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Human-Centered Sustainable University Model

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Abstract
In Society 5.0, the central concept is human-centered and supported by super-smart technology that frees humans from burdened workloads and allows to innovate new values without limits. All of this results in prosperity for everyone, which is the achievement of the global Sustainable Development Goals (SDGs). The application of this concept must be realized by all stakeholders of the nation, including universities which are responsible for the education of the younger generation. However, the implementation of university sustainability has been very numerous, varied, and there is no clear definition in the literature or practice. This study aims to develop a human-centered sustainable model that can be used as a reference in implementation. The research method used is qualitative by conducting library research, interviews, and observations. Respondents and objects of interviews and observations are Telkom University's sustainability teams and programs/projects. The result of this study is a human-centered sustainable university model that is recommended as an implementation reference, not only for Telkom University but also for other universities with similar characteristics.

Keywords— Human-centered; SDGs; Society 5.0; sustainability; university model

Abstrak
Dalam *Society 5.0*, konsep sentralnya Berpusat-pada-manusia dan didukung oleh teknologi super pintar yang membebaskan manusia dari beban kerja yang memberatkan dan memungkinkan manusia untuk berinovasi pada nilai-nilai baru tanpa batas. Semua ini menghasilkan kemakmuran bagi semua orang dan itu adalah pencapaian *Sustainable Development Goals* (*SDGs*) berlingkup global. Penerapan konsep ini harus disadari oleh seluruh pemangku kepentingan semua bangsa, termasuk perguruan tinggi yang bertanggung jawab terhadap pendidikan generasi muda. Namun demikian, implementasi *sustainability university* di lapangan sudah sangat banyak, bervariasi, dan tidak ada definisi yang jelas baik dalam literatur atau praktiknya. Terkait hal-hal tersebut, penelitian ini bertujuan untuk mengembangkan suatu model berkelanjutan yang berpusat pada manusia yang dapat digunakan sebagai acuan dalam implementasinya. Metode penelitian yang digunakan adalah kualitatif dengan melakukan studi pustaka, wawancara dan observasi. Responden dan objek wawancara dan observasi adalah tim dan program/proyek keberlanjutan di Universitas Telkom. Hasil dari penelitian ini adalah model universitas berkelanjutan yang berpusat-pada-manusia yang direkomendasikan sebagai referensi implementasi, tidak hanya untuk Universitas Telkom tetapi juga untuk universitas lain yang memiliki karakteristik serupa.

Kata kunci— Berpusat-pada-manusia; keberlanjutan; model universitas; *SDGs; Society 5.0*

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I. INTRODUCTION

The digital transformation produced by Industry 4.0 not only brings effectiveness and efficiency in all aspects of human life but also negative impacts such as deviant behavior, cyber-crime, gadget generation, threats to the nation's core values and the loss of many jobs which are replaced by Artificial Intelligence (AI) and robotics. In 2016, the Japanese government initiated the concept of Society 5.0, where the central concept is human-centered and supported by super-smart technology that frees humans from burdened workloads and allows to innovate new values unlimitedly, resulting in prosperity for all people/global society (no one left behind), which is the achievement of the global Sustainable Development Goals (SDGs).

These global sustainability goals should be supported by all nations. Since its initiation stage by 17 SDGs United Nations resolution in 2015 and Society 5.0 Japanese programs in 2016, these global programs have widespread globally and been adopted by many countries, including Indonesia. At the national level, it should be supported by the government, industry, academia (triple-helix) and other stakeholders of the nation. Academia has great power to endorse the nations going forward as they are responsible for education of young generations.

The Indonesian government through the Ministry of Education, Research and Culture of Republic Indonesia c.q. Director General of Higher Education (Nizam, 2021) has clearly stated that Society 5.0 must be concerned by all Indonesian High Education Institutions (HEI) to prepare the graduates for implementing Industry 4.0 and embracing Society 5.0. Therefore, campus graduates should be productive, creative, innovative, and have great character to be ready in fulfilling the task. Campuses should transform from rigid to be more flexible and dynamic learning, conduct digital transformation with human-centered sustainable goals and collaborate and link with industry and society (Nizam, 2021).

The global concept for human-centered sustainability has been widespread; however, the question remains: Do HEIs know how to implement it? Do HEIs have a guide that directs them in implementation? According to Golowko (2021), although the implementation of university sustainability has been very numerous and varied, there has not been stated a clear definition in the literature nor in practice. Therefore, this paper aims to propose a framework model that can be used as reference. It is intended as an initial and living model concept that is adaptive to be improved. By having a reference model, to which all academia civitas can refer, it is believed that this will stem higher synergism and university human-centered sustainability outcomes will soar. By implementing this model live in a real university, the real outcomes values can be evaluated and improved. The first intended institution is Telkom University, formerly known as “Tel-U”, and hopefully will spread out on wider use by other universities with similar characteristics.

II. LITERATURE REVIEW

In qualitative research, the used theory is not intended as concept-based but merely to equip researchers with what aspects that could be looked for, observed, and interviewed from the research objects.

A. Industry 4.0, Society 5.0 and SDGs

In the last decades, Industry 4.0 has disrupted global society and industry by digital transformation resulting in enormous increase in efficiency and effectiveness in all aspects of human life. Besides positive aspects, there are many negative impacts that have also occurred, among others ethical issues (misconduct, cybercrime), gadget generation, threat to national core values and loss of many jobs due to being replaced by Artificial Intelligence (AI). Moreover, the potency of AI to replace humans’ central role in the future has been a great concern (Flowers, 2021; Lee, 2018; Liu, 2021).

In 2016, a human-centered concept called Society 5.0 was initiated by Japanese Prime Minister Abe. The definition of Society 5.0 is a “Human-Centered society that balances economic advancement with the resolution of social problems by a system that highly integrates cyberspace and physical space” (Cabinet Office Japan Gov, 2016). Being supported by a common societal infrastructure for human/society prosperity based on an advanced service platform, it is also called as “Super Smart Society.”

In Society 5.0 (continuation of Society 1.0 up to 4.0), a high integration of cyber space and physical space allows for Big Data, collected from IoT, processed, and utilized by AI. These AIs do the work that humans have been doing so far, freeing humans from complex daily tasks that they are not good at. More important is

that people can do more creative and innovative, creation of new values, where new products and services are provided to fulfill people's needs, wants and solutions of their problems. This condition optimizes the entire system and community organization. This is a condition in which a society is human-centered, prosperous, and sustainable, and surely not controlled by AI. To support the implementation globally, Society 5.0 international standardization has been planned, rolling out with Japan as the initiator. Okamoto (2017) stated there are five principles in this standard: Inclusive, Sustainability, Human-Centered, Innovation and Governance.

Comparing Industry 4.0 and Society 5.0, in Industry 4.0, the generation of knowledge and intelligence is done by humans with the help of technology, while in Society 5.0 the generation of knowledge and intelligence will come from machines through Artificial Intelligence at the service of people.

In 2015, the United Nations released a global sustainability 2030 agenda called Sustainable Development Goals (SDGs) (United Nations, 2015). It comprises of 17 goals covering environment/ environment sustainability, economic development, and solutions to societal issues. The Society 5.0 efficiency facilitates the achievement of SDGs. That is why achieving SDGs through Society 5.0 will secure the sustainability of the society (people) and its living place, the Earth (planet). Keidanren, Japan's Business Federation, has used the term "Society 5.0 for SDGs" to describe the connection concisely.

B. Sustainable University Model Reference

Having a model as the study aim, naturally, a model reference should be looked for. The main keywords for this were: model, sustainability, human-centered and university. Different references for building the HEI sustainability model have been built by various previous researchers; Van Weenen et al. (2000) built a university classification model with three variables: engagement, organization, and sustainability development. Velasques et al. (2006) described four strategies that need to be carried out by universities in the management strategy framework; this model does not describe the need for performance management. Grecu and Ipina (2015) provided a comprehensive model that can be a guide for implementation but does not highlight the importance of the human-centered concept. Kolb et al. (2017) proposed a conceptual model of how business schools can contribute to SDGs and other diagrams which are not interlinked. Meanwhile, Srivastava et al. (2020) provided test results on the effect of green authentic leadership on sustainability in higher education.

C. Strategic Management (SM)

In the Socio Humaniores field, strategic management is a grand theory to oversee the situation and solve complex problems. The SM process in general can be divided into three phases: Strategy Formulation (Strategic Situation Analysis & Strategy Formulation), Strategy Implementation and Strategy Evaluation & Control. There are three strategy levels, i.e., corporate level strategy, business unit/division level strategy and operational level strategy. Both models can be used to show in which phase and or in which level the company/institution is. (David, 2011; Wheelen & Hunger, 2012).

D. Softskills in Human Centered Management

It can be seen that there is a contradiction in Society 5.0. On the one hand, AI and robotics will massively replace human works and have potency to degrade humans. On the other, this concept is a human-centered society where humans' prosperity is the ultimate goal. People are the central control and not controlled by robots. Prof. Fukuyama, a Japanese scientist who has an important role in Japanese government office for Society 5.0, stated that, in this society, it is "Always a Core of People, Not Technology" (Fukuyama, 2018). Therefore, people must be prepared for this era, and reinvention of human capital must be done by sharpening and honing their abilities, especially humanity's soft skills having higher order capabilities than AIs, i.e., complex decision-making, empathy, imagination, etc., which enable people to make new innovations new values and let AI do the lower order jobs for humans more efficiently and effectively. By these, synergy between humans and AI/robotics can happen, people can maintain their roles and create a sustainable prosperous human-centered society (Lee, 2019; Lepeley et al., 2021; Suyitno, 2020).

There are a number of human soft skills, including empathy, communication, creativity, critical thinking, strategic planning, analysis of complex problems, imagination, vision (Devianto & Dwiasnati, 2020; Lei, 2018; Lepeley et al., 2021; Marr, 2018;). The capability gap between soft skills and hard skills occurs because hard skills have been more excessively tested in education and workplaces. However, human and society problems cannot be solved only by hard skills. Therefore, HC reinvention in terms of preserving and strengthening the soft skills must be significantly carried out as early as possible (Gladden, 2019; HBR, 2020; Lepeley, 2017; Lepeley et al., 2021).

E. Functional Management Concepts

There are important concepts theory that should be referred to in building a complex framework model, namely Business Process Reengineering (BPR) (Abdous, 2011; Pasaribu et al., 2021), Change Management (Kotter, 1996), Risk Management and Culture Management. Each of them has reasons that are derived subsequently. BPR in empirical evidence, a Tel-U case, was academically published in an international journal, was proven as a basis of digital transformation; here the reengineering process is supported by leadership, organizational behavior, and IT support. Change management is the concept used since the achieved positive change has to be managed otherwise it will decrease or even vanish. Having more complex, not only internal but also external parties involved in the process, risk management should be considered to mitigate any unexpected things happening in the future. Culture management, in conjunction with change management, manages university value systems to be improved, preserved, and last sustainably. As the faced problems and issues evolve, in line with the development of problems and issues in the field, the concept of functional management will continue to develop broader and deeper.

III. RESEARCH METHODOLOGY

This research method is qualitative. Data and information gathering are collected by study literature, documentation, observations, interviews and focus group discussions. This study uses secondary data sources by examining official documents related to the object of study. This study proposes the Human-Centered Sustainable University Model as an effort to increase the role of humans in university sustainability. The research object is Telkom University and the respondents are the sustainability project/program team. The research duration spanned from July 2021 – October 2021, which will scope the concepts aspects reported here. i.e., BPR (process, organizational culture, leadership), change management, sustainability, human-centered (approach, soft-skills). The validity and reliability technique were carried out by triangulation with interviews and focus group discussions with several key actors to ensure that the proposed model was appropriate. The analysis technique uses the model proposed by Miles and Huberman which consists of data collection, reduction, display and drawing conclusions. The research steps are depicted in Figure 1.

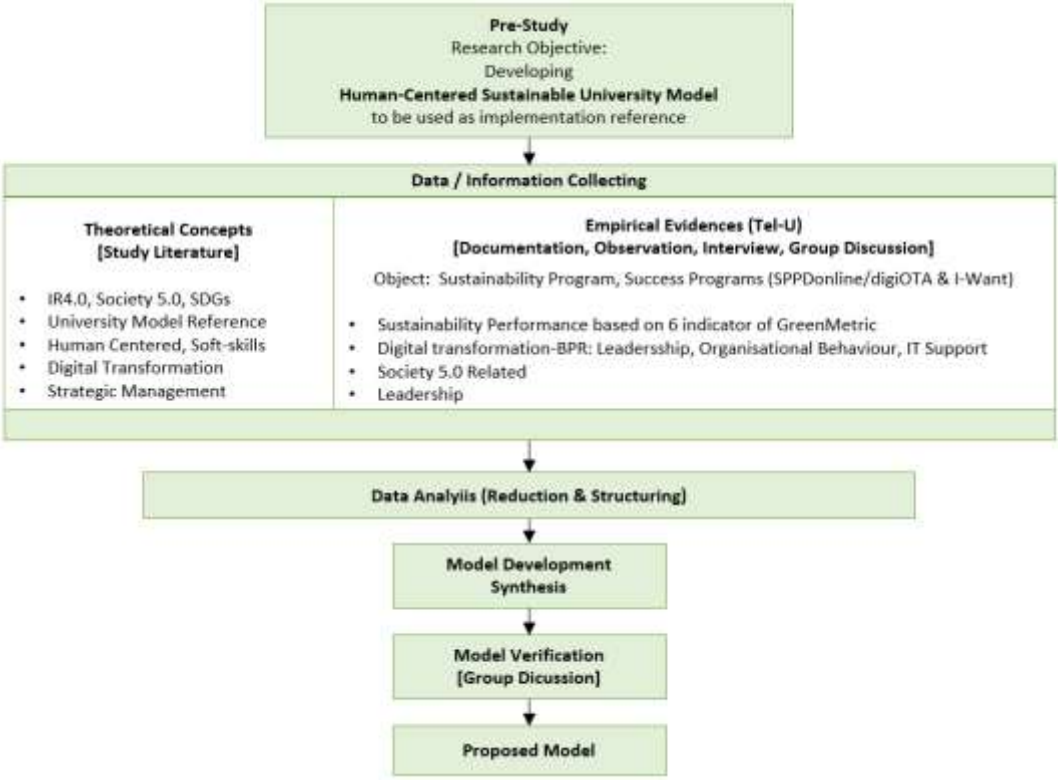

Figure 1. Research Steps (Source: Researcher, 2021)

IV. RESULT AND DISCUSSION

A. Literature Study Results

1) Reference Model

To achieve the study aim, several models (Grecu & Ipina, 2015; Kolb et al., 2017; Srivastava et al., 2020; Velasquez et al., 2006; van Weenen et al., 2000) were consulted. Subsequently, two of them, i.e., Velasquez et al. (2006) and Grecu and Ipina (2015), were chosen as both consisting and combining sustainability concepts, (strategic) management processes and HEIs' academic functions. i.e., education, research. The concept of sustainability in these models is in line with the 17 SDGs (United Nations, 2015) covering three aspects: environment, economy, and society. The Grecu and Ipina model was chosen as one of the references as it had been presented by the National Coordinator of UI GWURN Indonesia in the 2021 National Workshop on UI GreenMetric for Universities in Indonesia on 28-29 July 2021, and attended by 359 Indonesian UI Greenmetric Network activists (Ambariyanto, 2021).

Based on researcher analysis, from a Society 5.0 perspective (Fukuyama, 2018; Keidanren, 2016), it can be concluded that there two concepts which have not been integrated in both models. First, the super high-tech concept, highly integrated cyber space and physical space, consisting of IoT, Big Data and AI. This superbly high tech should exist, freeing people from boring and burdensome jobs and foremost enabling people to innovate unlimitedly. The second concept not yet embedded in the models is the Human-Centered concept in which the core of the society is people, not technology (Fukuyama, 2018). Based on these, both concepts will be consulted to build a more comprehensive human-centered sustainable university model.

2) Human-Centered, Soft skills

Human-centered society, with people as central, brings consequences for human to keep having higher capability in order not to be replaced by AI. This capability is soft skills which are numerous, namely among others, creative and critical thinking, empathy, emotional capabilities, imagination, wisdom, etc., which must be improved from the earliest age and earliest time (Lepeley, 2021). Answering this, HEIs must develop student soft skills for the future (and the current) not for the past. The soft skills program is part of human-centered management.

3) Tridharma

The main processes in Indonesian higher education institution are education, research and community service, this is the HEIs' 3-pillar responsibility, namely Tridharma Perguruan Tinggi (Indonesian Constitution, 2012). On the other hand, some of the literature models do not explicitly state all of them. This will be considered when synthesizing building up the new model.

B. Empirical Evidence

The above literatures are used to develop the aimed model. Besides that, related Tel-U empirical evidence is used to support, complement, and confirm the studied concepts.

1) SDGs - Sustainability Performance

Telkom University is the 9th best national or the 2nd best private university in Indonesia regarding UI GreenMetric, 2021 Indonesia Rank. The UI GreenMetric World University Ranking is an initiative of Universitas Indonesia launched in 2010. This body utilizes six sustainability indicators in its ranking system, i.e., Setting & Infrastructure, Energy & Climate Change, Waste, Water, Transportation, Education & Research. These six are related with SDGs. Table 1 and Table 2 give an insight of Telkom University (environment) sustainability performance. Table 1 shows that Tel-U sustainability performance lies in the Top-10 national ranks for three years in a row and, from Table 2, waste indicator has the highest score/national average in %. This performance resulted from many programs developed over time by all academia civitas.

Table 1. Tel-U UIGM Ranking 2018 – 2020

Scope	Announcement Year			
	2018	2019	2020	2021
National Private University Rank	2	2	2	Not yet
National University Rank	10	9	9	Not yet
International University Rank	150	135	123	Not yet

Source: https://greenmetric.ui.ac.id/rankings/ranking-by-country-2020/Indonesia

Table 2. UIGM Indicator Performance – Tel-U 2020

No	Indicator	Score	Max Score	National Average	Score/National Average (%)
1	Setting & Infrastructure	775	1500	635	122%
2	Energy & Climate Change	1400	2100	1011	138%
3	Waste	1425	1800	753	189%
4	Water	700	1000	422	166%
5	Transportation	1450	1800	848	171%
6	Education & Research	1550	1800	1021	152%

Source: https://greenmetric.ui.ac.id/rankings/ranking-by-country-2020/Indonesia

To add empirical evidence from the university's program/project, literature/ documentation study, (in-depth) interview and observation was carried out July – October 2021 with respondents or sources as depicted in column C, Table 4. Having research limitation in time and resources, sampled main programs were chosen referring to the criteria: a) outperformed programs (success benchmarked); b) the program is carried out by the sustainability team/unit; c) directly related with sustainability indicator; d) much better if has been published. The programs chosen were:

- SPPD Online, later renamed digiOTA (cycle1)
  SPPD: *Surat Perintah Perjalanan Dinas* (Bahasa Indonesia), translated into Official Travel Administration (OTA). This program had been researched in 2020 and published in 2021 in an international journal (Pasaribu et al., 2021)
- digiOTA cycle2 and digiOTA cycle3.
  Both are continued improvement of SPPD Online (digiOTA cycle-1)
  digiOTA: digital Official Travel Administration; Application name.
  cycle#: one full cycle consists of plan–execute–evaluate cycle
- Integrated Waste Management (I-Want), organic and an-organic

Sustainability Program (I-Want, UIGreenMetric Programs): A recent sustainability program that can be used to confirm the outperformed program empirically is Integrated Waste Management (I-Want). This program performance as the highest position compared to national average, see Table 2. I-Want for organic and inorganic wastes has been implemented through steps from collecting, sorting, added value processing and monetizing. The monetizing process is not prioritized on economics only, but the higher objective is that the system can self-sustain and engage the society in this program. I-Want covers all academia civitas and ecosystem members, i.e., the cleaning and security team that the university outsourced. These outsourced sustainability ad-hoc teams which are supported by the Logistic & Asset Directorate are main engine of the I-Want cycle. The application to support this program has been developed and used since 2021 (Tel-U, 2020).

The collaborating and learning sustainability between universities is facilitated by UIGM. I-Want has been informed nationally and more focused on a dedicated team regarding campus waste management. This team was appointed by UIGM headquarters in January 2021 comprising six universities and a Tel-U representative appointed to be the coordinator. Later, in August 2021, the members increased to 10 universities (Lokakarya UIGM, 2021; UIGM, 2021).

This program has also been integrated into academic main processes, i.e., community service. An established cooperation between Tel-U and Korean University has been set up where students from both universities collaborate in giving solutions. Program outcomes were quite beneficial, in September 2021, one of the results was a pH meter to measure the acidity of compost, a result of the value-added organic waste process. The outreach community service program was extended to two adjacent districts, Sukawarna and Sukabirus. Moreover, to socialize waste management wider, I-Want is a theme of the Innovillage program. Innovillage is a Tel-U program collaborating with Telkom Indonesia to support the Indonesian students to innovate useful programs for their home villages/towns. It was initiated in 2020 adapting to the Covid-19 pandemic where students were learning from home and its initial scope was mainly Tel-U students. Following 2010's success, this year's scope was widespread to students and universities around the country (Innovillage, 2021). From this waste program, this had covered the three aspects of sustainability: environment, economy and society.

Besides waste management, there have been many implemented and planned programs for sustainability. The most outperformed 2020 program based on UIGM indicator are listed in Table 3.

Table 3. Most Outperformed Tel-U Sustainability Program in 2020

No	Indicator	Most Outperformed Program (2020)	In-progress Program (as per September 2021)
1	Setting & Infrastructure	Pedestrian	Tree planting (Puspitek)
2	Energy & Climate Change	System Solar Photovoltaic On-Grid 30.6 KWp at Deli Building	Smokeless Incinerator, Wind Power Plant
3	Waste	I-Want Program	Maggot cultivation
4	Water	Rain Water Harvesting - Plan	Rain Water Harvesting-Implementation
5	Transportation	Electric car	Zero emission policy
6	Education & Research	186 Events related to sustainability (2018-2020)	Tatangkalan apps, Tel-U programs to cope with pandemic

Source: Tel-U data, 2021

Table 3. shows that Tel-U keeps moving forward in sustainability following the UIGM scheme. Besides these, there are many other programs directly related to other SDGs.

2) Digital transformation - Business Process Reenginering (BPR)

Case study in Tel-U showed that/digital transformation was achieved by BPR comprising re-engineering the existing processes into a more efficient and effective state with support of IT systems, leadership, and organizational behavior in digital ways of working (Pasaribu et al., 2021). In a further finding from the case, interviews with team leaders of the projects/program (SPPD Online/ digiOTA cycle-1, digiOTA cycle-2, digiOTA cycle-3, I-Want) revealed that leadership is the lead and key success factor. What is meant by leadership here is not only from the top level, but more importantly leadership at the operational/program execution level. Specifically, in digiOTA cycle-two program results and observation showed slower process, while in-depth interview revealed that operational leaders (officially appointed or not) realized that they should be proactive, analytical, and decisive and highly time conscious.

In addition to leaders, followers also have significant roles. This came from the middle managers appointed more than four years as overall coordinator team leaders; this notion brings up those responsibilities as member/follower have to be realized in real work. This is part of overall management, among others: system values, human resources, and culture management.

Besides solving the university administration problems, the digiOTA program was intended by the initiator, i.e., Tel-U Vice President II in 2019, as socialization and infusion of digital transformation to the existing system by project based and experiential learning. The results revealed that the systems were solved not only for units' problems but also for individual years' pains as it was related with personal cash management issues. By digital ways of working, the re-engineered processes were finished very quickly within three months

Indeed, initially steps were led by a strong leadership from top management, the Vice President II (resources matters), invited the team members to work together by digital ways of working. The problems, identified from problems faced by internal customers/next processes, ecosystem campus and environment, were put out there and discussed by all related unit's representative, cross functionally, openly, comprehensively, with no one/unit left behind regardless their position rank. Then, this was followed by detailing what happens when it comes to implementation. By communicating and sitting together informing what was happening in their units and discussing problem solutions regularly and closely among team members, this resulted in creative and critical thinking and innovation flowed well to solve problems, and moreover positive relationships have grown ever since. They empathized with each other's problems including individual problems, and they became close friends; this had never happened before. The closer their friendship, the faster the problem was solved. Work by head and heart was fulfilling. These conditions were revealed from the interviews.

3) Functional Management Concepts

In administration work, as the business process were re-engineered, the related policies and procedures were also modified. This is quite important because it is not only ensuring the governance but also maintaining the sustainability of improvement programs by providing a solid/formal base for future improvement.

4) Society 5.0 Human-Centered

Working by heart means people are touched emotionally and this could happen by empathy skills. This is evidence that human soft skills must be explored and strengthened. In the Society 5.0 era, these soft skills are humans' ultimate strength, which are irreplaceable by AI or robots. Referring to its roles and the concept of

sustainability, this human-centered issue is the biggest opportunity to bring all campus elements to realize the human-centered sustainability campus.

5) Society 5.0 IT Support

From the field, digiOTA and I-Want programs are supported by information systems by which people communicate with the automation system. This digitization (automation) and digitalization make processes more efficient and effective. However, this IT has not been as sophisticated and integrated as what Society 5.0 intended. Here, the data from all processes and programs are highly integrated (Cyber-Physical Space) and openly used by all campus members. This integrated open data for all will surely ignite creativities and spur innovations profoundly. This is considered another great opportunity to improve the overall system towards human-centered sustainability campus.

6) Society 5.0 Principles

Regarding Society 5.0 international standards, the five principles have been fulfilled by digiOTA and I-Want. In those programs, all related campus ecosystem members were involved in the program (1.inclusiveness); solving individual and organizational problems by new ways of working leading to a new reengineered process supported by IT resulting in a more effective and efficient process (2.innovation); problems came from humans and environment aspects and solutions were supported by humanity/soft skills in the process, controlled by humans and giving human results (3.human-centered); as change management was involved, the processes were completed with new policies and procedures (4. governance): continuing to explore and implement new innovations not only for organizational; benefit, bur moreover for the prosperity of humans and our green planet (5. sustainability).

7) Vision, Leadership and Commitment

From the standpoint of strategic planning, vision is the long-term goal of all organization members, and the mission states the organization's reason for being.

- Tel-U Vision:

  "*Become research and entrepreneurial university in 2023, which plays an active role in the development of information technology-based technology, science, and arts"*

- Tel-U Mission:
  - *Organizing and developing international standard education based on information technology.*
  - *Develop, disseminate, and apply internationally recognized technology, science, and arts.*
  - *Utilizing technology, science, and art for the welfare and advancement of national civilization through entrepreneurial competencies*

Even though, it is not written explicitly in the vision or mission statements, sustainability has been the university object in conducting its responsibilities. This is evidently committed to by Tel-U top leaders and can be seen from their commitment by continuously endorsing the improvement and implementing sustainability programs. To name some of them: 1) as described above, 6-indicator UIGM programs; 2) Integrated and Ecosystem Involvement Road Map: this is wrapped in formal university policy and the initial phase was I-Want (water issues) and next it will be collaborated with other indicators, e.g., water program. The involvement of the ecosystem was also expanded by I-Want, herewith ecosystem members, outsourced people supporting the campus cleanness and security, are involved to work together in I-Want and after these expanded to adjacent society/ areas; 3) Numbers of sustainability related programs: Innovation projects such as AUMR (a robot that sterilizes rooms using ultraviolet), Innovillage (community service coordinated by Tel-U that covers nationwide sustainability programs), international universities collaboration (community services for green program), and many more in which those programs basically support sustainability goals.

In terms of human-centered, the Tel-U President has reminded senior leaders to consider and give more attention to the operational personnel. This leadership style shows that human-centered has been one of his great concerns and can be used to accelerate attaining sustainability goals. To give some idea of the most recent leaders' commitment, at the peak celebration of 8th Telkom University inauguration/31st birthday, on September 19th, 2021, the President delivered his speech with Society 5.0 as the main theme. This is a significant organizational capital to be highly optimistic of the sustainability improvement in Telkom University. Those internal strengths should be explored to keep improving and moreover enhancing Tel-U's pace.

From a strategic management perspective, to enhance the strategy implementation phase (program, procedures, people, budget), the strategy formulation phase consisting of policies should be strengthened. Therefore, an integrated model should be developed to accelerate the integration of the university member steps synergy toward a human-centered sustainable university.

C. Model Development

The above discussed concepts and practical conditions in operational level are arranged and placed in the following structure/frame of thinking:

1) Leadership

Leadership comes first. It leads all organization members to pursue its vision, mission, and purpose. As the vision is not explicitly stated but it is heavily executed in the operational level, the model includes sustainability and human-centered concepts in this important box. Both are in line with global SDGs and Society 5.0. The university committee needs to be at the university level because of its strategic and complex nature. Also, this committee is the people who will derive the model to be executed at the operational level.

2) Input-Processes-Ouput/Outcomes

Top leadership direction will base all university processes. Input of the process comprises top direction and strategic external influence. The main process consists of:

a) Academic

This block represents Tridharma, the three responsibilities of Indonesian HEIs. 1) Education implemented based on Outcomes Based Education (OBE), and MBKM (*Merdeka Belajar, Kampus Merdeka)*, in Bahasa Indonesia. The latter means that, in the era of digital, students learn freely, and campuses give learning freely as well. This is a government program endorsing students and campuses to have learning process in or out of their campuses, make links and matches between academia and industries, between campus and real life. 2) Research is conducted through inter-disciplines, multi-disciplines, and trans-disciplines. Real-life problems are complex, even the simplest ones, that is why it has never been solved by only one discipline. 3) Community Services comprise the academia civitas social responsibility programs. The scope spans from the nearest one, campus ecosystem, to external within national and international areas. These three responsibilities are interrelated.

b) Internal

This side shows the sustainability in campus, resources and capabilities owned by the university in organizational and/or individual levels. Partly, the sustainability in campus is represented by UIGM aspects: Setting & Infrastructure, Energy & Climate Change, Waste, Water, Transportation, Education & Research.

c) External

The sustainable growth could only exist by collaborating with other parties. In general, this is carried out with all university stakeholders, locally, regionally, and globally.

d) Values System

Academic, internal, and external sides work based on the university value system comprising Academic Ethics, Organizational Culture, and University Values.

3) Functional Management

This block runs the processes to works based on suitable concepts. This living model is intended to be accommodative to addition of any needed concepts. The concepts included in this model, up to October 2021 while this paper was still in progress, are as follows: 1) Business process re-engineering in which process improvement is supported by IT, leadership (top, middle and field) as a key success factor, and organizational behavior; 2) the need for change management to keep the improvement process by adding formal designation, policy and procedures and make the governance system uplifted. 3) To ensure that the new university values system (including human-centered sustainability) will be embedded and developed continuously and sustainably, culture management must exist.

4) Integrated Cyber Space & Physical Space

Adopting the super-smart society concept, this model should be supported by highly integrated cyber space and physical space where IoT, Big Data and AI are the main enablers. Having this, people are delivered from recurring, boring and burdensome tasks, and could be more focused on spurring unlimited innovations. By

observing the existing state and the desire to achieve the super-smart technology in the near future, there are issues that should be highly concerned, namely the gap in IT support and data/information sharing behavior.

5) Human-Centered

The human-centered concept is the conceptual heart of the model. This concept is relatively new and has become a topic of discussion among academics recently. Based on these, emphasis should be given to accelerate the awareness and the comprehension of this notion. This is done by positioning the human-centered concept in three strategic boxes of the model. First id the Leadership box as the primary input of all organization process which will influence the organization effectively. The second is in the outcomes sub box of Input-Process-Outcomes. By this, the outcomes are reminded to be human-centered and naturally this will be conveyed back to previous processes. Then, the whole operational of functional managements and IT support are fundamentally based on a human-centered approach. Being flanked from the top level and operational level, it is believed that human centeredness can be realized. Another process that should be highlighted in human-centered section is soft-skills development. HC reinvention, especially in strengthening soft skills to all, must be carried out at the earliest time for ensuring positioning humans as central to the future society and not replaced by high-tech such as AI.

6) Performance Management

The last is the performance management box. The strategic management processes comprise the following steps: Strategic situation analysis, strategy formulation, strategy implementation and strategy evaluation and control (David, 2011; Wheelen & Hunger, 2012). Regarding, the model, it is the embodiment of strategy formulation. Later, entering the implementation phase, this model must be divided into programs, procedures and supported by needed resources including budget. Subsequently, strategy evaluation will give feedback to the previous processes to be improved continuously and sustainably. Regarding the last steps, this performance management is part of the strategy evaluation which consists of the target indicators used to evaluate the performance of the process. The indicators cover the level of program: long-term, mid-term and short-term targets. Commonly used concepts are Balance Scorecard (BSC) and, most recently, Objectives & Key Results (OKR).

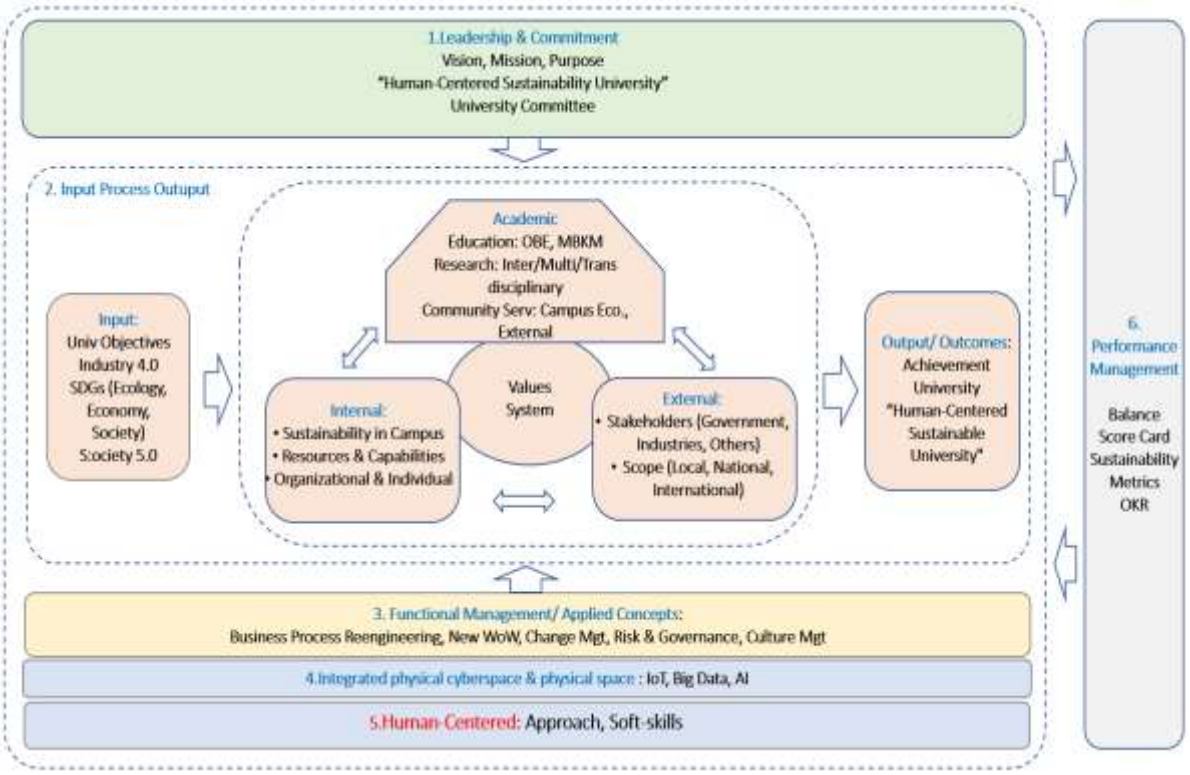

Figure 2. Human-Centered Sustainable University Model (Source: Researcher)

V. Conclusion And Recommendation

As a result of qualitative research and concluded with verificative FGD, the aim of this study has been achieved to build a model, namely the "Human-Centered Sustainability University Model". The model consists of six groups, i.e., Leadership, Input-Process-Outcomes, Functional Management and Concepts, Integrated Cyberspace & Physical Space Supporting, Human-Centered: Approach & Soft-skills, and Performance Management.

The heart of this model is the human-centered aspects. This concept has arisen within the latest Society 5.0, in conjunction with sustainability. The humanity involved that will ensure people as the central role of society and not replaced by super technology such as AI. This technology will help people to be release from their burdensome jobs and enable people to spur unlimited higher valued innovation to solve environment, economic and society problems. Having this, a harmonious and prosperous super-smart society could be realized in the near future.

From a strategic management view, this model is a result of strategy formulation. Thus, this should be followed by strategy implementation by deriving the model into forms of policies, programs, procedures and needed resources. Then the strategy evaluation and control can be carried out by using the indicator pre-set in Performance Management, the last group of the model.

This study has several limitations that can be suggestions for further research. First, the conceptual model proposed by this study has not been tested empirically. Thus, further research can be done by testing this model. This research is also only focused on one university, namely Telkom University, so that this research can be tried to be implemented in other universities to generalize the results of this research.

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