



Continuous Improvement Post Organizational Change At Official School of Meteorological, Climatological and Geophysical Agency

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ABSTRACT

The purpose of this research is to find things that must be done to improve the organization after changes in official schools. The main question that guides this research is sustainability efforts that need to be implemented and have an effect on the organization. The research used qualitative methods and a case study approach. The sampling technique was purposive and snowball sampling with 40 informants. Based on the research that has been done, found improvements that must be made continuously after organizational changes are divided into two factors. Internal factors such as lecturer competency, lecturer availability, and additional composition in the teaching-learning process from theory to practicum. While the factors external regularly curriculum and syllabus review, update technology and digitization. The update in this research, each lecturer is required not only to have a role in the transfer of knowledge but also to instill ethical and moral values. The cadets were prepared as agents of change. As an official school, each graduate not only understands the knowledge gained during education but also must be ready to work at the institution. Cadet must be well prepared to work at the Meteorological, Climatological and Geophysical Agency. For this reason, the things that need to be done in maintaining sustainability after the change in the official school organization are updating technology. There needs to be "digital culture" in various activities, comparative studies, and participation in national and international seminars so that continuous learning and continuous improvement are always rolling.

Keywords: Sustainability efforts, organizational change, official schools.

Received: 25 July 2019 ;
Accepted: 31 July 2019 ;
Publish; December 2019.

How to Cite:

Soegiarto, I., Tunas, B., & Yasin, M. (2019). Continuous Improvement Post Organizational Change At Official School of Meteorological, Climatological and Geophysical Agency. *International Journal of Human Capital Management*, 3 (2), 1-9. <https://doi.org/10.21009/IJHCM.03.02.01>

INTRODUCTION

The meteorological, Climatology and Geophysical Agency (BMKG) has the status of a Non-departmental government institution (LPND). Led by a head of agency who has the task of carrying out government duties in the field of meteorology, climatology, air quality, and geophysical in accordance with the provisions of the legislation listed on LAW No. 31 year 2009 about Meteorological, climatology, and geophysical. In carrying out its duties and functions, BMKG coordinates with the minister responsible in the field of transportation. In an effort to develop human resources in the field of meteorology, climatology, and geophysical, the government requires BMKG to administer the education and training contained in article 85 ACT number 31-year 2009. The school of Meteorological, Climatological and Geophysical (STMKG) was formerly the Academy of Meteorological and Geophysical (AMG), the school of BMKG which has the task of organizing academic education and/or vocational education in the field of Meteorological, climatology, geophysical, and meteorological instrumentation, climatological, geophysical. To be aware in the disruption era, educators must have competence on the cadets. STMKG approved its fares with a Diploma IV (equivalent bachelor) level, and the teachers must graduate master degree and/or doctoral in accordance with the competencies it teaches. It will make the cadets will get more knowledge and science. It is hoped that the cadets will more update the science and technology that is in BMKG. Behind its sophisticated equipment, it is necessary that human resources are able to operate it because in every unit of work is conditioned like mini BMKG, which there is meteorological, climatological, geophysical, and instrumentation. In addition, the school has an obligation to organize education, research, and devotion to the community called Tridharma Perguruan Tinggi under paragraph 9 article 1 ACT No. 12 year 2012. In the final education phase, it is hoped that the real work lecture (KKN) and field work practices (PKL) programs are expected to be developed its programs in order to implement Tridharma Perguruan Tinggi and change from the world of learning into the workforce to apply their knowledge. In the world of work many things are not found in the world of learning but should be faced, for example the technique of communicating against the media.

As stated by Rahmah et al. (2018), continual improvement can be realized by performing the process of continuous improvement to be followed the development of the market demand is always changing from time to time. The aim of this research is to determine several improvement efforts that must be carried out continuously after organizational changes which are divided into two factors, namely internal and external factors so that through this research it is expected to be able to realize STMKG into official schools that can realize BMKG's dream of becoming a global player.

LITERATURE REVIEW

The rapid era and massive changes has led to the organization to continuously be engaged. That change happened almost in all fields. It cannot be that the organization must be able to be adopted and enter the space of change. Therefore, continuous learning and continuous improvement as the product of a learning organization becomes absolutely necessary for the creation of ideal organizational form, in tune with the times. Improvement comes from the word improve, which means increasing, where basically increasing is changing for the better. Continuous improvement is continuous increasing and improvement (continuous) which leads to better progress or superior (Yasin, 2014).

After experiencing changes in organizational form it is hoped that graduates will become more skilled according to their capabilities and adaptable to the work environment. The concept of capability is a human quality versatile, according to Sir Toby Weaver described as an act of 'purposive and sensible' (Weaver, 1994). Ability is the integration of knowledge, skills, personal qualities and understanding that is used appropriately and effectively. The intended ability picture is not only in the context of specialists who are familiar and focused but also in responding to new and changing circumstances (Stephenson, 1998).

The role of IOT in continuous improvement in the world of education has been carried out by Constantin -Eugen Cornel., Ph.D (2015) in a study entitled "The Role of the Internet for Things for a Continuous Improvement in Education" Hyperion Economics Journal. The study was conducted by testing a software that can be used in education with a small fee and get high performance to achieve a quality improvement and more competitive. In order to be successful, every company needs to carry out a systematic process and carry out continuous improvements. The prevailing concept here is the PDCAA cycle (Plan-Do-Check-Act-Analyze) comprising the steps of planning and take corrective action the results obtained (Nasution, 2001). The use of the PDSA cycle (Plan-Do-Study-Act) starts with setting the goal of improvement. The first stage of the cycle is to draw up a plan. Study/test is carried out at the do stage. The third stage of the cycle is study. The Act stage is the last stage of the cycle (Tjiptono and Diana, 2003).

In the Law Number 14 year 2005 Article 45 concerning Teachers and Lecturers , where as a lecturer must have competent academic qualifications, educator certificates, physically and mentally healthy and fulfill other qualifications required by the higher education unit on duty and have the ability to realize education national.

METHODOLOGY

The research used a qualitative approach with case study methods and used purposive and snowball sampling technique sampling techniques against 40 informants. The population of research is the civil apparatus of the State (ASN) in the Meteorological, Climatological and Geophysical agency. Data is obtained based on the results of observations, interviews, questionnaires, and then analyzed with triangulation.

The often-used sampling techniques are purposive and snowball sampling. Purposive sampling is a data source sampling technique with consideration. Such considerations assume that the person is considered the most important of our subject matter. Snowball sampling is a data source sampling technique that at first a little bit, long to large. This is done because of the number of data sources that little has not been able to provide complete data then find others that can be used as a data source.

In line with the research conducted by Lubis (2018) in the Journal of Employee Working Motivation Development Post Organizational Changes (Case Study at Female Prison Class IIA East Jakarta. Method and research flow used for a case study according to Yin (2002), including steps as follows: (1) research questions; (2) research theorems or theoretical frameworks (proportion of studies); (3) identification of unit analysis; (4) logical relations of data with theorems or theoretical (interrelationships of logical relationships); (5) criteria to interpret the findings.

The following is a picture of the framework of the research methodology:

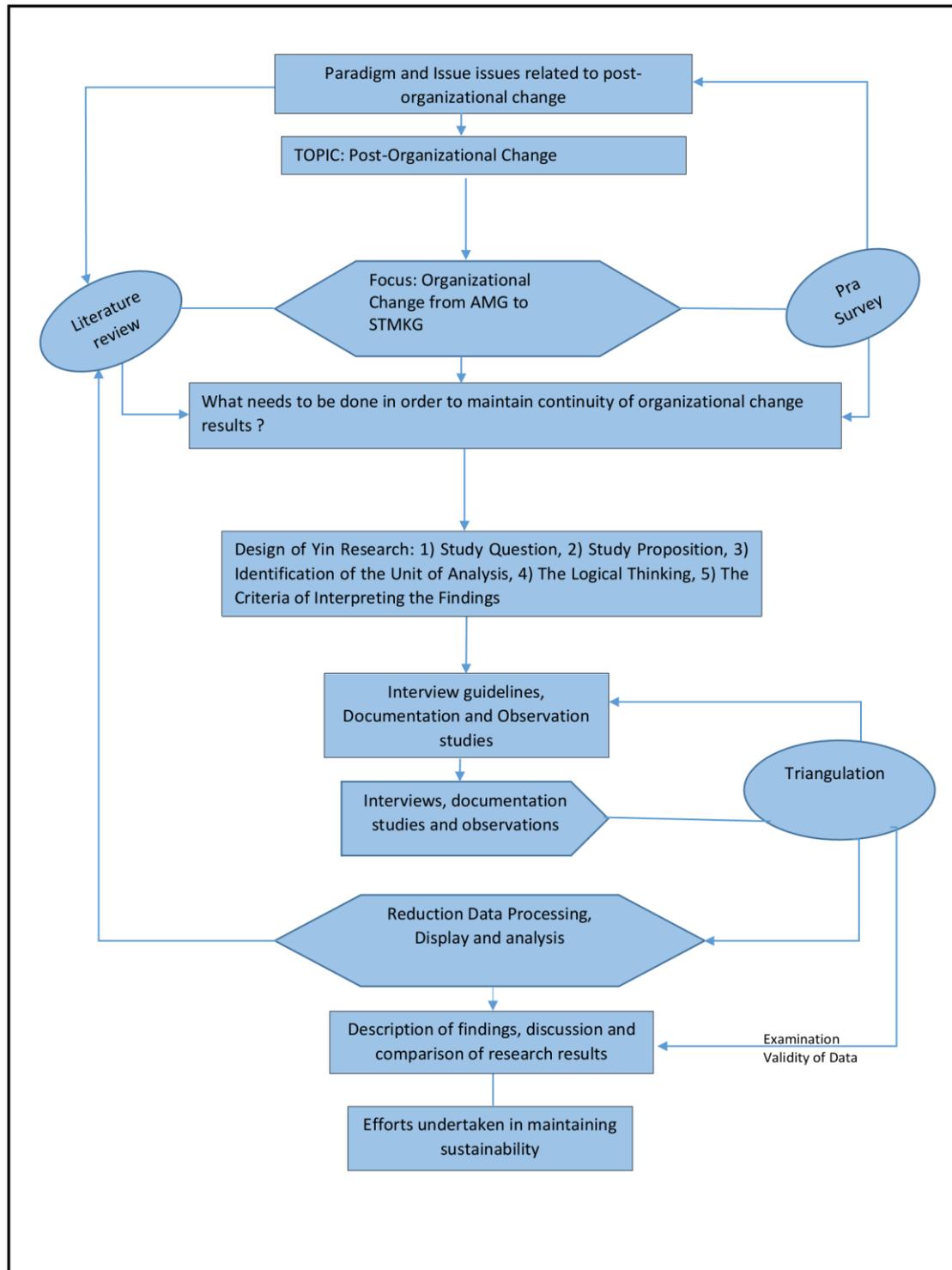


Figure 1. research flow

RESULT AND DISCUSSION

Based on the results of observation, interviews, and literature studies that have been conducted, there are 2 factors that need to be carried out continuously from changes in the organization post.

Internal factors

While performing observations and research found there are still lecturers who do not have the standard competence in accordance with government law regulations. The lecturers should be competent in accordance with the standards as stipulated in the legislation. In article 45 ACT 14-year 2005 about teachers and lecturers, a lecturer must have a competency academic qualification, educator certificate, healthy physical, spiritual, and other

qualifications required for higher education Unit of duty and has the ability to realize national education. As stated by Ridyantoro, et all in his research titled Influence of Lecturers Competence to student's academic achievement of Faculty Economics and business Telkom University. It is in line with article 2 PP number 37-year 2009 about the lecturer, where the maximum limit to qualify as the article 45 is described in article 39 that is within 10 years. Thus after the year 2015 all lecturers must have certification.

Table 1. Lecturer composition Certification before and after changes

Institution	Study program			
	Meteorology	Climatology	Geophysics	Instrumentation
AMG	6	2	4	4
STMKG	8	3	5	6

Source: Sub-Division of Academic Administration STMKG, 2019

According to the criteria, the student-lecturer Ratio is still appropriate to the competency of the subjects taught (R_{MD}) ideally $27 \leq R_{MD} \leq 33$. It means 1 lecturer to teach 27-33 students. R_{MD} minimum according to the criteria of BAN-PT is 1 lecturer for 69 students are described in Standart 4. Human Resources (Diploma Assessment Matrix Accreditation Program version 18 May 2010). However, if the ratio of lecturers with students is too large also not good. It can indicate a college shortage of students.

Table 2. Lecturer composition before and after change

Status	AMG	STMKG
Permanent lecturer	28	44
Non-permanent Lecturer	103	71

- Don't have NIDN
- Few are certified
- Most lecturers still have NIDN; and for non-permanent lecturers there are those who have NIDN and NUP
- Already certified

Source: Sub-Division of Academic Administration STMKG, 2019

Table 3. Composition of Cadet each level and Major Academic Period 2018-2019 (person)

CADET / MAJOR	METEOROLOGY	CLIMATOLOGY	GEOPHYSICS	INSTRUMENTATION	TOTAL
LEVEL I	113	26	23	88	250
LEVEL II	70	37	31	125	263
LEVEL III	127	31	29	61	248
LEVEL IV	218	40	61	143	494
TOTAL	528	134	144	417	1.255

Source: Sub Division of Academic Administration STMKG, 2019

The curriculum that is the basis of teaching in a college needs renewal and improvement by adding new programs with the aim of being able to produce higher quality college graduates (Asmawi, 2010). Syllabus and curriculum are routinely examined by observing the curiosity in the outside world, the need for BMKG, the user's need for information (which users want). Teaching material syllabus can be updating every year. But to change the curriculum can only be done 5 years. The composition of the curriculum in STMKG is now still using 45% theory and 55% practicum. Whereas as a vocational college we apply 30% theory and 70% practicum. The practicum is well arranged. The cadets are taught beginning the preparation of surveys, data retrieval process, and processing to be able

to interpret what has been surveyed. The average of the expertise of the cadets is increased compared to the previous graduates, because after the change of the organization of cadets is required to interpret the processing results from the survey data. Before the organizational change, the cadets only stopped until processing the data according to the curriculum used. The ability of the Taruna in interpreting the processing result has a superior value because in this case the Taruna is required to operate technology and applications to process and interpret the data. This kind of demand is necessary because after graduating from STMKG then work in BMKG, Cadet will face the working world with stricter competition, one of which rivals from other college graduates.

Based on observations and interviews on the field there are still material materials that are not in accordance with technology in the workplace. Not in the sense that the material is no longer used, the basis of what is now still refers to the foregoing. However, the implementations presented in the teaching materials still use the previous example rather than the present condition. Material materials should be adapted to the technology and its era. Wawan Setiawan, 2017 wrote in "The Digital Era and the Challenge" the development of technology towards digital that all the faster, technology becomes a tool for most human needs, not to be separated from the education world as it is cultural shifts in the delivery of information. Based on the criteria of BAN-PT, as a body that accrediting majors or colleges. At Standart 5 on curriculum, learning, and academic atmosphere, syllabus of the curriculum is good according to the standards of competence oriented to the future or at least oriented to the present (the evaluation matrix of the PROGRAM accreditation instrument Diploma version 18 May 2010).

As academics should uphold the Tridharma Perguruan Tinggi, namely teaching, research, and community service related to their sciences. The community service Program has been done well in advance. But to archive the activities are not well organized. Many activities have been implemented but there is no report file of the activity. Almost every time there is a disaster LP2KM STMKG team conducting a post-disaster survey conducted with the direction of the head of Agency to assist the field work of the BMKG team. For research activities that are still not well underway. This is because the lecturers only focus on teaching due to time constraints and budgets. According to the rules of the lecturer composition as scientists have the task of developing a branch of science and/or technology through reasoning and scientific research and spreading it. The research fund is also one of the standards in accreditation assessment of standard 6. Financing, facilities and infrastructure, and information systems (Diploma Assessment Matrix Accreditation Program version 18 May 2010).

External Factor

In the last few years, STMKG participate to short course at the International Institute Seismological Earthquake and Engineering (IISEE) Japan. The cooperation is intended to introduce the development of science about monitoring and mitigation of earthquakes. In addition, IISEE also offers the opportunity to learn S2 for STMKG in accordance with the conditions specified. Cooperation with various domestic education institutions is also conducted by STMKG. STMKG cooperation with FMIPA UI for S2 program. Open thinking to build a network of fellow colleges is still not done. This is due to the field of knowledge studied in STMKG more scientific and special. As done by the Faculty of Medicine Universitas Indonesia (FKUI) as the main founder of the collaboration of trans-disciplinary research. It is hoped that the form of cooperation between researchers from various sciences, without limits, and comprehensive and holistic will be able to solve problems in a short time and provide benefits to the community. In his speech the dean of FKUI at FKUI Medical Research and Education Exhibition 2015 provides examples of cooperation between disciplines, namely the development of tele-ultrasonography a tool to detect a risky pregnancy. The cooperation that needs to be done is in research project. Still the lack of research conducted by lecturers should be resolved by following joint research. So, the costs incurred for the research benefit can be resolved. There are not a few international organizations offering joint research, there are some, including the United States National agency that focuses on ocean and atmospheric conditions, the National Oceanic and

Atmospheric Administration (NOAA), geological Survey United States Geological Survey (USGS), and British Geological Survey (BGS). In addition, lecturers or cadet can also conduct joint research with the University/Institute in the country. Lecturers and/cadets prepare renewable ideas so that research plans are made acceptable and financially supported.

The development of technology is very rapidly, in the future digitalization and automation. The observation work will still exist, but the observer is not necessarily the person who has to come the space. Data can be recorded and sent to the database with technological advances. In line with the research conducted by Zul Fahlefi under the title of Information Technology for the Implementation of Public Services, it was discovered that public services based on technology can facilitate and accelerate the process of making permits for public. The cadets of the instrumentation Prodi have carried out many modules and tools that have function of working in meteorological, climatology, and geophysical operations. The results of the Cadet Prodi instrumentation are still not fully utilized. These tools can be utilized for data retrieval validated with measurement results using BMKG operational tools or other institutions. Cadet works can also be made as a tool rental service for modules at the outside university. So that the work of the instrumentation is not only used as a condition of passing and filler warehouse in the end.

Regulations governing all STMKG campus activities have been made in accordance with the regulations of KBMKG Number 10-year 2015 about the Statute of the High School meteorological climatology and geophysical. The regulation refers to the Presidential regulation of the Republic of Indonesia No. 35 year 2014 on the changes from Meteorological, Climatological and Geophysical Academy into The school of Meteorological, Climatological and Geophysical.

CONCLUSION

Based on the results of observations, interviews, and literature studies that have been carried out, it can be concluded that there are two factors that need to be continuously improved from changes in organizational.

Internal factors

In order to improve lecturer's competence, given the opportunity to actively participate in seminars, research, and community service annually and put in the DIPA budget. To overcome the lack of lecturers, STMKG can open an assessment for the fresh graduate of STMKG that has completed the post graduate study. In addition, STMKG also opens opportunities from outside graduates to attend the assessment of the appropriate lecturers. In consideration of senior lecturers are approaching their retirement period. STMKG curriculum must be immediately renovated because it has not been in accordance with the needs of the parent institution, BMKG. In theory the cadet is very capable, but when faced with the working world still takes time to study for operational activities. During education there are still courses of theory despite the number of practicums more. The comparison is still 45% theory and 55% practicum.

The teaching materials used need to be done in accordance with the latest facts and operational activities. This update should not be done thoroughly. There are also concepts in analog equipment that are important to understand the cadets. Further improved research activities conducted by lecturers. Lecturers can also involve the proposed Cadet in the research plan. This will improve the ability of the cadets and will help the work of lecturers who must remain responsible with the learning activities.

The impact of such deficiencies is accreditation to Prodi meteorology and instrumentation still get C of BAN-PT. Should be accredited at least B because of graduates from outside the school that can take the CPNS test are those who Graduated from Prodi with a minimum B accreditation.

External factors

Lecturers and/or cadets are expected to submit research plans to various national and international organizations. With the aim to apply the science that it has. Research cooperation with other institutions in the field with STMKG is indispensable. In addition to adding relationships, also to save on research costs. Submission of information implementing digital culture-based technology, such as broadcast disaster messages through gadgets or social media. Continuous learning is done by evaluating the implementation of digital culture in response to the dissemination of information in the community. Continuous improvement in revealing the changes that have occurred, namely by service oriented, play an active role in education, and find the soul socio entrepreneur in all civil apparatus of the state in the BMKG environment.

In realizing BMKG Global Player, it is necessary to develop through STMKG. As a candidate for civil apparatus who will work at BMKG, cadets must have competence in accordance with national and international standards in the fields of meteorology, climatology and geophysics. In addition, cadets have integrity and support the implementation of meteorology, climatology and geophysics in meeting international agreements (compliance). Regulations regarding STMKG wheel movement have been made by the Head of the Agency and need to be practiced to achieve the expected goals.

Table. 4 Matrix before and after change

Step	AMG	STMKG	Information
Selection process	High school graduates based on manual Not transparent in the cadets selection process Vocational graduates cannot participate in the selection to become cadets	CAT-based recruitment More transparent because the test results are immediately known Vocational graduates can take part in selection on certain programs	With better recruitment patterns, good graduates will also be produced
Lecturer	The number of certified lecturers is still small Lecturers have started retirement	Increasing the number of certified lecturers The recruitment of young lecturers has a background in master or doctoral and linear science	There are still a limited number of lecturers in meteorology and instrumentation study programs
Curriculum	Education refers to the basic concept	The basic concept is more emphasized by work practices	Practice curriculum is still needed
Facilities and infrastructure	Minimal laboratory equipment	There are additional tools and laboratories	In addition to the addition of tools, attention is also needed to care for old tools
Results of graduates	Diploma III as apparatus only group II /c National seminar	Diploma IV as apparatus in class III International seminars and joint research	Prestige is more increasing and can be equated with scholars
Budget	-	-	Increased

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