Change Management Transition for Successful Implementation of Higher Education Data Warehouse in Indonesia

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Abstract

Data warehouse of higher education offers enormous advantages in efficiency, productivity, cost reduction and information integration system. Even though some universities in Indonesia have implemented such data warehouse since 2013, some difficulties and even failures were encountered due to implementation complexity. On the other hand, ensuring data warehouse implementation has been identified as a critical success factor. This paper aims to provide a literature review for implementing a successful implementation of data warehouse which adopted Bridge’s model as a tool for making a transition on a new system or technology. The model is included in top ten leading transition for managing change in the world. The paper also comprehensively explains change management and readiness literature before a transition to a new information system. The paper summarizes selected relevant articles, both on the successful implementation of new IT technology and how to handle resistance to make a successful transition. The review provides comprehensive discussion about the previous research on readiness and implementation of higher education data warehouse which already conducted by the author.

Keywords: Data warehouse of higher education, literature review, bridge’s model

I. INTRODUCTION

Based on previous research in recommending of implementation of data warehouse of higher education in Indonesia with Change Management Approach[1], can be explored that universities in Indonesia not only government but also private universities need integration system which can collaborate academic data together. Data warehouse of higher education can integrate all academic reports from all universities in Indonesia which attain almost one thousand universities. Moreover it also measured with another research about readiness for implementing Data warehouse of higher education in Indonesia with Sodano’s perspective, in cases where Sodano’s instruments is one of the leading for readiness perspectives to measure the success for implementing a change management as a published in Fortune, can be concluded that the readiness for implementing Data warehouse of higher education in Indonesia will be success based on the previous research conducted [2].

Indonesia Data warehouse of higher education, it is called “Sistem Pangkalan Data Pendidikan Tinggi (PDPT) in Indonesia is a Data warehousing that integrate all academic system of universities not only private universities but also government universities in Indonesia[2]. The research conducted to give literature review for transitioning new technology which was already implemented. To comprehensive transformation of Data
warehouse of higher education, can be started from appraising readiness, recommendation for implementation and the last is transition to make successfully implementation will be accepted by all stockholders. Indonesia Data warehouse of higher education is an integration system to integrate all academic reports including university students report, lecturers history of teaching, research and public community services. This system is also hoped can identify which universities in Indonesia that do academic’s fraud. Figure 1 below shows the first Data Warehouse architecture of Higher Education in Indonesia.

Fig. 1 Indonesia’s standard of operating procedure of Data warehouse of higher education[3]

According to figure 1, Data warehouse of higher education standard operating procedure (SOP), can be concluded that some steps would be done from the Data warehouse system. 1). According to the business process of data warehouse, all universities access Data warehouse of higher education via directorate general of higher education server. Their universities academic data should be processed based on higher education’s rule, format or its data structure. 2). Both government and private universities fill in their academic data such as university students reporting and determine which university students who has graduated from university or not, for the students who graduated from university, they have to be changed for the student status in the Data warehouse of higher education, the status can be active or inactive.

3). Universities upload academic data report to directorate general of higher education server. In this case, good infrastructure will influence the data sent to directorate general of higher education server, because big data academics can be variety from one university to others. As a matter of fact Indonesia has private universities almost one thousands universities and around one hundred government universities, both private and government will increase each year depends on government’s policy. 4). This step validate all academic universities data which was sent to the Directorate of General Higher Education server, in this session academic data from the universities will be sent to temporary database (it seems like data mart in data warehouse) and give the data back to Directorate General of Higher Education server. This session also will send academic data from universities to data center, in the data center, data will be analyzed whether the data is valid or not.

5). Afterwards data from directorate general of higher education server is sent back to the universities, 6). If the universities update the data, Data warehouse of Academic operator, in this case must be responsible for managing their academic data for each universities. Based on previous research, academic’s fraud happened when a principle and data warehouse of higher education operator manipulate the university students data. The seventh step is the data which have been updated is re-uploaded to directorate general of higher education server, in the next step, data warehouse of higher education system will validate the data, and finally in the last step is uploading data to data center of directorate general of higher education server.
II. LITERATURE REVIEW

A. Resistance and change

Organizational alteration is influentially triggered by a main outer compulsion, as example the essential intercepting of funding, declining of an opportunity for market and service dramatic rising. It could be generalized that organizations perform some of structural, strategic shift, and technical alteration in the organization dealing with development of being a interchangeability level in particular life cycle, in this case, an alteration from reactive organization to be a more stable proactive environment [4]. Similar to Adelaide University when implementing change management to become best research university, Egan and Fjermestad have a notion that these days organizations are experiencing to change their system or technology to gain competitive advantage. As a matter of fact, Implementation of change management and resistance to change has become a recurring topic of discussion during several periods ago, it is normal when management of changes is considered to bring people into new environment, system and culture. Change manager must be able to know some of the causes why people resist changing, what should be done by the supporters of change that reference to a change management model that is used [5].

What could be defined as a change? “Change is a process simply happened. In any case, it may be a described simply. It happens whenever we substitute the former with the recent one. Change is about perspective alteration from the former shape into the new tomorrow [6]. Seems straightforward does it not? Palmer et al. describes type of change to six images of managing change [7], it means that every images to implement change management for new IT system will differ depends on a principle who manages it. Table 1 shows images of managing change depends on organization type and purpose.

<table>
<thead>
<tr>
<th>Images of Managing</th>
<th>Images of Change Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controlling</td>
<td>Intended</td>
</tr>
<tr>
<td>Shaping</td>
<td>Partially intended</td>
</tr>
<tr>
<td></td>
<td>Unintended</td>
</tr>
<tr>
<td>Director</td>
<td>Navigator</td>
</tr>
<tr>
<td>Coach</td>
<td>Interpreter</td>
</tr>
<tr>
<td>Caretaker</td>
<td>Nurtuer</td>
</tr>
</tbody>
</table>

Based on table 1, there are two keys from images of management that is management functioned as controlling and management functioned as shaping and three keys of an outcome change that is totally purposed, partially purposed and dis-purposed, and from the image combination refers to six of image difference in managing the organization or institution: leader, navigator, caretaker, coach, interpreter and nurturer.

This paper consists of literature review to have a success of transition state where new IT system that is data warehouse of higher education have been already implemented since 2013 in all universities in Indonesia. As a matter of fact today Data warehouse of higher education or in Indonesian “Pangkalan Data Pendidikan Tinggi - PDDikti” can be found at URL address www.forlap.dikti.go.id. According to table 1, this explanation refer to image of managing change as change leader, therefore the change that was managed by manager with certain way to get the change hoped. It is assumed that the change was strategic choice where managers completely depend on conducting their organization or institution. For example if Chief of director think to straighten the change by implementing new information and technology, then it considered that matter is going to run well and the better result can be achieved.

What is resistance to change?” Palmer et al. explored that one of the general factors that caused difficulty to achieve success implementation of change is ‘resistance to change [7]. Maurer stated that resistance can kill change implementation in the organization or institution. He also explored suggestion for director image to
identify perspective on resistance to change that the resistance is signed when there is no chief of director in the organization who initiatives the change. Manager of change must have special capability to make sure that they will cope with reluctance to the change [7].

Paper research from Keen’s in 1981 dealing with alteration of organizations related to the information systems obtained through theory of behaviour, management science, research of operations, journal of trading and several others. Keen believed that organizations are naturally pluralistic. Because of its pluralistic characteristic, due to attempting factors of manage change, the person have to rely on incremental, approaches focused on facilitation especially when focusing strategic change that requires coalition building and attention to political mechanism. In Keen’s work, he looked at an inertia resistance in social life, as it connected to the information system. Social inertia could be said as a way of “no matter how hard you try, nothing seems to happen” Keen identifies four main factors caused of this social inertia:

1. Information is considered as only a small component of organizational decision processes;
2. The process of Human Information is completely experimental and relies on simplification
3. Organizations are complex and change is incremental and evolutionary; large steps are avoided, even resisted;
4. Data are not only about an intellectual commodity but also as a political resource, which distribution through new information system affects to the interest of particular groups. [10].

In change and resistance paper [11] declared Management of Change (MOC) point of view; it has three reasons why people do resist the change:
1. They resist, because of inadequate skills to apply and improve benefits from the latest categories.
2. Resistance exists because workers or officers in the conventional companies and industries do not understand the ‘big picture’ and also how the new technology application changes the business method is done and processes executed.
3. The last reason, resistance, exists in the medium and higher management, appears from the truth that latest technologies and their interpreting into new models of business redefine the organizational structures and the power bases.

B. Transition Model and Bridge’s Approach

William Bridges states that there are various distinctive differences between the transition and change [12]. Change is the way that will make differences, while transition is the way of someone to move the others through the stages in order to make that change works. Bridges considers that transition owns three phases: an ending/losing/letting that goes to the current position, a disorienting of neutral zone and the new beginning phase. If people ignore the system owned by these phases, the change will be just some kinds of a status quo rearrangement then we will finally know why it didn’t work at all [4]. Figure 2 shows Bridge’s transition model.

Dealing with transition managing, Bridges throws some advice in assisting workers to make the transition escalation from one state to another state and the way to confront with resistances. Bridges explains the particular main points which any leader of change heed as we shall not underestimate the power of not dealing with the emotive side of change:

Point1 “how to get people to let go”

1. Identify who’s confirm; and discuss openly.
2. Accept the real condition and the necessary of subjective losses.
3. Avoid surprise or overreaction; take it by your own way.
4. Approve and count on the grieving sign.
5. Responsible for the losses by offering staffs the benefits of the future.
6. Give information to the people and resound it.
7. Affirm everything they need
8. Bold the closing part; and make sure that actions are carried on.
9. Warn the past respectfully.
10. Allow people to take a piece of the old way by their own thought.
11. Exhibit how the endings could ensure the continuity of what is they are taking on.
12. End it whatever it takes.

(Summarized Bridges [4]).

Bridges states that the most failure reason of organizational changes is that people do not have thought about the ending or even plan to manage their impact to other people. Sometimes, leaders and/or managers of this kind of change do not remember of the first task of change management, which is to comprehend the outcome desire, what it is going to be probably look like and how to reach to that point, the first task of transition management is to convince people to leave their own place [12].

William Bridges refers to the second sequential level of transition as the neutral zone as “it is a nowhere between two somewhere” [12] and it possibly is the hardest part of managing transition system. The neutral zone is a time when old clarities break down and everything is in flux. Nothing is given anymore, and anything could haven. The neutral zone presents creative opportunities or dangers, depending on the leader. Moreover, Bridges holds that any leader of manager involved in change should take stock of the dangers and plan through them.

Bridges describes the dangers of the Neutral zone as a time when:
1. The anxiety of people would escalate and their motivation would probably fall down.
2. The increasing of sick leave.
3. The weakness is getting old, which may have been patched over or compensated for, re-appear.
4. The overload feeling, they would frequently get mixed messages as system are in flux and therefore increasingly unreliable.
5. The polarization scheme of people: some people desire to rush forward and others urge to hold onto the old path.
6. The slow respond and moreover the organization goes vulnerable to competitive attack

(Summarized Bridges [12]).

Similar to the dangerous time, Bridges states the neutral zone as a potentially creative time. The main important things here are for the manager to:

1. Normalize the neutral zone by giving explanation that it is an uncomfortable time.
2. Ensure a metaphor that is positive linked to the time that is spent in the neutral zone.
3. Create some various temporary structures and systems for people during the uncomfortable time when they feel unsure and disoriented. As example the values of reviewing or a process of business that are used to level up the former way.
4. Strengthen up the connection of intra-group by reconstructing an identity sense and also frequent ensuring, and a brief communication
5. Use a transition monitoring group, the purposes and facilities are through the communication, Make all stakeholders clearly understand of the stage change and transition.
6. Use the neutral zone to do some particular various and creative things (serve more opportunities and training, support experimentation, prepare for the losses and setback for another opportunities considering a brainstorm answers of former problems, etc.)
7. Above all those various things, bearing point for the people through the neutral zone; spend time in staff one to another meetings, communicate to your group regularly, be perspective and be available.

(Summarized Bridges[12]).
The last phase in a transition system according to Bridges [12] is famously recognized as launching a new beginning. Bridges offers the following knowledge respectfully to launch the new beginning:

1. Explain well and communicate the vision or aim.
2. Provide an image of the result so that people can rely on it and they may imagine it. (Conveying story tool)
3. Create the plan for accompanying and publish it widespread.
4. Ensure that all staff should be involved on to the plan to implement the purpose.
5. The last thing, reinforce the new beginning consistently, by ensuring fast success, symbolizing the new identification then celebrating that successes.

III. RESEARCH METHOD

Organizations or institution pursue a Data warehouse for increasing business performance and value. Indonesia higher education also developed Data warehouse of higher education to integrate all academic services to all universities in Indonesia. The methodology presented is to attempt the success of Data warehouse of higher education’s transition in Indonesia, which assists chief of director in determining the universities’ state from implementation effect of Data warehouse of higher education. This helps to investigate which universities that have been already to get adaptability with this data warehouse. Figure 3 shows research developed model. The model is built based on Bridge’s for managing transition and collaborated with steps of writer’s research.

![Research Developed Model](image)

This research was conducted with Action research, in case where qualitative and quantitative methodology are merged, each methodology can be used together to conduct the research for the same object but have another research objective [8]. Qualitative research method is research method that is used to research at natural condition where researcher is a main instrument, fact finding technique is conducted triangulate, inductive data analysis and the result is emphasized to meaning than generalization [9].

Some steps for this research conducted are:

1) Literature review from research conducted which is related to change management. Change management has essential to implement successfully start from readiness up to entering new situation.
2) Action Research in the research conducted, contribute to gain data and information from some principles of Indonesia higher education and Data warehouse of higher education developer[1]
3) Project participant; participant projects are some employees from universities in Indonesia, lecturers, Data warehouse of higher education’s operator and university students.

The next level of the research is to investigate the state of universities transformation towards data warehouse of higher education level using recent developed model. Pilot study was led to five various universities consists of private and government universities. Data obtained from those five universities were taken to validate the latest model and its related questionnaire.
IV. RESULTS AND DISCUSSION

To create comprehensive research, in this section, result and discussion, this part contents explanation from the previous researches conducted. The first is about Recommendation to implement Data base system of higher education with Change Management Approach, the research conducted with fully action research. The results of observations, analyzed five unit in directorate of higher education “Kopertis IV West Java and Banten” such as Unit Implementation, Internal Policy, Individual, Policy and Readiness System. Interpretation of Assessment Implementation Unit is known that implementation team is the developer that implements information technology systems in the unit of Bandung Institute of Technology. It can be concluded that the employees in Kopertis IV Jawa Barat and Banten support the implementation team to implement the Data Base System of higher education as much as 51.3% indicated that the implementation of change management related to new technology changes more support from the employees in Kopertis IV West Java and Banten.

Interpretation of Internal Assessment Policy, based on the facts and observations conducted, it is known that policies related to change management for information technology implementation is fully controlled by the Directorate General of Higher Education (DIKTI). It can be concluded that the employees in Kopertis IV Jawa Barat and Banten support in implementing internal policies of Kopertis IV in implementing PDPT system as much as 49.1% indicated that employees believed that the policy of Directorate General of Higher Education / Kopertis implement new information technology changes is to provide a better information system for the stakeholders, especially private universities.

Interpretation of Individual Assessment, based on the facts and observations conducted, it is known that there are human resources in Kopertis IV Jawa Barat and Banten who have capability in information technology systems, some of these employees are IT staffs. A total of 60.0% of respondents indicated that the employees especially in the major of information technology has the ability to operate the Data Base System of Higher Education.

Interpretation of Leadership Assessment, based on interviews and observations conducted, it is known that the type of leadership in Kopertis IV Jawa Barat and Banten is Navigator type. The pattern based on Fayol’s management (planning, directing, coordinating and controlling). Some changes related to internal of Kopertis IV Jawa Barat and Banten experienced a fairly significant change. A total of 58.20% of the respondents’ answers indicate that the employees in Kopertis IV believe with the leadership in implementing information technology change.

Interpretation of Implementation Readiness, based on observations and interviews conducted, it is known that Kopertis IV Jawa Barat and Banten have already the infrastructure to implement new information technology (Data base System of Higher Education), human resources to manage the new system was already prepared. A total of 49.83% of respondents indicated that there is good enough of readiness to implement the changes in information technology.

To manage valuable data statistical modelling is needed to create output using statistical tools such as SPSS and others. Sudjana says Statistics is knowledge that associated to collect. Process and analysis data and find the inferences based on analysing of data performed.

This testing is intended to test some assumptions of the distribution of population from data sample derived from populations that are normally distributed or not. Thus, this test is also intended to determine the direction of further testing whether parametric or nonparametric. Using the tools of SPSS software for windows 16 for testing normality of data obtained such data in table bellow.


TABEL 2

TESTING SAMPLE RESPONDENTS ONE-SAMPLE KOLMOGOROV-SMIRNOV TEST

<table>
<thead>
<tr>
<th></th>
<th>Implementation Unit</th>
<th>Internal Policy</th>
<th>Individuals</th>
<th>Leader</th>
<th>Readiness System</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>53</td>
<td>53</td>
<td>53</td>
<td>53</td>
<td>53</td>
</tr>
<tr>
<td>Normal Parametersa</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>69.5444</td>
<td>71.4425</td>
<td>71.1440</td>
<td>69.820</td>
<td>70.5142</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>10.08867</td>
<td>10.59911</td>
<td>1.06997</td>
<td>08</td>
<td>11.6024</td>
</tr>
<tr>
<td>Most Extreme Differences</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absolute</td>
<td>.203</td>
<td>.116</td>
<td>.224</td>
<td>.146</td>
<td>.109</td>
</tr>
<tr>
<td>Positive</td>
<td>.172</td>
<td>.087</td>
<td>.158</td>
<td>.090</td>
<td>.094</td>
</tr>
<tr>
<td>Negative</td>
<td>-.203</td>
<td>-.116</td>
<td>-.224</td>
<td>-.146</td>
<td>-.109</td>
</tr>
<tr>
<td>Kolmogorov-Smirnov Z</td>
<td>1.475</td>
<td>.846</td>
<td>1.628</td>
<td>1.066</td>
<td>.794</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.026</td>
<td>.472</td>
<td>.010</td>
<td>.205</td>
<td>.554</td>
</tr>
</tbody>
</table>

a. Test distribution is Normal. 0,1

it can be compared between the Asymp. Sig on the table from each of the assessment of the significance level value of this research:

a. For Implementation Unit, Asymp. Sig value is 0.026; values of Asymp. Sig obtained is smaller than the significance level in this research, it can be concluded that the test criteria (H0) is rejected.
b. For Internal Policies, Asymp. Sig value is 0.472, values of Asymp. Sig obtained is greater than the significance level in this research, it can be concluded that the test criteria (H0) is accepted.
c. For Individual assessment, Asymp. Sig value is 0.010, values of Asymp. Sig obtained is smaller than the significance level in this research, it can be concluded that the test criteria (H0) is rejected.
d. For Leadership, Asymp. Sig value is 0.205, values of Asymp. Sig obtained is greater than the significance level in this research, it can be concluded that the test criteria (H0) is accepted.
e. For System Readiness, Asymp. Sig value is 0.554, values of Asymp. Sig obtained is greater than the significance level in this research, it can be concluded that the test criteria (H0) is accepted.

The results were subjected to the research is one of the Government agencies in the area as an extension of the central agencies (Kopertis IV Jawa Barat and Banten).

In the second research conducted, the research focused for “Readiness implementation of Data higher education with Sodano’s perspective”, here is the conclusion of the research based on the table bellow
TABLE 3
OUTPUT OF HIGHER EDUCATION DATA WAREHOUSE READINESS

<table>
<thead>
<tr>
<th>No</th>
<th>Category</th>
<th>Number’s scoring</th>
<th>Qualitative’s scoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sponsorship</td>
<td>3</td>
<td>high</td>
</tr>
<tr>
<td>2</td>
<td>Leadership</td>
<td>2</td>
<td>Middle</td>
</tr>
<tr>
<td>3</td>
<td>Motivation</td>
<td>2</td>
<td>Middle</td>
</tr>
<tr>
<td>4</td>
<td>Direction</td>
<td>3</td>
<td>High</td>
</tr>
<tr>
<td>5</td>
<td>Measurement</td>
<td>2</td>
<td>Middle</td>
</tr>
<tr>
<td>6</td>
<td>Organizational context</td>
<td>3</td>
<td>High</td>
</tr>
<tr>
<td>7</td>
<td>Processes/functions.</td>
<td>3</td>
<td>High</td>
</tr>
<tr>
<td>8</td>
<td>Competitor benchmarking</td>
<td>2</td>
<td>Middle</td>
</tr>
<tr>
<td>9</td>
<td>Customer focus.</td>
<td>3</td>
<td>High</td>
</tr>
<tr>
<td>10</td>
<td>Rewards</td>
<td>2</td>
<td>Middle</td>
</tr>
<tr>
<td>11</td>
<td>Organizational structure</td>
<td>2</td>
<td>Middle</td>
</tr>
<tr>
<td>12</td>
<td>Communications</td>
<td>3</td>
<td>High</td>
</tr>
<tr>
<td>13</td>
<td>Organizational hierarchy</td>
<td>2</td>
<td>Middle</td>
</tr>
<tr>
<td>14</td>
<td>Prior experience with change</td>
<td>2</td>
<td>Middle</td>
</tr>
<tr>
<td>15</td>
<td>Morale</td>
<td>2</td>
<td>Middle</td>
</tr>
<tr>
<td>16</td>
<td>Innovation</td>
<td>2</td>
<td>Middle</td>
</tr>
<tr>
<td>17</td>
<td>Decision making</td>
<td>3</td>
<td>High</td>
</tr>
</tbody>
</table>

The conclusion for the second research displayed that all categories in ‘readiness’ to implement the Data warehouse of higher education is middle and a little of high. As a matter fact, it is normal because before 2010 so many universities in Indonesia especially private universities did not have good infrastructure for implementing Data warehouse of higher education.

Finally of the research, in final research consists of Literature Review from some research conducted to get successfully implementation for Data warehouse of higher education in Indonesia. Some literatures consist of Change management concepts, resistance to change and how to handle them and how to enter “new beginning”. Dealing with this current research, collecting and analysing the data were carried in couple of stages. First, an opinion from expert was generated with official director of Indonesian higher education and well-experienced practitioner’s in the Data warehouse of higher education field, in order to validate the factors used in the model. This will bring in the national and institutional culture effects into the model. Second, an early survey obtained for transitioning of Data warehouse in higher education and its associated questionnaire, and obtained feedback to the model. In both stages, structured field interviews were used as the means of gathering data. Figure 4 shows interval data from the questionnaire conducted.
Quantitative method is conducted to make the research more explicit, this research was taken for 30 respondents from the domain research determined. In another side qualitative research was also conducted by interviewing some principles or chief director of Indonesia higher education and CIO of Data warehouse of higher education to make data more valuable. Moreover, Sugiono clarified that with qualitative method, crecence to the data is trusted, data is gathered with deep interview, this method is used triangulate way to explore the data [4].

Data validating is needed to make data research that gathered is belief whether the data is valid or not. The previous data which was processed by Excel tool software had already convert to interval type of the data, therefore the data can be processed more with statistical development tool such as SPSS, in this research the data is finally processed with SPSS. The tool, can determine some prediction such as reliability and correlation. Figure 5 shows reliability from questionnaire data processed.

![Table 4: Data Warehouse of Higher Education](image)

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>Cronbach's Alpha Based on Standardized Items</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.784</td>
<td>0.721</td>
<td>5</td>
</tr>
</tbody>
</table>

Based on figure 5, it can be concluded that the research conducted had good reliability, see Cronbach’s Alpha is more than 0.70. This research is separated to 5 indicators that is Infrastructure, Policy, DW Operator, DW Product and its transformation itself as dependent variable.

Figure 6 bellow is the output of thirty respondents in chart to show whether all the components of respondents are the same in explained their opinion about transition of Data Warehouse of Higher Education in Indonesia.

![Fig. 6 Output of Transition’s point](image)

V. Conclusion

This paper investigates what should be done to implement new technology for data warehouse of higher education in Indonesia. Several activities should be conducted, namely change management, readiness, and transition. Based on data which are explained in Results and Discussions, change management for new technology implementation is accepted by all stakeholders. This is showed by testing result statistics in table 3. The same thing also applies for second testing which is conducted to observe readiness in implementing new technology. This is indicated by results in Table 3 which ranged from medium to high. Lastly, based on figure 6, it can be concluded that transition in implementing data warehouse of higher education system may be implemented successfully. According to Sodano’s perspective, if the score is in 41 - 45 range, it can be predicted that the change implementation will succeed. In the previous research conducted, all readiness score level is high based on table 3. It can be concluded that all lecturers, data warehouses operators and data warehouse operators...
employees are on the same side to support the transition of the system indicated by all the scores which are more than five hundred. In this case, they agree that the transition of Data warehouse of higher education system will be a success.

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