tax x Months x Students) | **P252,000,000** |

Additional Personnel for BPAP

|  |  |
| --- | --- |
| Daily Wage | P11,250 |
| Months | 12 |
| Per Person | **P135,000** |

#### 1. Central Reporting and Information System for Participants and/or Programs

Development Cost

|  |  |
| --- | --- |
| Software Developer(16 people x P15k x 6 months) | P1,440,000 |
| Initial data warehouse | P300,000 |
| Development Software | P20,000 |
| Hardware and DSL (provided by BPAP) | 0 |
| **Total** | **P1,760,000** |

Maintenance and Other Costs

|  |  |
| --- | --- |
| Employment Tracking | P100,000 |
| Additional Programs | P100,000 |
| Database Maintenance | P50,000++ |
| **Total** | **P250,000** |

**Solving for NPV:**

Money in: 252,000,000

Interest Rate: 3.5%

(Investment) Money Out: 127,008,500

252,000,000/ (1+3.5%) = 243,478,260.87

NPV: 243,478,260.90 - 127,008, 500 = **116,469,760.87**

**Solving for ROI:**

Money in: 420,000,000

(Investment) Money Out: 127,008,500

252,000,000 - 127,008,500= 124,991,500

ROI: 292,991,500 / 124,991,500 = **0.984119173 / 98.41%**

Net Present Value and Return on Investment (3-Year Projection)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CRISP** | | | | |
|  | **Year 1** | **Year 2** | **Year 3** | **TOTAL** |
| Revenue | 0 | 0 | P252,000,000 | **P252,000,000** |
| Cost Reductions | 0 | 0 | 0 | 0 |
| Other Cost | P117,072,800 | | 0 | P117,072,800 |
| Estimated IT Costs | P7,925,700 | | 0 | P7,925,700 |
| Project Cost | **P124,998,500** | | 0 | P124,998,500 |
| Development Cost | **P320,000** | | 0 | P320,000 |
| Manpower (IT DEV) | **P1,440,000** | | 0 | P1,440,000 |
| Maintenance Cost | 0 | 0 | P250,000 | P250,000 |
| Net Cost | P126,758,500 | | P250,000 | **P127,008,500** |
| Cash Flow | -P126,758,500 | | P419,500,000 | P124,991,500 |
| NPV | | | 3.5% | **P116,469,760.87** |
| ROI | | | | **0.984119173** |
| Payback Period | | | | **1+ Year** |

#### 2. Separate Systems for products

Development Costs

|  |  |
| --- | --- |
| Software Developer(16 people x P15k x 6 months) | P1,440,000 |
| Databases (4 products + 1 for BPAP) | P210,000 |
| Development Software | P20,000 |
| Hardware and DSL (provided by BPAP) | 0 |
| **Total** | **P1,670,000** |

Maintenance and Other Costs

|  |  |
| --- | --- |
| Employment Tracking | P100,000 |
| Additional Programs | P100,000 |
| Database Maintenance (P20k per system) | P100,000 |
| Additional Personnel for BPAP (2 people) | P270,000 |
| **Total** | **P570,000** |

**Solving for NPV:**

Money in: 252,000,000

Interest Rate: 3.5%

(Investment)Money Out: 127,238,500

252,000,000/ (1+3.5%) = 243,478,260.87

NPV: 243,478,260.9 - 127,008, 500 = **116,469,760.87**

**Solving for ROI:**

**Money in: 252,000,000**

(Investment) Money Out: 127,238,500

252,000,000 - 127,238,500=124,238,500

ROI: 124,238,500 / 127,238,500 = **0.980532622 / 98.05%**

Net Present Value and Return on Investment (3-Year Projection)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Separate Systems** | | | | |
|  | **Year 1** | **Year 2** | **Year 3** | **TOTAL** |
| Revenue | 0 | 0 | P252,000,000 | **P252,000,000** |
| Cost Reductions | 0 | 0 | 0 | 0 |
| Other Cost | P117,072,800 | | 0 | P117,072,800 |
| Estimated IT Costs | P7,925,700 | | 0 | P7,925,700 |
| Project Cost | **P124,998,500** | | 0 | P124,998,500 |
| Development Cost | **P230,000** | | 0 | P230,000 |
| Manpower (IT DEV) | **P1,440,000** | | 0 | P1,440,000 |
| Maintenance Cost | 0 | 0 | P570,000 | P280,000 |
| Net Cost | P126,668,500 | | P570,000.00 | **P127,238,500** |
| Cash Flow | -P126,668,500 | | P419,430,000.00 | P124,238,500 |
| NPV | | | 3.5% | **P116,239,760.87** |
| ROI | | | | **0.980532622** |
| Payback Period | | | | **1+ Year** |

#### 3. Reporting Server

Development Costs

|  |  |
| --- | --- |
| Software Developer(16 people x P15k x 6 months) | P1,440,000 |
| Initial data warehouse | P300,000 |
| Development Software | P20,000 |
| Hardware and DSL (provided by BPAP) | 0 |
| **Total** | **P1,760,000** |

Maintenance and Other Costs

|  |  |
| --- | --- |
| Employment Tracking | P100,000 |
| Additional Programs | P100,000 |
| Database Maintenance (x5) | P100,000 |
| Additional Personnel (1 person ) | P135,000 |
| **Total** | **P435,000** |

**Solving for NPV:**

Money in: 252,000,000

Discount Rate: 3.5%

(Investment) Money Out: 127,103, 500

252,000,000/(1+3.5%) = 243,478,260.87

NPV: 243,478,260.87 - 127,103, 500 = **116,374,760.87**

**Solving for ROI:**

Money in: 252,000,000

(Investment)Money Out: 127,103, 500

252,000,000 - 127,103,500= 124,896,500

ROI: 124,896,500 / 127,103,500 = **.982636198 / 98.27%**

Net Present Value and Return on Investment (3-Year Projection)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Reporting Server** | | | | |
|  | **Year 1** | **Year 2** | **Year 3** | **TOTAL** |
| Revenue | 0 | 0 | P252,000,000 | **P252,000,000** |
| Cost Reductions | 0 | 0 | 0 | 0 |
| Other Cost | P117,072,800 | | 0 | P117,072,800 |
| Estimated IT Costs | P7,925,700 | | 0 | P7,925,700 |
| Project Cost | **P124,998,500** | | 0 | P124,998,500 |
| Development Cost | **P230000** | | 0 | P230000 |
| Manpower (IT DEV) | **P1440000** | | 0 | P1440000 |
| Maintenance Cost | 0 | 0 | P435,000 | P435,000 |
| Net Cost | P126,668,500 | | P435,000 | **P127,103,500** |
| Cash Flow | -P126,668,500 | | P419,565,000 | P124,896,500 |
| NPV | | | 3.5% | **P116,374,760.87** |
| ROI | | | | **.982636198** |
| Payback Period | | | | **1+ Year** |

#### 4. EXCEL-based Operations

Development Costs

|  |  |
| --- | --- |
| Software Developer(16 people x P15k x 6 months) | P1,440,000 |
| Excel (36 months x $240/ year, forex P42= $1) | P30,240 |
| **Total** | **P1,470,240** |

Maintenance and Other Costs

|  |  |
| --- | --- |
| Employment Tracking | P50,000 |
| Additional Programs | P50,000 |
| Additional Personnel (4 people) | P540,000 |
| **Total** | **P640,000** |

**Solving for NPV:**

Money in: 252,000,000

Discount Rate: 3.5%

(Investment)Money Out: 127,108, 740

252,000,000/ (1+3.5%) = 243,478,260.87

NPV: 243,478,260.87 - 127,108,740 = **116,369,520.87**

**Solving for ROI:**

Money in: 252,000,000

(Investment)Money Out: 127,108,740

252,000,000 - 127,108,740= 124,891,260

ROI: 124,891,260/ 127,238,500 = **0.982554465 / 98.26%**

Net Present Value and Return on Investment (3-Year Projection)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **EXCEL based** | | | | |
|  | **Year 1** | **Year 2** | **Year 3** | **TOTAL** |
| Revenue | 0 | 0 | P252,000,000 | **P252,000,000** |
| Cost Reductions | 0 | 0 | 0 | 0 |
| Other Cost | P117,072,800 | | 0 |  |
| Estimated IT Costs | P7,925,700 | | 0 |  |
| Project Cost | **P124,998,500** | | 0 | P124,998,500 |
| Development Cost | **P30,240** | | 0 | P30,240 |
| Manpower (IT DEV) | **P1,440,000** | | 0 | P1,440,000 |
| Maintenance Cost | 0 | 0 | P640,000 | P640,000 |
| Net Cost | P126,468,740 | | P640,000.00 | **P127,108,740** |
| Cash Flow | -126,468,740 | | P418,720,000 | P124,891,260 |
| NPV | | | 3.5% | **P116,369,520.87** |
| ROI | | | | **0.982554465** |
| Payback Period | | | | **1+ Year** |

**Analysis:**

The result of the qualitative and quantitative analysis shows that CRISP produces the best results over the other alternatives.

CRISP has a high value as shown in the numeric model. It presents medium-scale risk but promises high value. Quantitatively, CRISP doesn’t score far from the other projects. It has almost the same net present value and return on investment as the other projects which are estimated to be P116, 463, 760.87 and 98.41% respectively. The payback period is also roughly the same. The numeric model also shows that CRISP presents the best solution by presenting medium-scale risk but high value but, again, the other projects are not far off. From the quantitative model, it shows that while CRISP is the best solution, it’s not exemplary in this field. But what CRISP does promise is the quality of delivery.

There are off-the-shelf solutions but because of the high volume of data and their complex relationship with one another, these solutions might lack in functionalities to fully address the issue. Further, the CRISP project tries to address the needs of the project by looking at the bigger picture. It looks at it as one big process rather than framing the problem and focusing only on one aspect of it without seeking to solve the rest. The Excel-based alternative, for instance, lacks the communicative tool needed to monitor the SUCs.

Given that the 17 SUCs involved with the program are administratively different, there is a need to consolidate and standardize the data from the different sources. CRISP has value in this that it can gather, consolidate, and print out reports of the data. This is a huge advantage especially if BPAP is looking for extensibility of the program itself into new programs in the future.

# Project Title

# Project Team

|  |  |
| --- | --- |
| Jan Paolo Luces | Project Manager |
|  |  |
| Aaron Casurao | QA |
| Raymond Cruz | Lead Software Developer |
| Francis Fajardo | Systems Analyst |
| Trishia Gerobiese | Systems Analyst & Assistant Developer |
| Simone Jaldon | QA |

# Project Summary

To address the low employment rate of college graduates, CHED approached BPAP to help with the implementation of the “Developing State University and College Graduates Towards Global Competitiveness, National Productivity, and Development Project.” This project aims to increase employability of graduating BA and IT students in 17 SUCs located in Metro Manila and in identified Next Wave Cities. (Dulce, 2013. Interview) Given that this project would need to track a large amount of data, especially the assignment of PINS, Double Tap has decided to create a **Registry Repository System** that will serve as the data gathering module of the CRISP System proposed by Double Tap and two other MIS141 groups—Myriad and Tech5. Included in this project is the development of a **Registry Repository System** (that gathers the data from across the different programs by BPAP), a **Business Process Reengineering Plan** for the distribution process of BEST and e-Adept keys, and finally a **training seminar** for the use of the Registry Repository System. The RRS in essence is a subset of the CRISP system.

Given BPAP’s responsibilities to CHED, SEI, and to COA, three major needs have been identified with BPAP’s process of intervention within the 17 identified SUC’s. These are: data capture, monitoring, and reporting of all the information relevant in evaluating BPAP’s performance. Double Tap’s project will target the data capturing module of the CRISP system, gathering the necessary data from T3 and the different participants within the SUC’s.

There are four (4) major sources of data that has to be introduced to BPAP’s monitoring perspective: data coming from GCAT performance, BEST and e-Adept assignments, SMP course grades and T3 teacher participation. For GCAT, this data will come from AAI, who sends the performances of test takers to BPAP. Along with performance results are profile information which is taken before the test proper. For BEST and e-Adept, where the current process is a manual notation of key to owner correspondence, a BPR plan will be created to change the manual way of notation to a web-based distribution of keys to registered students. With this implementation, data collection for the recipients would be done during the registry for the key. Third, the RRS would also have to account for the input of data coming from the 17 different SUCs through an encoder coming from BPAP Finally, through the T3 intervention of BPAP, data about teachers who have participated in any of the T3 trainings will also be collected from BPAP itself. Common to all these components would be the capacity to capture demographics for each participant. (Dulce, 2013. Interview)

All this data which is then put into a database/repository will be passed on to the ETL system to be developed by Tech5 for further arrangement in line with monitoring.

The final phase of the project to be done by DoubleTap will be user training for the input end of the system. This will be conducted after the roll-out of the CRISP system and will focus on the proper use of the RRS. Once done and error-free, all the three modules will then be integrated and tested together before deploying the whole system (CRISP).

# Rationale & Benefit of the Project

Since CHED’s budget comes from the government, it is important for them to keep an account of their expenditures which will then be strictly checked by the Commission on Audit (COA) for compliance. One of these expenditures is the acquisition of software needed in both BEST and e-AdEPT products. Currently, BPAP keeps track of the allocation of the PINs to each of the students who undergo the aforementioned products. BPAP purchases these PINs from Edulynx, a BPAP partner. These PINs are then distributed to the students at the start of the test and the corresponding PIN-owner information is manually listed on paper. The main concern of BPAP is to assign a student to every PIN, with the possibility that a student could have more than one PIN if he/she will take the test again after the 4-month expiration per PIN. All PINs must have a student assigned to it because if a PIN is not assigned to a student, it would be considered by COA as a discrepancy and BPAP could face charges. (Dulce, 2013. Interview)

In line with this, the group plans to coordinate with Edulynx regarding the way they distribute their PINs. Rather than implementing the manual distribution of PINs to the students, the group plans to eliminate the cards by having the system assign the PIN and in the process, collecting the details of the student using the new process of obtaining that particular PIN.

Another benefit of the project would be a more efficient data gathering procedure. The reports are generated through the data that are collected in the RRS. In relation to the overall system, the RRS is the first module, which is also called the Data Gathering module. Data gathered for the reporting and monitoring are sourced from the SUCs, BPAP, and its participating partners. It is Double Tap’s responsibility to get these data into the system, the main data warehouse, through a database to be passed on to the Online Information Monitoring System (OIMS) by Tech5. The raw data that are collected will then be used in the reporting module done by Myriad. The data that enters the RRS is not organized on a macro-level because of the possibility of different formats and ways of obtaining them, both relative to the different SUCs. As mentioned in the Business Case, from a data warehouse perspective, the SUCs acts as the operational source system that provides entry and input to the entire system. After the Data Gathering Module comes the Data Staging and Warehouse module, then finally the Data Loading module which will be done by Tech 5 and Myriad, respectively. All these modules are part of the CRISP System.

The raw data collected are the basic information of both teachers and the students. As a general rule, student participation and demographics need to be collected for all products. Also, the crucial information that needs to be gathered from the students who take the GCAT are their performances. It is also crucial that the courses undertaken and the students’ performance under each of these should be monitored for those who take the SMP. (Ibid.) Not only are these needed for their documentation but it is also for the use of the different participating companies who may be interested in hiring the students after completing the program. Moreover, the matching of PIN and student is crucial information for BEST and e-ADEPT. (Dulce, 2013. Interview)

Other than the monitoring and recording of the necessary information of the students, BPAP also needs to keep track of the relationships of the training given to the teacher and the training and instruction that the teacher gives to the students involved. The impact of each program (GCAT, BEST, e-ADEPT, and SMP) could be determined through the performance and participation of the teachers in relation to the performance and participation of the students that have undergone their training and instruction. All of these data--registry of teachers and students--that will be in the RRS will be gathered from the SUCs, AAI (from which the GCAT evaluations will be gathered from), and training sessions given to the teachers.

Required data for the reporting and monitoring process are both sourced from the individual SUCs and the product vendors (As the product distributor). These data, which are composed of the student, teacher, and class information, have different ways of being transmitted to BPAP. Data coming from these sources are still unrefined and unorganized. From a data warehouse perspective, the RRS acts as the operational source system that provides entry and input to the entire CRISP system.

## Comparison with Alternative Projects

Although there are still other options on how to go about the project, we have found that CRISP is the most beneficial and effective project compared to the available alternatives. Basically, these alternatives have problems with data capacity when all the data coming from the different SUCs are consolidated as one. Per SUC basis, Excel files and reporting servers may be effective but when data from all SUCs are dumped and compiled, it would not be able to handle the large amount of data. Performing queries would be slow since it needs to go through hundreds of rows from a number of different tables in order to form relationships and generate the needed reports. RRS is able to address this problem by generating import files which can then be easily added to the data warehouse, the main repository of data.

Also, there is a possibility of several data re-appearing across the individual databases maintained for each of the products. This can happen especially when there are students and teachers who took more than one product or test. Not only does this cause data redundancy but also waste of memory allocation. By having a single OSS integrating all data from the different products, it is possible to avoid this, even using existing data to validate the changes or updates to be made.

On the other hand, based on quantitative computations, taking into account the RRS as part of CRISP as a whole, in order to make further comparisons with the other alternatives. As shown in the table below, all projects have the same payback period of one (1) year. Even with that, not all generate the same results in the other factors. Separate System received the lowest result in both NPV and ROI, garnering P278,558,601.45 and 58, respectively, while an Excel-based System received the lowest weighted score of 55. Generating the highest value in all three criteria--NPV, ROI, and weighted score—is CRISP.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Possible Projects | NPV | ROI | Payback | Weighted Score |
| CRISP | P278,788,701.46 | 230.69% | 1 year after project ended | 60 |
| Separate System | P278,558,601.45 | 230.09% | 58 |
| Reporting Server | P278,693,601.45 | 230.44% | 56 |
| Excel-baseed System | P278,688,361.45 | 230.33% | 55 |

Based on both qualitative and quantitative comparisons, the RRS and CRISP as a whole provides the most benefits to BPAP, CHED, and SEI among the other three possible projects.

# Measures of Success

|  |  |  |
| --- | --- | --- |
| **Categories** | **Objectives** | **Measures of Success** |
| **Project Financial** | To implement the system, conduct proper training, and acquire human resources within the budget set by SEI and CHED | Expenditures must not exceed P8M and P125M for the SEI and CHED projects, respectively. |
| **Project Timing** | To receive the approval of the group’s suggested BPR plan for BEST and e-Adept distribution within the set schedule | Approval of BPR plan for BEST and e-AdEPT distribution must be done by the first week of November 2013 |
| To deploy the testing-passed system within the set schedule | System must be complete and implemented by the third week of November 2013. |
| To conduct a testing period within the set schedule | A trial period of the system must be held from the third week until the fourth week of November 2013.  A trial period of RRS as part of the CRISP must be held by the third week of December 2013. |
| To successfully integrate the RRS to the CRISP within the set schedule | Integration of the RRS as part of the Data Gathering Module of CRISP should be done by the third week of December 2013. |
| To train the RRS users within the set schedule | Trainings of users, who are primarily from BPAP, to be done by January 31, 2014 |
| To acquire all the needed resources for the different programs/products within the set schedule | Trainers, PINs, and other relevant resources needed for each project must be acquired at least 2 weeks before the specified implementation date of the different learning programs, depending on the schedule of the different SUC’s. |
| **Project Quality** | To implement a working system that gathers **relevant, consistent,** and **correct** data from the different SUC’s involved in the project. | **Relevant:** Data gathered must include information needed by the different managers for reporting, such as basic personal information, PIN-owner correspondence, and scores achieved by the students and teachers involved.  **Consistent:** A set format relative to the different SUC’s following their own standards should be strictly observed when entering the data to the system.  **Correct:** Data validation through cross checking with a student master list provided by the SUCs’ Office of the Registrar must be done to ensure that the entered information are valid and error-free.  Ensure that all errors are resolved after the set trial period. |
| To ensure that the acquired PINs needed for BEST and e-AdEPT programs are fully documented and duly accounted for. | Proposed Business Process Reengineering plan for BEST and e-Adept distribution process must be approved by Mr. Jopet Lelay, the overall project coordinator and implemented.  Maintain a database table showing each PIN-owner correspondence. |
| To provide organized and formatted data needed by the succeeding modules in the project. | RRS data output must follow certain standards as agreed upon by the receiving group (Tech5) before importing it in the data warehouse through formal acceptance form. |
| **Consumer Communication** | To provide a series of updates to the clients, Mr. Doy Dulce and Mr. Jopat Lelay, regarding the progress of the project through the project manager. | Full compliance with the communications plan. |

# Project Stakeholders

The following entities invest and benefit in the project and are thus considered as major stakeholders:

* **BPAP-employed Product Managers.** These are the BPAP product managers who will need to implement the system in order for their respective projects to reach their goals and objectives. With Mr. Jopat Lelay as the Overall Project Director and Miss Reli Neo in-charge of Monitoring and Evaluation, the product managers are: Ella Antonio, Arra Uri, Victor Loyola (CHED-SMP Project); Myra Santos (DOST-SEI Project); and Zoe Diaz De Rivera (BEST and AdEPT). Mr. Lelay will be the main contact of the group to whom all major concerns and updates will be addressed to since he is the one with the overall knowledge of the BPAP-CHED and SEI projects. Whenever necessary, the different product managers will be contacted in order to gather further details needed in the implementation of the project.
* **Commission on Higher Education (CHED).** As the government body in-charge of collegiate education and as main initiator of the project, CHED provides BPAP with the monetary funds and relies on its proper implementation in order to help improve the quality of higher education in the country, specifically that of BA and IT courses under the 17 participating SUCs. This then leads to an increased employability rate of college graduates who belong to the IT-BPO industry, contributing to a better national economy. Data gathered by the system will provide them with the relevant information they need for analysis on how to further improve the project, possibly using them as basis for future programs to be applied in other colleges and universities located in the different regions of the Philippines.
* **Science Education Institute (SEI).** Also providing funds to BPAP, SEI relies on the proper implementation of the project to provide high quality trainings to enrolled DOST scholars and hired faculty members, equipping them with a higher skills and knowledge. The data gathered can serve as basis in assessing the participants’ performance and suggest ways on how to improve the program.
* **Partner industry firms in the IT and BPO sectors.** These are the companies that also invested their resources in partnering with BPAP with the goal of hiring the students involved in the project, especially after gaining better competence. For SMP-enrolled students, they are the ones that will provide the students with a site for their 600-hour internship course during the last semester of their 4th year in college.

The 17 different SUCs as well as the enrolled students and teachers can also be considered stakeholders of the project since they can also reap the benefits of the project’s success. By implementing the project, the SUCs will then be able to provide higher quality education and training to its students, enabling them to arrive to their full potential and become competent graduates. On the other hand, teachers will also be given the chance to enhance their knowledge and skills, which they can use to handle their classes.

# Deliverables

The group aims to provide the following deliverables:

* Registry Repository System
* Business Process Reengineering plan for BEST and e-Adept distribution process
* User’s Manual
* Training Manual
* Technical Manual
* User Training (on RRS module)

# Milestones

|  |  |
| --- | --- |
| **Milestone** | **Deadline** |
| Signing of Acceptance Form for System Requirements | First week of September 2013 |
| Completion of System Design | Third week September 2013 |
| Approval of BPR plan for BEST and e-Adept distribution | First week November 2013 |
| Completion of Alpha Testing of Module | Second week of November 2013 |
| Signing of User acceptance for User Interface | Third week of November 2013 |
| Completion of Beta Testing of Module | Fourth week of November 2013 |
| Finished Module Integration and Testing | Third week of December 2013 |
| System Rollout | Fourth week of January 2014 |
| Formal Transfer of Documents | Fourth week of January 2014 |
| User Training | Fifth week of January 2014 |
| Client Performance Evaluation | February 14, 2014 |

# Technical Requirements

1. System Technical Requirements

|  |  |
| --- | --- |
| **Software** | Purpose |
| MySQL | DBMS for data to be collected through TPS |
| .Net Framework 4.0 | Framework to utilize C# developed software |

The RRS’ greatest software requirement is the .NET Framework, version 4 at the very least to run C#, which will be the language used for the system. Therefore, the minimum hardware requirements will be for the .NET Framework.

The RRS, which will be used by BPAP will have to run on a windows based OS with the following specifications:

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| --- | --- |
| **Hardware** | **Minimum** |
| Processor | 1 GHz |
| RAM | 512 MB |
| Disk Space | 850 MB (32-bit), 2 GB (64-bit) |
| OS | Windows XP SP3 |

2. Development Technical Requirements

The software requirements for development are similar to those of the system requirements, with the addition of Visual Studio 2010, serving as the Integrated Development Environment (IDE).

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| --- | --- |
| **Software** | **Purpose** |
| Visual Studio 2010 | IDE |

Below are the minimum hardware requirements for running Visual Studio 2010:

|  |  |
| --- | --- |
| **Hardware** | **Minimum** |
| Processor | 1.6 GHz or faster processor |
| RAM | 1GB (1.5 GB if running on a virtual machine) |
| Hard drive storage capacity | 10 GB available, (10.6 GB if using language packs) |
| Hard drive speed | 5400 rpm |
| Video Card | DirectX 9 capable video card (1024 x 768 or higher resolution) |

# Limits and Exclusions

* The team is not responsible for the provision of maintenance personnel
* The team will not be responsible for procurement
* The team will only provide software that itself developed
* The team is not responsible for the quality of impact that the BPAP programs make
* The team will not be responsible for encoding all data. Multiple sample data will be used based on previously collected data will be used to beta test the system.
* The extent of the output of the team’s system will only be the database to be passed on to Tech 5
* The team will not be responsible in contacting and communicating with the 17 different SUCs

## Client Review

The authorities of BPAP will be consulted by the team on a regular basis as the project is being carried on. The group will be coordinating with the BPAP point person, Mr. Florentino “Doy” Dulce, Jr., and the other project managers (listed below) with regard to the Registry Reposity System (RRS). Frequent exchange of electronic mails, as well as personal site visits will be conducted to ensure proper communication between the client and the team.

The following are the different project managers for the different parts of the project:

* Ella Antonio, Arra Uri, Victor Loyola - CHED-SMP
* Myra Santos - DOST-SEI
* Zoe Diaz De Rivera - BEST and e-AdEPT
* Jopat Lelay - Overall Project Director
* Reli Neo - Monitoring and Evaluation

**Approval:**



Florentino “Doy” Dulce Jan Paolo S. Luces

DoubleTap Project Manager

1. History. (n.d.). *Business Processing Association of the Philippines*. Retrieved August 18, 2013, from http://www.bpap.org/about-us/history [↑](#footnote-ref-1)
2. Ibid. [↑](#footnote-ref-2)
3. IBPAP Board of Trustees. (n.d.). *Business Processing Association of the Philippines*. Retrieved August 18, 2013, from http://www.bpap.org/about-us/board-of-trustees [↑](#footnote-ref-3)
4. Ibid. [↑](#footnote-ref-4)
5. BPAP Executive Team. (n.d.). *Business Processing Association of the Philippines*. Retrieved August 18, 2013, from http://www.bpap.org/about-us/executive-team [↑](#footnote-ref-5)
6. Partner Associations. (n.d.). *Business Processing Association of the Philippines*. Retrieved August 18, 2013, from http://www.bpap.org/about-us/partner-association [↑](#footnote-ref-6)
7. Ibid. [↑](#footnote-ref-7)
8. Ibid. [↑](#footnote-ref-8)
9. Ibid. [↑](#footnote-ref-9)
10. Ibid. [↑](#footnote-ref-10)
11. History. (n.d.). *Business Processing Association of the Philippines*. Retrieved August 18, 2013, from http://www.bpap.org/about-us/history [↑](#footnote-ref-11)
12. Ibid. [↑](#footnote-ref-12)
13. Home - Commission on Higher Education. (n.d.). *Commission on Higher Education*. Retrieved August 17, 2013, from http://www.ched.gov.ph/chedwww/index.php [↑](#footnote-ref-13)
14. *SCIENCE EDUCATION INSTITUTE.* (n.d.) Retrieved August 17, 2013, from http://www.sei.dost.gov.ph/ts/sei\_msp.pdf [↑](#footnote-ref-14)
15. Adelman, S. (2001). Measuring Data warehouse Return on Investment. Retrieved from. http://test.dama-phoenix.org/wp-content/uploads/2013/07/PhxDAMADay2012\_Measuring-Data-WarehouseROI.pdf [↑](#footnote-ref-15)
16. Adelman, S. (2001). Measuring Data warehouse Return on Investment. Retrieved from. http://test.dama-phoenix.org/wp-content/uploads/2013/07/PhxDAMADay2012\_Measuring-Data-WarehouseROI.pdf [↑](#footnote-ref-16)
17. Henschen, D. (2012, November 28). Amazon’s Low Cost, Big Data Warehousing. Information Week. Retrieved from. http://www.informationweek.com/software/information-management/amazon-debuts-low-cost-big-data-warehous/240142712 [↑](#footnote-ref-17)
18. Knox, A. Reporting Alternatives to a Full Data Warehouse. Red Three. Retrieved from. http://www.reportsyouneed.com/reporting-alternatives-to-a-full-schale-data-warehouse/ [↑](#footnote-ref-18)
19. Inmon, B. (1992). *Building the Data Warehouse*. Wiley. [↑](#footnote-ref-19)
20. Pinto, J. (January 29, 2006). Project Management: Achieving Competitive Advantage. NJ: Pearson Prentice Hall [↑](#footnote-ref-20)
21. Ibid. [↑](#footnote-ref-21)
22. Ibid. [↑](#footnote-ref-22)
23. Pinto, J. (January 29, 2006). Project Management: Achieving Competitive Advantage. NJ: Pearson Prentice Hall [↑](#footnote-ref-23)
24. Ibid. [↑](#footnote-ref-24)
25. Bureau of Internal Revenue Website. (n.d.). *Bureau of Internal Revenue*. Retrieved August 18, 2013, from www.bir.gov.ph/taxinfo/tax\_income.htm#25147 [↑](#footnote-ref-25)
26. Central Bank Rates | Worldwide Interest Rates. (n.d.). *Worldwide Interest Rates*. Retrieved August 20, 2013, from http://www.cbrates.com/ [↑](#footnote-ref-26)