Establishing Organizational Culture to Prepare Faculty of Engineering of Diponegoro University to Face the Upcoming Higher Education Policy 4.0

by Naniek Utami Handayani

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ABSTRACT

The Faculty of Engineering Diponegoro University is attempting to prepare for the 4.0 higher education policy which characterized by disruption technology and innovation through the development of organizational cultural aspects. The proper development of organizational culture is expected to support the movement agility and innovation power of the Faculty of Engineering in facing the 4.0 higher education era. This research aims to map the organizational culture in the Faculty of Engineering Diponegoro University and assess the readiness of Adhocracy cultural implementation in accordance with the character of higher Education 4.0. Organizational culture mapping used OCAI instrument (Organizational Culture Assessment Instrument), while readiness assessment of Adhocracy culture implementation used gap analysis method. Based on the results of the mapping, the current organizational culture's scores hierarchy (27.79). Meanwhile, the expected organizational culture scored clan culture (27.39). The organizational culture of higher Education 4.0 is dynamic, entrepreneurial and creative. The organizational culture is a character of adhocracy culture. To prepare Adhocracy cultural implementation in engineering faculty gap analysis was conducted by comparing between the existing culture (hierarchy) and the expected culture (Adhocracy). Result of gap analysis indicated value 70.5%, which meant that faculty of engineering still needed organizational culture adjustments to welcome the higher education policy 4.0. The Faculty of Engineering needs to conduct activities that support the development of Adhocracy culture such as character building, new literacy, Infrastructure 4.0, and others.

CCS CONCEPTS

- Social and professional topics ~ Professional topics

1 Introduction

Higher Education Institution (HEI) have an important role in the transition of society to adapt to the 4.0 industrial revolution. The existing HEI system was designed in order to meet the needs of previous industrial revolutions. These systems are irrelevant to apply in the Industry 4.0 (Gleason, 2018; Salmon, 2019). Industry 4.0 is the culmination of information technology breakthrough which has impacts of disruption in various fields, particularly in the economic field which is the most crucial sector for a country. The era of the 4.0 Industrial Revolution is known for its digital era. Disruption technology and innovation that marks the era of Revolution Industry 4.0 has become a trending *topic* among educators. Ministry of Technology and Higher Education of the Republic of Indonesia eventually created policy leap to Higher Education 4.0 (Nasir, 2018).

One fundamental aspect to be prepared in welcoming the higher Education Policy 4.0 is the cultural aspects of its organization. A strong organizational culture helps human resources in the organization understand the overall organizational management. The organizational culture in Higher Education 4.0 is an organizational culture that characterizes the dynamic aspect, innovative, and provides the freedom and uniqueness of each individual. The right organizational culture will support the

Higher Education Institution in achieving the 4.0 higher education objectives. Organizational culture changes cannot be created easily. These organizational culture changes should involve all organizational elements. In this case for the colleges, the elements involved include leaders, employees and students.

To understand the organizational culture is by mapping it into two sections, which are the existing organizational culture and the expected organizational culture. Organizational culture mapping requires a reliable framework, proven validity, empirically proven, and helps integrate the various cultural dimensions posed by experts. Cameron et al. (2006) had developed an organizational cultural assessment instrument called OCAI (*Organizational Culture Assessment instrument*) which subsequently map the organizational culture framework depicting the core cultural dimensions of the CVF (*Competing Values Framework*). According to Cameron and Quinn (2011), there is a model of organizational culture measurement and assessment based on the CVF (*Competing Values Framework*). This Model divides the organizational culture into four culture types: *Clan, Adhocracy, Hierarchy,* and Market (Aristides, 2008). This Framework is useful to help interpret the phenomenon of various kinds of organizations.

Diponegoro University becomes one of the universities in the country which is certainly preparing to establish policies of higher education 4.0. Faculty of Engineering is a significant faculty at Diponegoro University. Organizational culture changes should to involve all elements, both leaders, staff, and students. Organizational cultural mapping is important to understand how each organizational element perceive the existing organizational culture, the expected culture, and organizational culture that reflects higher education 4.0. OCAI instruments are used to determine the percentage of each type of organizational culture in the Faculty of Engineering, both existing and expected. The gap *analysis* is subsequently used to determine the readiness of the faculty of engineering in applying the appropriate organizational culture related higher education 4.0. The existing organizational culture based on all elements in the faculty of engineering is analyzed by comparing it with the organizational culture of higher education 4.0 to measure the readiness of the Faculty of Engineering to face higher education 4.0.

Many prior research on organizational culture have been conducted (Omerzel et al., 2011; Lapina, Kairisa, and Aramina, 2015; Liu, Shuibo, and Meiyung, 2006), as well as on higher education 4.0 (Lawrence, Ching, Abdullah, 2019; Xing, 2019). However, there has not been much research on how the organizational culture supports the readiness of higher education to face the 4.0 industry Revolution. The study aims to analyze organizational culture in the Faculty of Engineering to support its readiness to face the era of Higher Education 4.0.

2 Literature Review

2.1 Higher Education 4.0

Higher education Policy 4.0 is not merely an instrumental input change for Education Practice such as change from face *to face learning* to be blended *learning* or online *learning,* and build Big *Data,* because higher Education 4.0 is not merely a digitization of education. Instrumental changes will inevitably occur because the digital revolution has been breaking into all lines of life. Moreover, the desired change is the essential innovation of curricular activity, which is touching the learning process norm and student learning experience. To achieve this, it is necessary to have a common perception and willingness to implement the organizational culture of higher Education 4.0 (Nasir, 2018).

2.2 Organizational Culture Assessment Instrument (OCAI)

The strong organizational culture provides direction to the organization and the civitas involved therein. A strong organizational culture assists human resources from the organization in understanding every way to manage the organization (Chatab, 2007). This instrument aims to identify the existing organizational culture and help identify the thought of the members of the organization on the culture that should be developed to adapt the environmental needs of the future and the challenges faced by the organization (Aristides, 2008; Hughes, 2014). Meanwhile, Cameron and Quinn (2011) stated that OCAI aims to assess the six dimensions of organizational culture and help identify the thought of organizational members about the culture that should be developed in order to tailor the environmental needs of the future and the challenges faced by the Organization.

The following is an explanation of the six dimensions of organizational culture that serves as the basis of OCAI:

1. The dominant characteristic of the organization or the general description of the organization.
2. Leadership styles and approaches that penetrate the organization.
3. Employee management or style that characterizes how the work environment is created.
4. Adhesive organizations or bond that holds the organization together.
5. The strategical emphasis that determines the area of drive organizational strategy.
6. The criteria of success that determines what will be appreciated and celebrated.

The OCAI Framework helps interpret various organizational phenomena. This category generates two important cultural dimensions following the competitive value. The first dimension determines whether the organizational culture is internally or externally focused. The second dimension determines whether the organization is acting with flexibility or with stability. When placed on two axes, these two dimensions' form four quadrants, each representing a different set of organizational effectiveness indicators.

These four core values state each other's opposing assumptions. Each section emphasizes a core value opposite to the core value in the other – in this case, internal with external, and flexibility with stability. Organizational culture can be grouped into four types. As for the detail, it is explained as follows (Cameron et al. 2006).

Clan. Clan culture has internal focus and better appreciates flexibility than stability and control. Clan is a friendly workplace where people share with each other, like a large family. The leader acts as a mentor, and as a parent figure. The organization is bound by loyalty and tradition, and high commitment. The organization focus on the long-term benefits of human resource development and prioritize the importance of integrity and morality. Success is defined with sensitivity to consumers and appreciation towards human beings. Organization is very concerned with teamwork, participation, and consensus.

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Adhocracy. Adhocracy has an external value and appreciates flexibility. *Adhocracy* is a dynamic, entrepreneurial, and creative workplace. People work hard and dare to take risks. The leaders act as innovators and risk takers. This organization is bound to have a commitment to experiment and innovate. The focus is to at the frontline. The long-term focus of the organization is growth and gaining new resources. Success means obtaining unique and new products or services. Being at the frontline of a product or service is important. This organization supports or encourages individual's initiatives and freedom.

Market. Market culture has a strong external focus and appreciates stability and control. Market is a result-oriented organization with the main focus is getting the job done. People are competing and goal oriented. Leaders act as a powerful driver, producers, and competitors. They are tough and highly demanding people. The organization is bound by the importance of victory. Reputation and success are common things. Its long-term focus is on competitive activities and achievement of objectives and targets. Success is defined in terms of market share and penetration. The competitive price and the market leader are an important thing. This organizational style has a strong urge to compete.
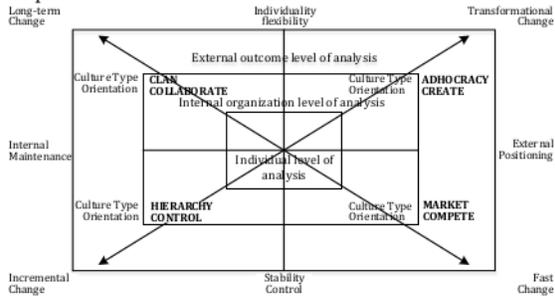
Figure 1 Core and secondary dimensions of the Competing Values Framework

Source: K.S. Cameron, R.E. Quinn, J. Degrafii, dan A.V. Thakor, Competing Values Leadership (Northampton, MA: Edward), 2006.
Hierarchy. It is a very formal and structured workplace. The procedures govern what should be done. The leaders pride themselves on being a good coordinator and regulator that prioritizes work efficiency. Keeping or caring for a well-running organization is the most critical thing. Formal rules and policies unite the organization. Long-term attention is on stability and efficient performance which run smoothly. Success is defined in terms of delivery of reliable results, good scheduling, and low cost. Control is a force that runs a hierarchical culture. Hierarchy Culture has an internal focus that generates more formal and structured work gains, and appreciates stability and control over flexibility.

2.3 GAP Analysis

Gap analysis is a strategic method to determine the existing organizational condition and the future needed to fulfill organizational objectives. GAP Analysis can bridge the gap to create future organizational initiatives. GAP analysis is generally structured on a set of areas, topics or categories, making it efficient to know which areas need fixing. GAP analysis becomes effective because the checklist is structured and appropriate to the topic. Checklist covers all existing and hierarchical requirements

in its presentation, including common questions and descriptions of the topics or categories to be assessed. The questions on the checklist are created in full, detail and assess each individual. Each question relates to another to ensure traceability (Qadri., 2015, Picard et al., 2016, Lee et al., 2016). The steps of the gap analysis as follows.

- Determination of the Score

The score used in the gap analysis is shown in Table 1.

Table 1 Score of Gap Analysis

Score	Definition
1	If the organization does not understand what is required and does not do so
2	If the organization understands the importance of such activities but does not do so
3	If organizations are doing activities occasionally
4	If your organization is doing the activity but not perfectly done
5	If the organization does the activity well

- Assessment Checklist

Assessment Checklist by participants is based on existing organizational conditions. Participants were chosen to have sufficient competence. The assessments are made under the scoring conditions described in table 1.

- Gap Rating

The gap assessment aims to see how big the gap is in the company. Percentage values are obtained by summing the score per variable and dividing it by the maximum value of that variable. The resulting percentage value shows the organization's readiness to implement a new organizational culture. Range of Gap values are presented in table 2.

Table 2 Range *Gap Analysis*

Percentage	Description
75-100 %	The organization is ready to implement new organizational culture
50-74 %	The organization still needs improvement in the implementation of new organizational culture
1-49 %	The organization needs a lot of improvement in the implementation of new organizational culture

3 Research Methods

This research used qualitative methods, with qualitative and quantitative data types. Qualitative data was obtained from interviews in-depth to respondents. Quantitative data was obtained from direct observation using OCAI questionnaire and a gap analysis with research variables based on OCAI instruments. In this research, there were three types of respondents for OCAI questionnaire which were the leaders of the organization that included the Dean and Vice Dean I-IV Faculty of Engineering, Faculty of Engineering staffs who consisted of 70 people, and students of the Faculty of Engineering who consisted of 110 people. As for the questionnaire, analysis was conducted for 4 participants who understood the existing condition of the Faculty of Engineering and understood the concept of higher Education 4.0. The four respondents were the Dean of the Faculty of Engineering, Vice Dean III of the Faculty of Engineering and two lecturers of industrial engineering Faculty of Diponegoro University.

3.1 Research Variables identification

The research variables used in this study were obtained based on the instrument of the OCAI framework (*Organizational Culture Assessment instrument*). OCAI Research Instruments are presented in table 3.

Table 3 OCAI Instruments

No	OCAI Instruments
1	Dominant characteristics
2	Organizational Leadership
3	Personnel Management
4	Organization Binding
5	Strategical Emphasis
6	Success Criteria

Based on the instrument the OCAI, research questions is created as presented in table 4 (Cameron et al. 2006, Suderman, 2012, Ližbetinová, Lorincová, and Caha, 2016).

Table 4 Research Questions

	#1 Dominant Character
A	This organization is a private place, like a large family and its members share with each other.
B	This organization is a very dynamic place and entrepreneurial. Every member of the organization wants and dare to take risks.
C	The organization is very result-oriented; the main goal is to get work done. Each member of the organization is highly competitive and result-oriented.
D	This organization is a very controlled and structured place. There is a formal procedure to control what people do.
	#2 Organizational Leadership
A	Leadership in this organization is a mentor, a facilitator who always gives guidance.
B	Leadership in this organization is entrepreneurial, innovative, and daring to take risks.
C	Leadership in this organization is aggressive and focuses on achieving results.
D	The leader in this organization is acting as coordinator, organizing and maintaining efficiency
	#3 Personnel Management
A	The management in this organization is characterized by teamwork, consensus and participatory agreement.
B	Management in this organization is characterized by a bold risk, innovative, provide freedom and uniqueness to each individual.
C	The management in the organization is characterized by competitive, with high demands of achievement.
D	Management in this organization is characterized by a sense of security in employees, the presence of uniformity, predictable and stability of relationships.
	#4 Organizational Binding
A	This organization is bound by loyalty and trust together. Commitment is crucial to the organization.
B	This organization is bound by a commitment to innovation and development. Always focus on the latest things.
C	This organization is bound on achievement and objectives result. Aggressiveness and victory are the main things.
D	The things that can unite in this organization are formal policies and rules. Maintaining the smooth path of the organization is important.

Table 5 Research Questions (continue)

	#5 Strategical Emphasis
A	The Organization emphasizes on human resources development. High trust, openness, participation and always involve every employee.
B	The organization emphasizes the discovery of new resources and the creation of new challenges. Try new things and find new opportunities.
C	The organization emphasizes on competitions and achievements. Achieving the target and winning the market is a priority.
D	The organization emphasizes resilience and stability. Efficiency, control and smooth operation are important.
	#6 Success Criteria
A	The organization defines success on the basis of human resources development, teamwork, employee commitment and caring for members of the organization.
B	The organization defines success based on the latest product formation. The organization is a leader in product/service and innovator.
C	The organization defines success based on winning competitions. Being a competitive market leader is the ultimate key.
D	The organization defines success based on efficiency. Reliable products and services, routine schedules and low cost production are critical.

4 Results and Analysis

4.1 OCAI Scoring results

Organizational cultural average score based on leaders ' assessment of the six dimensions of the existing organizational culture and the expected is seen in table 5.

Table 6 Organizational Culture Based On Principal Perception

Culture type	Existing culture	Expected culture
Clan	26.83	21.67
Adhocracy	22.50	22.83
Market	22.83	24.50
Hierarchy	27.83	31.00
Total	100	100

Based on Table 5, the average score of the six dimensions of OCAI by organizational leaders for existing organizational culture in the Faculty of Engineering was *Hierarchy* (27.83), *Clan* (26.83), *Market* (22.83) and *adhocracy* (22.50). Meanwhile, for the organization expected to change in the Faculty of Engineering, namely the improvement in culture *hierarchy* (31), *market* (24.5) and *adhocracy* (22.83) as well as a significant decrease in Clan culture (21.67). Thus, the existing organizational culture at the Faculty of Engineering according to the perception of leadership was the culture of Hierarchy. The organizational culture of the *hierarchy* characterized the organization as a highly controlled and structured place, where procedures govern everything that must be undertaken. In hierarchy culture, the leader was a coordinator in charge of organizing the efficiency of the organization. Cultural hierarchy relies on formal rules and policies as an organization. Effectiveness and efficiency are the success criteria of the organization with the organizational culture hierarchy. The organizational culture is expected by the leaders of the cultural hierarchy with a higher percentage of existing cultures. According to an interview with the Dean of the Faculty of Engineering, the strong culture *hierarchy* became the foundation

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in preparing the organization to the 4.0 industrial era with the adhocracy culture as its main characteristic.

Averages score organizational culture based on the assessment of educational personnel on the six dimensions of the existing organizational culture and which were expected was seen in Table 6.

Table 7 Organizational culture based on educational perception

Culture type	Existing culture	Expected culture
Clan	26.63	31.86
Adhocracy	21.58	22.56
Market	24.01	20.82
Hierarchy	27.79	24.76
Total	100	100

Based on Table 6, the average score of the six dimensions of OCAI by employees of educational personnel for existing organizational culture in the Faculty of Engineering was *Hierarchy* (27.79), *Clan* (26.63), *Market* (24.01) and *adhocracy* (21.58). Meanwhile, for the expected organizational culture in the faculty of Engineering have changed, namely the increase in the *clan culture* into (31.86) and adhocracy culture becomes (22.56) as well as a decline in the culture hierarchy (24.76) and market (20.82).

Thus, the existing organizational culture at the Faculty of Engineering according to the perception of educational personnel was a culture hierarchy. These results corresponded to the perception of organization leadership. However, organizational culture expected by staff or educational personnel was different from the organizational culture expected by leaders in the Faculty of Engineering. The employees wanted a *Clan* as an organizational culture in the faculty of engineering at Diponegoro University. *Clan* culture was an organizational culture that characterizes the organization as a friendly workplace where people share with each other, like a large family. The leader acted as a mentor, and parents figure. The organization was bound by loyalty and tradition, and high commitment. The organizations focused on the long-term benefits of human resource development and prioritize the importance of integrity and morality. Success was defined by sensitivity to consumers and respect for humans. The organization was very concerned with *teamwork*, participation and consensus.

Organizational culture averages score based on the Faculty of Engineering Student Assessment of the six dimensions of the existing organizational culture and the expected was seen in Table 7.

Table 8 Organizational culture based on students' perception

Culture type	Existing culture	Expected culture
Clan	24.91	28.64
Adhocracy	21.16	24.14
Market	26.19	21.50
Hierarchy	27.74	25.72
Total	100	100

Based on Table 7, the average six-dimensional OCAI score by Faculty of Engineering students, most dominant existing culture was *Hierarchy* (27.74), *Market* (26.19), *Clan* (24.91), and *adhocracy* (21.16). Meanwhile, for the organizational culture expected in the faculty of Engineering to change, namely the increase in the *clan culture* (28.64) and adhocracy culture (24.14) as well as a decline in the culture *hierarchy* (25.72) and *market* (21.50).
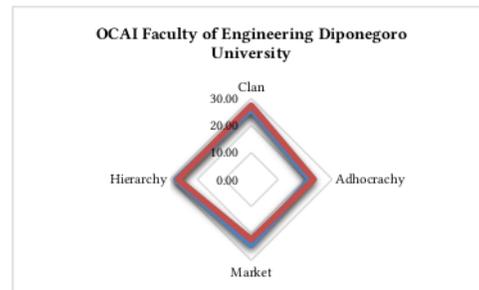
From these results, it could be concluded that the existing organizational culture in the Faculty of Engineering according to

the perception of the Faculty of Engineering students was the culture *hierarchy*, as well as the perception of leaders and employees. Meanwhile the organizational culture expected to be applied in the Faculty of Engineering according to student perception was Clan, same with the perception of Faculty of Engineering employees. The overall combined score of the six dimensions of organizational culture is shown by Table 8.

Table 9 OCAI Faculty of Engineering

Culture type	Existing culture	Expected culture
Clan	26.12	27.39
Adhocracy	21.75	23.18
Market	24.34	22.27
Hierarchy	27.79	27.16
Total	100	100

According to table 8, it was known that the existing organizational culture that is most dominant in the Faculty of Engineering was the *hierarchy* culture with a percentage of 27.79. Meanwhile the culture was expected to change where the most dominant culture was a clan culture with a *clan* Percentage of 27.39. The results depicted in the radar chart are presented in Figure 2.

Figure 2 Radar Chart OCAI Faculty of Engineering

Based on the data processing, existing organizational culture in the Faculty of Engineering was the culture hierarchy and expected organizational culture that is a clan culture. These two organizational cultures were less precise when applied to face the 4.0 higher education policy that was synonymous with dynamic and innovative cultures. Higher education in Indonesia was considered to be late in anticipation and responding to the 4.0 Industrial Revolution and its low power in anticipating change. Review of the characteristics of higher Education 4.0 could be concluded that the appropriate OCAI organisational culture was adhocrachy culture.

Adhocrachy culture characterized the organization as a dynamic, entrepreuner and creative workplace. Every member of the organization worked hard and dare to take risks. The leaders acted as innovators and risk takers. The commitment to continue innovating was the one that unified the organization. Organizations were highly supportive of individual initiatives and freedoms. Adhocrachy 's culture helped create new innovation with adaptability, creativity and high agtility. Therefore, it was necessary to measure the readiness of the Faculty of Engineering to make a paradigm change from the existing culture of the hierarchy culture with the characteristic of its formalized to higher education culture 4.0 to adhocracy culture with its dynamic and innovative characteristic.

4.2 Gap Analysis OCAI dimension of higher Education 4.0 on Faculty of Engineering

Assessment of differences between existing organizational culture and the expected used gap analysis. Data was collected in this method through interviews and direct observation to some participants who understood the concept of higher education 4.0 and organizational cultural conditions in the FACULTY OF engineering Diponegoro University. The participants of this research were Dean, Vice Dean III, and lecturer of industrial engineering at Diponegoro University. Data processing results using *gap Analysis* were presented in table 9.

Table 10 *Gap Analysis* Organizational Culture Higher Education 4.0 at the Faculty of Engineering

No	Cultural organizational dimension	Rating	Maximum rating	Percentage
1	Dominant character	41	60	68.3%
2	Organizational leadership	66	80	82.5%
3	Personnel management	26	40	65%
4	Organizational Binding	33	40	82.5%
5	Strategical Emphasis	28	40	70%
6	Success criteria	22	40	55%
			Total mean value	70,5%

Table 9 showed the percentage gaps that occurred between the existing condition and the expected conditions related to the organizational culture of higher Education 4.0 for each dimension of organizational culture, namely the dimensions of dominant characteristics (68.3%), the Organizational leadership dimension (82.5%), Personnel management dimension (65%), organizational binding dimension (82.5%), dimensional of strategical emphasis (70%) and dimensions of success criteria (55%). The organizational leadership and binding were assessed to face the policy of higher Education 4.0; it was shown that these dimensions have been on criterion I (value ≥ 75% or ≤ 100%). Meanwhile, the other four dimensions were in criterion II (value ≥ 50% or ≤ 74%). Thus, the dominant characteristics of organizational culture dimensions were personnel management, strategical emphasis and success criteria. Faculty of Engineering still needed adjustments and improvement efforts. Afterward, subchapters 4.3 would identify the root-cause that caused the fourth value to be in Quadrant II.

4.3 Root-cause Analysis

Root-cause analysis using the five *whys* method with participants of the dean of Faculty of Engineering was explain as follow.
Dominant Characteristics. The 4.0 higher education policy discourse was still new in Indonesia. Organizations were not prepared to face the 4.0 higher education policy from the beginning. Existing procedures both at the faculty and university that restricted the organization. *Public Organizations were governed by formal rules.*
Personnel management. Members of the existing organization were not ready to face higher education 4.0. The existing human resource competence had not been in accordance with higher education policy 4.0. *Human Resource was unable to adapt and has agility and is not prepared to comply with higher education Policy 4.0.*
Strategical Emphasis. Building systems needed to be followed by building cultures. Differences in the perception of each

department regarding the use of technology. *The absence of policies requiring technology uniformity in any department.*
Success criteria. Organizational culture of higher education 4.0 that has not established. Conception between organizations of the organizational culture is yet similar. *There is no special policy either at the university level nor the faculties that govern the readiness of Higher Education Policy 4.0.*

4.4 Recommendations

Subchapters 4.3 proposed improvement recommendations to improve the readiness of the Faculty of Engineering to face the policy of higher Education 4.0 based on brainstorming with the Dean OF THE Faculty of Engineering at Diponegoro University and some references derived from the scientific oration of the Minister of research and Higher education on "establishing 4.0 THE International reputation OF college in Indonesia" and its 4.0 Press Release. The recommendation as shown at Table 10.

Table 11 Improvement Recommendation

Problem	Improvement Recommendation
Public Organizations were governed by formal rules	- The Paradigm Tri Darma College that must be aligned with the era of industry 4.0 - Adaptive Environment, ensuring the academic system, innovation, research, learning system and infrastructure support developed in the Faculty of Engineering is able to adapt to such a rapid change so as to provide an adaptive environment for the formation of graduates and competitive and characteristic human resources. - Reorient the curriculum through: - New literacy (data, technology, Humanities/general Education. - Extracurricular activities for leadership development and work in teams to continue to be developed. - Entrepreneurship and Internship to be mandatory.
Human Resource was unable to adapt and has agility and is not prepared to comply with higher education Policy 4.0	- Increase the number of Character Building activities that provide all members of the organization with intelligent, trustworthy and creative characters including the efforts to increase the 5C aspect, which are creative, cognitif, collaborative, competence and cohesiveness. - Develop extra-curricular activities for leadership development and teamwork - Provide an internship program for lecturers in industry or research institutes in the country and abroad
The absence of policies requiring technology uniformity in any department	- Equal development of higher education infrastructure relevant to the 4.0 industry in every department - Establishing the same policies for each department, such as strengthening IT Infrastructure with information systems, paperless and digital-based services that are expected to strengthen academic performance and efficiency

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Table 11 Improvement Recommendation (continue)

Problem	Improvement Recommendation
There is no special policy either at the university level nor the faculties that govern the readiness of Higher Education Policy 4.0	▪ TOP management should ensure that the whole of the Academia is aware of the existence of industrial phenomenon 4.0 ▪ To build the character of lecturers and employees in accordance with the 4.0 industry in various ways: ▪ Conducting faculty competency mapping that supports the 4.0 industry ▪ Provide internship program for lecturers in industry or research institute both in the country and abroad ▪ Training Digital Business Skills for lecturers and employees to improve the ability of understanding market and consumers using ICT ▪ Alignment to Industry and Public Needs, alignment of curriculum, research and innovation, character development, learning systems, infrastructure and networking that adapt to the needs of the community and the industry. ▪ Teaching Industry, strengthening the downstream activities to support the development direction of industrial scale prototype, cooperation with industry, patents, incubation, seed capital, training/certification. ▪ Global Network for Academic, Research and Innovation, strengthening academic and research programs and innovation by growing climate collaboration with national and international institutions through Joint degree programs, joint Research, accreditation from international institutions, increased mobility lecturers, education personnel and students.

5 Conclusion

The OCAI instrument categorizes organizational culture into four, namely *Clan culture, Adhocracy, Market* and *Hierarchy.* The organizational culture is based on the perception of leaders, employees and students was the same, namely the culture hierarchy. It means that the leaders, employees and students agreed that organization of existing engineering faculty is a very formal and structured organization where the procedures govern the course of the organization. However, there were differences in perception between leaders and employees and students about the organizational culture that was expected to be in the Faculty of Engineering. The leaders chose the expected culture to be in the Faculty of Engineering was the culture hierarchy, while staff and students thought clan culture. Staff and students wanted Faculty of Engineering organization to be more Family-Nature, where the

organization is concerned with teamwork, participation and consensus of all members of the organization.

The results of the organizational culture gap analysis in the Faculty of Engineering to support its readiness to face the era of higher education 4.0 was 70.5%. The percentage value of each organizational culture dimension was the dominant characteristic dimension of 68.3%; Organizational leadership dimension 82.5%; Personnel Management dimension 65%; Organizational Binding dimension 82.5%; Dimensional strategical Emphasis 70% and the dimensions of the success criteria 55%. Therefore, the Faculty of Engineering needs to conduct activities that support the development of Adhocracy culture such as character building, new literacy, Infrastructure 4.0, alignment to industry and public needs, Global Network for academic, research and innovation, teaching industry, and others.

References

[1] Cameron, K.S., Quinn, R.E., Degrafii, J. and Thakor, A.V. (2006). *Competing Values Leadership.* (Northampton, MA: Edward).

[2] Cameron and Quinn. (2011). Diagnosing and Changing Organizational Culture Based on The Competing Values Framework. 3rd Edition. San Francisco: Published by Jossey-Bass.

[3] Chatab, N. (2007). Diagnostic Management, Cetakan 1. Jakarta: PT Serambi Ilmu Semesta.

[4] Gleason, N.W. (2018). Higher Education in the Era of the Fourth Industrial Revolution. Palgrave Macmillan.

[5] Lapina, I., Kairisa, I., and Aramina, D. (2015). Role of Organizational Culture in the Quality Management of University. Latvia: Published by Elsevier.

[6] Lawrence, R., Ching, L.F., Abdullah, H. (2019). Strengths and Weaknesses of Education 4.0 in the Higher Education Institution. *International Journal of Innovative Technology and Exploring Engineering,* 9(2S3), 511-519.

[7] Lee, Y., Wang, Y., Chien, C., Wu, C.H., Lu, S.C., Tsai, S.B., and Dong, W. (2016). Applying revised gap analysis model in measuring hotel service quality. *SpringerPlus* 5, 1191.

[8] Liu, A.M.M., Shuibo, Z., and Meiyung, L. (2006). A framework for Assessing Organizational Culture of Chinese Construction Enterprise. *Engineering, Construction and Architectural Management,* 13(4), 327-342.

[9] Ližbetinová, L., Lorincová, S., and Caha, Z. (2016). The Application of the Organizational Culture Assessment Instrument (OCAI) to Logistics Enterprises. *Naše more,* 63(3), 170-176.

[10] Nasir, Mohamad. 2018. Membangun Reputasi Internasional Perguruan Tinggi Merekat NKRI. Semarang: Orasi Ilmiah Dies Natalis Universitas Negeri Semarang.

[11] Omerzel, Dories Gomezelj, et al. (2011). Knowledge management and organizational culture in higher education institutions. *Journal for East European Management Studies,* 16(2): 111-139.

[12] Picard, M., Renault, A., Barafort, B., and Cortina, S. (2016). *Measuring readiness for compliance: A gap analysis tool to complete the TIPA process assessment framework.* Springer International Publishing Switzerland, 633, 106 – 116.

[13] Hughes, J.T. (2014). Empirical Investigation of the Relationship Between Cultural Orientation and Leaders Ability to Implement Strategy. *American Academic and Scholarly Research Journal,* 6(4).

[14] Qadri., U.A. (2015). Measuring Service Quality Expectation and Perception Using SERVQUAL: A Gap Analysis. Business and Economics Journal, 6(3), 162.

[15] Salmon, G. (2019). May the Fourth Be with You: Creating Education 4.0. *Journal of Learning for Development.* 6(2), 95-115.

[16] Suderman, J. (2012). Using the Organizational Cultural Assessment (OCAI) as a Tool for New Team Development. *Journal of Practical Consulting,* 4(1), 52-58.

[17] Xing, B. (2019). Towards a Magic Cube Framework in understanding Higher Education 4.0 for the Fourth Industrial Revolution. In D.B.A. Khosrow-Pou (Ed.), Handbook of research on challenges and opportunities in launching a technology driven international university (p. 107-130). Hershey: IGI Global.

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