Hoshin Kanri Innovation Strategy: Realizing a World Class University

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The purpose of this study is to describe the role of Hoshin Kanri as both a parameter and 'spirit' in its performance as a college innovation implementation strategy to realize a World Class University (WCU). The synergous development of a quality world university, WCU, was crucial as an innovation strategy in the realization, direction and building process of Hoshin Kanri as a college management system. This research used a mixed methodology approach through retrieval of qualitative data via interview techniques, observation and documentation and quantitative method applied through the Delphie Technique. Data were analyzed through the design of Concurrent Embadded qualitative dominance and the validity of the data were checked with four criteria: (1) credibility, (2) reliability, (3) dependability and (4) confirmability. The results show that Hoshin Kanri concentrated on efforts to help organizations focus on quality-oriented target and objective achievement through quality assurance. The process, leading to a management system which initiated with planning through implementation, monitoring, evaluation, and review of quality productivity, ensured an ongoing process of improvement and quality development and was found to be an ideal strategy in realizing a WCU.

Key words: *Hoshin Kanri, Strategy Innovation, World Class University, Higher Education.*

Introduction

Contemporary global society is characterized by the era of the Industrial Revolution 4.0 and Society 5.0 and marked by rapid quality improvement in various fields, including education. As a manifestation of the integrity of higher education in terms of the ability to synergize and contribute in building its management system, achieving World Class University (WCU) ranking is an indicator of education success. Chou, (2014) suggests education

system reform is essential for competition in the current era, at a global level. WCU is an international ranking mechanism that includes management systems, facilities, methods, graduate standards and research (Intsiful & Maassen, 2017). WCU has evidenced a nurturing effect in confronting the globalization era and the consequent rapid development of scientific studies and high technology that have led to increasingly critical demands and patterns of public thinking about the availability of quality educational services, not only at the local and national, but also international level and quality plays a vital role in education.

Higher education has a visionary role that is not just about change agency but also about generating credible academic community with a systemic orientation to the future. This role is accommodated through the existence of a quality, integrated local education that is globally competitivce (Chan et al., 2018). Quality is the key to success (Sallis, 2014) and is the result of a systematic process capable of quality production. In this context, the system to produce quality must focus on error prevention from inititiation (zero deficit). Quality is focused on adjusting customer needs and wants (Gallardo et al., 2018) throughout production such that the design of products and services meet customer expectations. It is aimed at customer satisfaction. The minimum fulfillment must be in accordance with the established standards or even exceed the established standards by emphasizing continuous process improvement (continuous improvement) as stipulated in Law Number 12 of 2012 of Higher Education, article 4. This law states that the function of education is: developing competence and shaping character and working towards a civilized and intelligent nation. Higher education and particularly at the tertiary level, is recognized as a key force for modernization and development (Mishra & Kushwara, 2016).

Indonesia has 4655 tertiary institutions, both state and private under both the auspices of the Ministry of Education and Culture of the Directorate of Higher Education (Kemendikbud Dikti) and the auspices of the Ministry of Religion and which are both experiencing very rapid growth. The significant growth of tertiary institutions in Indonesia during the previous 3 years can be seen in Figure 1 below.

Figure 1: *Growth in the Number of Public and Private Universities in Indonesia*
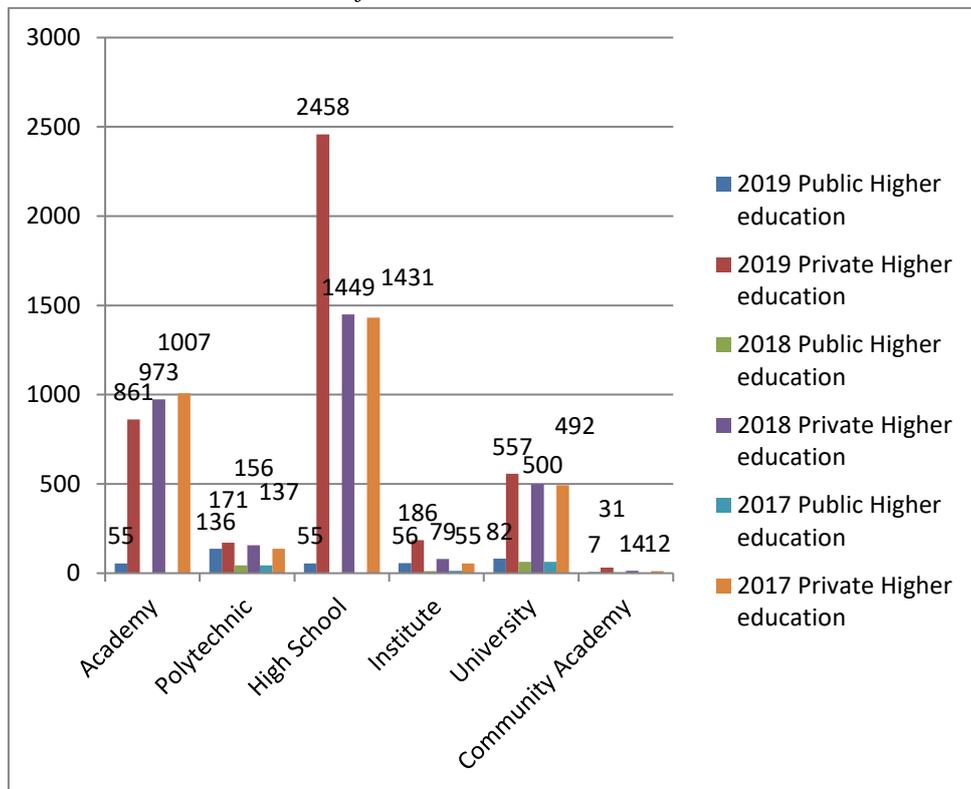
Source: (Kemenristekdikti, 2019)

Based on these data it can be seen that a number of universities experienced a fairly rapid increase: in 2017, 3256; in 2018, 3293 and in 2019, 4655. Growth in 2017 to 2018 was 1.14%, while growth in 2018 to 2019 was 44.36%. However, increasing the quantity of tertiary institutions has not been met with a comparable growth of quality as indicated above where it is recorded that of 4655, only 22 succeeded in attaining WCU ranking. The rest, did not demonstrate that level of competence as indicated because management systems are not yet totally reliant on quality process and consequently Indonesian tertiary institutions are ranked 292 of 901 in the QS World University Ranking.

Its university sector has a crucial impact on the relevant nation and thus higher education must expand the focus of quality efficiency for all stakeholders through a quality assurance system (Yatwailo, 2014). Quality assurance involves a planned audit activity implemented through a quality system (Akareem & Hossain, 2016; Elassy, 2015). Based on this, a quality assurance system becomes a tool for implementing innovative strategies for the provision of quality education to realize a world-class university. Strategy as a comprehensive master plan (Rangkuti, 2013) or technique is employed to spread an innovation/idea of renewal and strategic implementation is the key to the relative success of a higher education system. Innovation as a renewal idea in the form of a new design or approach must be based on new findings (Fontana, 2011) and innovation strategies are ways, techniques and methods that demonstrate renewal in the form of invention and discovery (Lisetskii et al., 2015). Based

on this definition, an innovation strategy becomes a visionary idea in the higher education implementation system when realizing WCU status. Its implementation through quality assurance is in this context, based on WCU criteria and hence the innovation strategy becomes a visionary idea in the systemic impmlementation of the university. The implementation is quality assured through reference to the achievement of higher education objectives based on WCU criteria. Indicator criteria in WCU focus on four main criteria: (a) research, (b) teaching, (c) employability and (d) international.

As a follow-up and innovation related to improving the quality of higher education in realizing WCU, an innovation strategy in its quality management system, Hoshin Kanri, was identified. In essence Hoshin Kanri is Japanese and comes from the words Ho which means direction and Shin which means guidance. Hoshin can be interpreted as direction or wisdom while Kanri means distribution and as a strategy deployment of a system that ensures the strategic objectives of an organization, encourages improvement of actions and is a process of alignment in accordance with change. Comprehensive management that enables the alignment of complex systems towards systematic change (Villalba-Diez & Ordieres-Meré, 2015) builds actions into a management plan in order to achieve strategic priorities (Ahmed, 2016).

A management system approach is achieved by prioritizing commitment in managing change that encourages substantial breakthroughs in improved organizational performance (Boisvert, 2012). This is achievd by eliminating obstacles in the organizational program planning process (Akao, 2004). Based on this explanation, Hoshin Kanri is an innovation strategy in education management that provides direction in achieving the target of higher education success in realizing quality as determined through successful WCU status. This strategy is integrated in the quality management system which gives direction regarding how to plan, implement and also conduct monitoring and evaluation of quality assurance in higher education. The quality of education that was previously examined on an input-process-output basis now also emphasizes outcomes on a global scale. Multi-dimensional synergy in the global era has become an urgent priority that must be realized and Hoshin Kanri is considered as an innovative and creative step in preparing for a multideminal educational system. This is because the quality of an education system is not only based on numbers and the ratio of the quantity of educational institutions but rather the quality of its graduates.

Hoshin Kanri implementation is a four-step process that includes: (1) strategic planning, which is focused on effectiveness, agreed by all levels of management and ensuring realistic realization; (2) tactical development, the key in this stage/step is communication; (3) action, to ensure implementation plans are in place and that the objectives are achieved in a real context and (4) review and adjustment of the deployment policy to match the objectives. In its implementation, this methodology is embedded into the university's quality assurance

system such that important components can be articulated and used as an organizational strategic vision strategy and is used to determine what actions are most effective to achieve these goals.

This study aims to describe the implementation of *Hoshin Kanri* as an innovation strategy to improve the quality of Higher Education in realizing WCU status. In practice, this is an investigation of a quality assurance system that supports the credibility and accountability of tertiary institutions in order to meet objectives in the form of customer satisfaction. The aim is to promote the principle of zero deficit in order to create quality universities in a comprehensive manner and assure their continuous improvement to pre-determined criteria.

Literature Review

World Class University (WCU)

A WCU is a university that has superior quality, both in terms of management, academic freedom, restriction, facilities, publications and internationalization (Yeravdekar & Tiwari, 2014). WCU is one dimension to assure quality productivity in higher education (Sheil, 2010). WCU has four pillars: "research quality, quality of learning, absorption into the world of work and achievements on international display". Turner, (2014) notes that University league tables and rankings are now serious matters, forming the basis of national policy for higher education in some cases, and attracting the attention of the World Bank. He further suggests that there are policy lessons to be taken from the league tables at both national and institutional levels. This study find that the quality of higher education is the main parameter in efforts to achieve WCU.

Based on The Times Higher Education Supplement/THES (2016) WCU criteria include: research quality, 60%, graduate job readiness, 10%, (Quacruarelly Symond World Class University, 2020) namely Academic Reputation (40%), Employer Reputation, 10%, Faculty Student Ratio, 20%, Citation per Faculty, 20%, International Student Ratio, 5% and International Staff Ratio 5%. These criteria are specific to the development of four essential components in WCU: (1) research, (2) teaching, (3) employability and (4) internalization. To realize WCU by prioritizing a higher education institution's quality is to commit to continuous improvement. WCU is an essential requirement for universities in Indonesia in order that they can compete globally against common standards or criteria of quality.

Innovation Strategy for Improving Education Quality

Innovation strategy implementtion requires decisions at the top management level and allocation of company resources that reflect long-term sustainability in company planning,

ideally for at least five years, to ensure future oriented stragetic planning (Kotler et al., 2008). Innovation is expressed as an idea or ideas that will be seen as something new and meaningful in application (Rogers, 2010). Strategy management is a process of developing a comprehensive plan, delivered with a competitive movement, using an operational approach to move towards the desired direction, strengthen market position and competitive ability, and achieve performance targets (Thompson et al., 2013). The benefits gained by the organization when implementing strategic management include: (a) providing an organization's long-term direction in achieving its goals; (b) helping the organization adapt to the new environment; (c) making an organization effective; (d) identifying excellence in the organization in an environment that has a high risk; (e) enhancing strategic planning activities that prevent emergence of future problems; (f) involvement of all aspects of the organization in strategy making at the implementation stage and (g) reduction of crushed activities (David, 2011). The strategy framework is depicted in Table 1 below.

Table 1: *Strategy Framework*

Has a big change occured in position internal strategic company?	Has a big change occured in an important external position of the company?	Has the company moved closer to the targets set?	results
Not	Not	Not	Take Corrective Action
Yes	Yes	Yes	Take Corrective Action
Yes	Yes	Not	Take Corrective Action
Yes	Not	Yes	Take Corrective Action
Yes	Not	Not	Take Corrective Action
Not	Yes	Yes	Take Corrective Action
Not	Yes	Not	Take Corrective Action
Not	Not	Yes	Continue current strategy

Source: (David, 2011)

Based on Table 1 above, major changes are seen as necessary in terms of internal strategic plans, external positions, achievement of targets and results. In implementing a higher education quality plan, an implementation cycle must be based on a plan that contains the results of needs assessment and analysis of internal and external conditions of the organization, such as with the use of a SWOT analysis (Strength, Weakness, Opportunity, and Threats) and also Benchmarking.

Hoshin Kanri Strategy

Hoshin Kanri is an effective planning methodology that has a number of benefits compared to other planning techniques in education (Souad et al., 2017). Hoshin Kanri's excellent innovation strategy includes integration of strategic objectives with tactical management through adoption of the Plan-Do-Check-Act/PDCA cycle (Osada, 1998). The spread of strategic policy planning is aligned with the target achievement of objectives, in this context tertiary institutions achieve WCU. This process he called strategic planning and it is characterized by choosing strategic changes to identify quality productivity improvements or create competitive attractiveness to the targeted scale (Tennant & Roberts, 2001). Initially the strategy of Hoshin Kanri was developed in Japan and the strategy has since been used more widely to help organizations globally, focus on efforts to achieve (Kiran, 2019).

The goal is to ascertain the status quo and improve performance by analyzing current problems, applying solutions in response to the environment. The conditions include the application of policies, policy control, planning and yield management (Butterworth, 2001), aligning objectives (strategies) with management plans (tactics) and operationalizing work (operations). Hoshin Kanri's strategic management framework in the college management system is a major component in realizing WCU. Quality is the main parameter in the effort to achieve WCU and to be able to realize WCU, Hoshin Kanri is an innovative management system approach that provides direction and guidance in formulating success targets.

Method

This study used a mixed method approach, a combination of two research methods viz qualitative and quantitative aims to solve the identified research problems (Creswell, 2012). Use of a concurrent, embedded mixed model research design, (Halcomb & Hicjman, 2014) seeks to reconstruct the generalization of qualitative findings reinforced by quantitative findings. Research locations include three of the 10 best tertiary institutions in Indonesia: Gadjah Mada University (UGM), Airlangga University (UNAIR) and Brawijaya University (UB).

At the practical levl, this research design is an attempt to answer the research focus through four main steps: (1) Qualitative and quantitative descriptive research, the aim is to obtain a range of grades for university quality and need assessment as well as a SWOT analysis of the condition of the institution and what future strategies are required to realize WCU; (2) Higher education quality planning which analyzes quality results in the previous year (pre Hoshin Kanri); (3) Hoshin Kanri's implementation in achieving WCU based on fulfilling four main criteria in WCU: (a) Research, (b) Teaching, (c) Employability, and (d) International (during Hoshin Kanri) and (4) reviewing results. The findings are interpreted as 1ualitative data collection using interview, observation, and documentation techniques.

Quantitative data uses the Delphi Technique with data analysis inclduing Condensation data, Display data, Conlusion: Drawing/Verfying and Mo tendency. The check for the validity of the data addressed four criteria: (1) credibility, (2) reliability, (3) dependability and (4) confirmability.

Results and Discussion

The results showed that working to realize World Class University (WCU) status required innovative strategies and influenced a conseqwuent increase in quality. Innovation strategy was found to be key to improving the characteristics of an organization (Hamid et al., 2015). This strategy when integrated in the quality management system gives direction to planning, implementation and review or control of the quality of higher education using PDCA cycles (Song & Fischer, 2020). Hoshin Kanri strategies include: (1) Quality planning; (2) Conducting tactical development of tertiary quality plans; (3) Implementation of quality plans and (4) Review of quality plans with Policy Deployment. This strategy is thus useful in realizing policies to maintain and improve higher education quality standards in the context of realizing WCU status.

Higher Education Quality Planning in Realizing a World Class University

The quality plan includes identification, selection, commitment and achievement of goals set (Kermanshachi et al., 2016). The higher education quality plan is the basis for directing the pace of the tertiary institution in achieving its goals. To realize WCU, quality must be the main requirement in this innovation strategy. Quality planning is based on the results of the quality conditions of tertiary institutions from the previous year and geared to continuous improvement. Based on the results of the Pre-Implementation of Hoshin Kanri, the quality of the three tertiary institutions is depicted in Figure 2 below.

Figure 2: *Pre Hoshin Kanri Innovation Strategy in Creating World Class University*
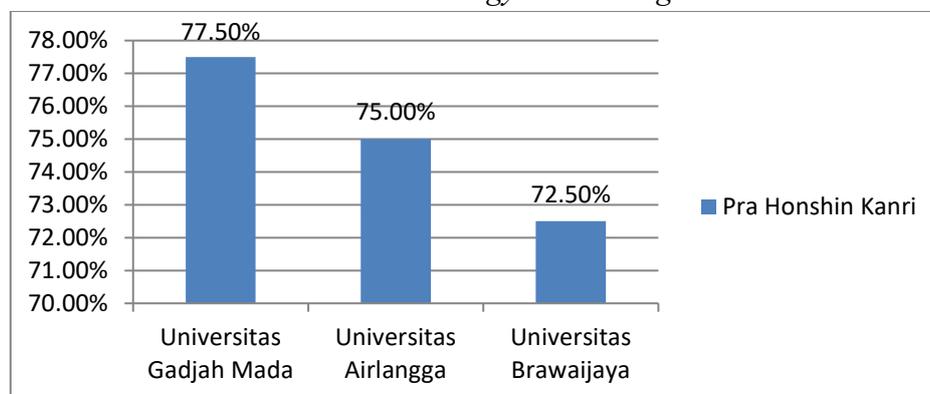
Based on Figure 2 above, before the implementation of Hoshin Kanri, the percentage of quality in the three high groups were: (1) Gadjah Mada University, 77.50%; Airlangga

University, 75.00% and Brawijaya University, 72.50%. Based on the achievement of the four main indicators in WCU: (1) Research, (2) Teaching, (3) Employability and (4) International, if the percentage of the scales are 100%, there needs to be improvement through the innovation strategy of Hoshin Kanri in realization of WCU. In practice, the quality plan is set out in the higher education quality assurance plan which acts as a component of the institution's quality control. The existence of a quality plan as part of strategic management is fundamental so that an organization or institution can determine what goals need to be achieved.

The quality plan includes synchronizing the Vision and Mission as outlined in the Higher Education Strategic Plan. (Abdullah et al., 2013). Before preparing a statement of Vision and Mission it is necessary to understand the following: (a) shared goals, without shared goals and commitment certainly will not be able to realize the existing plan; (b) shared values, cultural values in a organization become crucial as the characteristics of an organization; (c) the need to grow the creativity and productivity of every human resource in the culture of organizational quality; (d) the role of the leader as a driving force and also as a determinant in organizational decision making and (e) seed assessment and SWOT analysis (Strength, Weakness, Opportunity, and Threats) are carried out. SWOT is a form of analysis that identifies internal and external organizational factors (Khatir & Abarzadeh, 2019). T

The results of the analysis determine the priority scale and in the next process, a needs assessment is carried out in-situ, at the tertiary institutions, by interviewing, observing and documenting techniques in order to support the completeness of data through the questionnaire to reach consensus. The questionnaire was used as a tool to capture quantitative data about whether the institution's actual needs and desires were carried out and an analysis of the internal and external environment was conducted through a SWOT analysis. In the internal environment, internal strengths and weaknesses are activities that can be controlled by an organization efficiency or lack thereof. Identifying and evaluating an organization's strengths and weaknesses in the functionality of a business is a very important strategic management activity (Thamrin & Pamungkas, 2017). External opportunities in contrast, open up opportunities and challenges for tertiary institutions in adapting to dynamic changes, international challenges and competitive competition in the global arena.

Tactical Development of Quality Plans in Realizing a World Class University

The tactical development of superior quality plans for tertiary institutions in realizing WCU emphasizes: (a) variety based positioning; (b) need based positioning and (c) access based postioning (Teixiera & Junior, 2019). In terms of variety based positioning, the position of Indonensian tertiary institutions are still in the range of 229 in the world class university

ranking and as such, improvement of all components of the education delivery system must be based on zero deficits. This can be indicated in the tactical development of quality plans based on need assessment and SWOT analysis and can include Hoshin Kanri as an innovative strategy key to the education delivery system. The Hoshin Kanri methodology Plan, Do, Check and Act (PDCA) cycle is described in Figure 3 below.

Figure 3: *Hoshin Kanri Cycle*
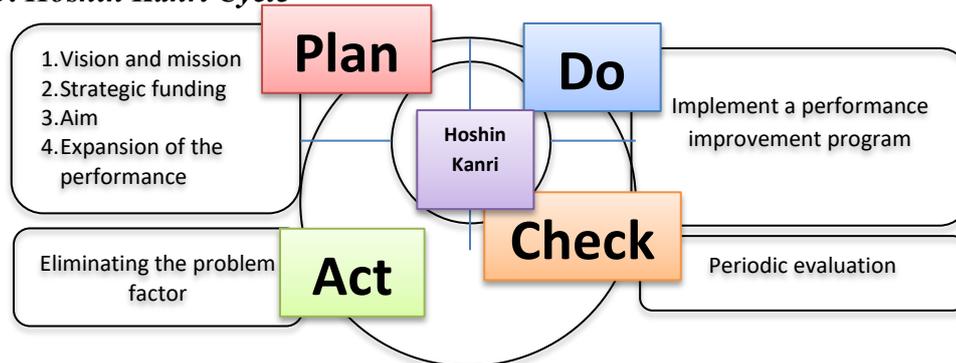
As depicted in Figure 3 above the cycle of Hoshin Kanri includes: (1) vision and mission, (2) strategic planning, (3) objectives, (4) expansion of performance improvement programs, (5) implementing performance improvement programs, (6) eliminating the problem factor and (7) periodic evaluations.

Implementation of Higher Education Quality Plans

The process of implementing Hoshin Kanri's tertiary quality plan is carried out in four stages: (1) environmental scanning; (2) strategy formulation; (3) strategy implementation in sustaining quality (strategy implementation) and (4) evaluation (Witcher & Butterworth, 1999). In practice, through quality assurance, the PDCA cycle is a means of ensuring the implementation of the Hoshin Kanri strategy. This strategic planning of the vision, mission, strategic planning, objectives and expansion of performance improvement programs works through quality assurance to realize WCU targets. Checks which refer to periodic monitoring and evaluation to ascertain whether implementation is in line with the plan and monitoring the progress of planned improvements maintains quality.

Ongoing strategic action, related to eliminating problem factors and to set new goals for subsequent improvements achieve the intended purpose and fulfill requirements, based on identified needs to get results in terms of effective performance and continuous improvement ("ISO 9001:2000 Clause 4—Quality Management System," n.d.). In practice, when integrated in higher education quality assurance this becomes a tool in managing improvement and quality development on an ongoing basis. The main characteristics of quality assurance are prevention and operation to prevent mistakes, low quality product, and waste (Shin, 2018). The results of implementing the Hoshin Kanri strategy in practice as quality assurance in the Republic of Indonesia higher education as referenced by the Minister

of Research, Technology and Higher Education Regulation Number 62 of 2016 concerning Higher Education Quality Assurance Systems, is presented in Figure 4 below.
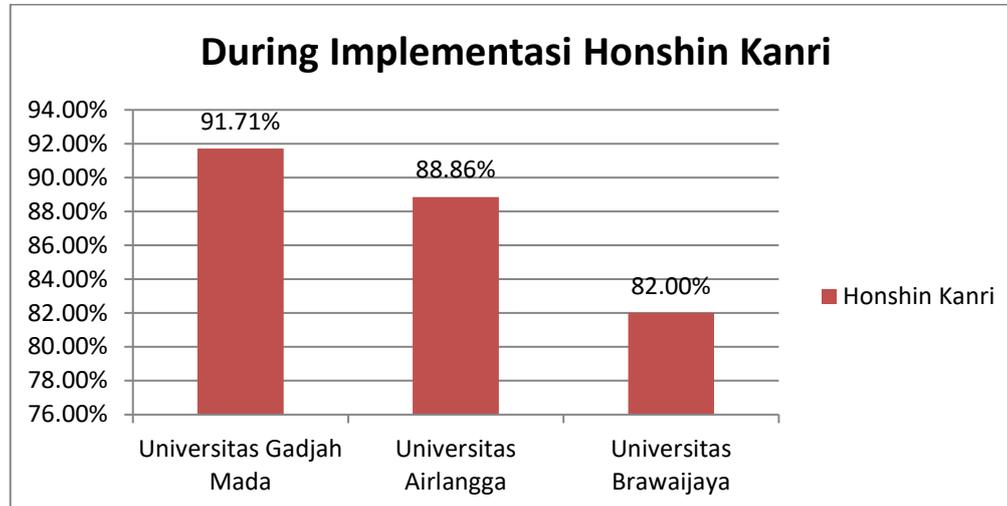
Figure 4: *Implementation of Honshin Kanri Innovation Strategy in Realizing a World Class*

University
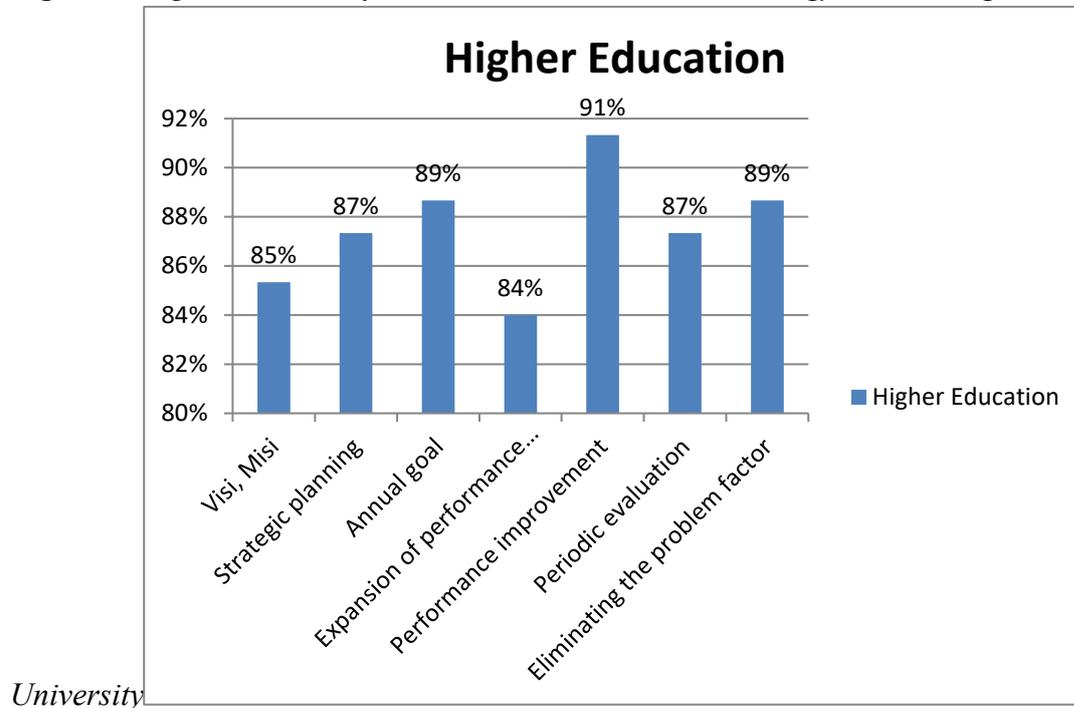
The results of the implementation of the Hoshin Kanri innovation strategy in tertiary quality planning realizing WCU criteria for seven components: (1) Vision, Mission became the main basis for developing the quality of tertiary institutions, with 85% indication as the fundamental of a tertiary institution in planning quality improvement; (2) strategic planning 87% (3) objectives and goal setting including short, medium and long term, 89%. (4) expansion of performance improvement programs, 84% and (5) implementing a performance improvement program, at 91%, the highest percentage in this strategy. In accordance with the theory that implementing the innovation strategy of Hoshin Kanri, where the increase in performance has increased (Melander et al., 2016) (6) periodic evaluations, 87% of results are the same as the strategic planning component and (7) eliminating 89% of the problem factors. That is an effective implementation strategy in an effort to improving the quality of higher education through the realization of WCU status.

Implementation of this strategy in three research locations: UGM, UNAIR and UB is presented in Figure 5 below.

Figure 5: *Implementation Results of Kanons Honshin Innovation Strategy in Realizing WCU status*


Based on Figure 5 above the percentage of quality in the three groups represented above after the Implementation of Honshin Kanri was: Gadjah Mada University, 91.71%; Airlangga University, 88.86% and Brawijaya University, 82.00%.

Review of Higher Education Quality Plans in Realizing a World Class University

The review is part of Hoshin Kanri's strategy for goal based policy deployment adjustment (Hutchins, 2012). In this context it is the same as monitoring and evaluation. The purpose is to ensure that the basic organizational tasks are strategically planned (Zou & Brown, 2017). The study results are useful in determining the success of goals set in the context of WCU realization (Chase et al., 2013). A review of the success of this strategy implementation was achieved through analysis of the results of higher education quality conditions prior to the formulation of a quality plan using the innovative Hoshin Kanri (Pre-Hoshin Kanri) strategy and post implementation of that quality plan.

Hoshin Kanri's implementation as an innovation strategy to realize WCU status was achieved through seven steps: (1) vision, mission; (2) strategic planning; (3) objectives; (4) expansion of performance improvement programs; (5) implementing performance improvement programs; (6) periodic evaluations and (7) eliminating problem factors. The interpretation of the results of this study evidence a significant increase in all three of the research locations: (1) Gadjah Mada University, previously 77.50% to 91.71%, an increase of 14.21%; (2) Airlangga University from 75% to 88.86%, an increase of 13.86% and (3) Universitas Brawijaya from 72.50% to 82%, an increase of 9.50%. Broadly speaking, the implementation of Hoshin Kanri in realizing WCU was 12.52%.   These data are presented in Figure 6 below.

Figure 6: *Results of Implementing Honshin Kanri's Innovation Strategy in Delivering World Class*

University Higher Education in Indonesia
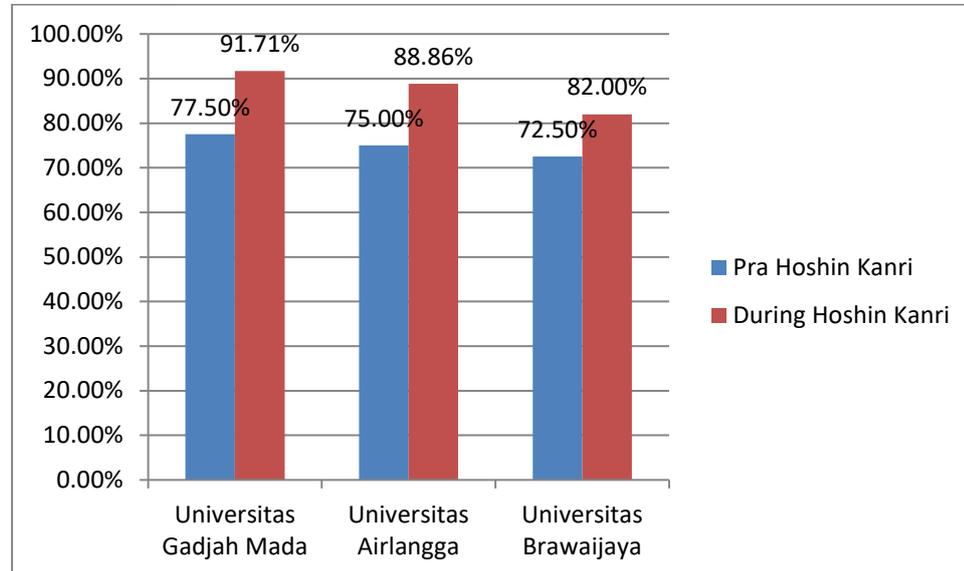
Based on these data, improving the quality of higher education is achievable through the implementation of an innovation strategy framework that quality assures education productivity. The process is one of continuous improvement focused on customer satisfaction which forms public trust and stimulates the need for higher education institutions. Considering that quality is the key to a successful program, the involvement of all education stakeholders in the *Hoshin Kanri* component needs to be constantly monitored to achieve optimal and comprehensive standards of practice and implementation.

CONCLUSION

The implementation of Hoshin Kanri's innovation strategy in realizing World Class University (WCU) status is efficacious. The efforts to improve quality are carried out in a continuous improvement plan and are strategic steps in meeting the needs and desires of customers and in the context of optimizing the role of universities in producing academics that are able to compete globally. There are four conclusions from the results of this study. First, the implementation of Hoshin Kanri as an innovation strategy in realizing WCU through higher education quality planning and quality assurance is considered effective and efficient as a key to success in achieving goals. Second, the tactical development process of quality planning based on the Pre-Hoshin Kanri stage and the implementation of the seven strategies in Hoshin Kanri formulates a capable plan in realizing WCU. Third, the implementation stage produces goals that exceed the plan formulated and record high problem solution success and a surge in performance improvement that surpasses the achievement of the goals set. Fourth, the results of the review of the quality plan comparing pre-implementation and during implementation (of the experience of improving the quality

of higher education) recorded an improvement of 12.52% in realizing world-class university status.

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