The Third Decade

FINDINGS AND RECOMMENDATIONS FOR 2030

By GUILD Consulting

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I. Introduction

In January 2020 GUILD Consulting (**https://guild.consulting**) was contracted to conduct a one-year study that would bring together in-depth national, regional, and local data to help the University of Hawai'i System (referred to as "UH" or "UH System" in our report) prepare a robust Third Decade Plan, outlining the University's direction and priorities for the next 10 years. This plan will be used by UH Board of Regents, UH executives, and the Hawai'i State Legislature to serve as the foundation for the University's next Strategic Directions update in 2021.

This summary report is the fourth phase of our work. In Phase-I, Robert Donaldson [i] conducted a broad roundup of national and international trends in higher education (Annex-A). Phase-II was a deep dive into data available from the University of Hawai'i, the State of Hawai'i, and from other sources and was led by Frank Haas [ii] (Annex-B). In Phase-III, Peter Adler [iii] interviewed 84 individuals in the business, government, education, non-profit, and media sectors and with Iqbal Ashraf [iv] conducted 6 focus groups and an open crowd-sourced survey with more than 200 responses (Annex-C).

To collect our data and observations and prepare the recommendations that follow, GUILD Consulting undertook extensive research into trends in higher-education and evolving best practices. We searched State databases and data sources within and outside UH, for clues to Hawai'i's evolving future. We actively engaged national higher-education experts, Hawai'i employers, policy makers, community leaders, UH students, faculty, executives, and regents.

GUILD Consulting's study looked at UH's perceived strengths and weaknesses, specific programs that can help power the state's economy and workforce, and ways to further the System's mission between now and 2030.

Our work began three months prior to the full onset of the COVID-19 emergency and the ensuing economic crisis in which Hawai'i was impacted dramatically by the shutdown of tourism and many local businesses. The pandemic has sent shockwaves through higher education and is now affecting all universities and colleges, including UH's ten campuses.

Around the nation and in Hawai'i, the crisis has precipitated: (1) the rapid and immediate implementation of new student, faculty, and staff safety measures; (2) severe short-and near-term financial strains tied to impending funding shortfalls; and (3) the rapid transition to new means of instruction and service delivery (to 50,000 students, or 35,000 full-time equivalent fall enrollees at UH).

While UH grapples with health and budget responses, COVID's ten-year implications are not fully clear and may not be known until reasonable new public health and financial equilibria have taken hold. That could take three to five years, or even longer.

The COVID-19 crisis is upending how traditional community colleges, baccalaureate institutions, and research universities operate and how they are perceived by the public. While impacts to UH fall 2020 enrollment were modest, maybe even negligible, virtually all of our interview and focus group respondents believe both short term budget cutbacks and the long-term shift to distance education methods are inevitable. Projecting ahead, COVID-19 will likely prove to have been a game-changing event for all colleges and universities, UH included. The shrinking budget and the rapid transition to distance learning is a pivot point, perhaps even a fulcrum, for creating a new era in higher education in Hawai'i. The key is a well-thought decadal outlook and well-aligned five-year strategies and tactics.

The GUILD Consulting team was assisted by an advisory panel that provided specialized guidance in areas relevant to the study. Our advisers were economist Paul Brewbaker, PhD.; Native Hawaiian expert Dawn Chang, Esq.; business expert H. Mitchell D'Olier, Esq.; foundation and non-profit expert Terrence George; land and organization planners Kem Lowry, PhD and Keith Mattson, MURP; and Deane Neubauer, PhD, former UH executive and an expert on U.S. and international higher-education.

Throughout the study, GUILD coordinated closely with Dr. Pearl Imada Iboshi, UH Director of Institutional Research & Analysis Office (IRAO) and her team that included Dr. Marcia Sakai, former Interim Chancellor of the University of Hawai'i Hilo, Senior Analyst David Mongold and Dr. Fiorella Penaloza, Academic Program Officer.

Readers of this summary report are strongly encouraged to inspect our Annexes A, B, C and D from which this synthesis has been derived.

II. GUILD Consulting's Conclusions

Our report responds directly to the nine questions GUILD Consulting was contractually charged with answering, plus a tenth one that emerged during the year-long study. In the course of our answers, several cross-cutting themes emerged as we sought to answer the questions we studied. Said differently, certain ideas turned out to be possible answers to more than one question.

Along with the summative findings, performance assessment, and possible recommendations for UH's next decade plan, all of these are reported in greater detail in Section IV "Key Questions" of this report and backed up in attached annexes A, B, C and D. The overlapping themes suggested by our analysis all speak to the need for fundamental policy and administrative changes, some urgent and some longer-term. Some of our findings need to be examined further, before being used in a strategic plan.

Our conclusions are as follows:

1. **Vision**. UH must fashion a fresh and inspiring new vision, a crisp and simple "collective ambition" that stresses the unity of the system and creates a stronger raison d'être. The new story should embrace the idea of "One UH" with many entryways into different learning communities where students, teachers, and researchers thrive. It should be developed in partnership with the State's prominent policy makers, employers and high school educators. A new vision and clearly articulated mission will serve as a launch pad for UH's five and ten-year goals, fortified with specific objectives, measurable results, and a prioritized system-level dashboard. Annex D contains the starting point for such an "outside-in" dashboard for consideration. Concurrent with the above, effective communication, branding, and messaging will be essential if UH is to fully achieve its aspirations.

2. **Focus**. Hastened by the sudden COVID-19 emergency, downsizing in the face of prolonged drop in State funding is inevitable. UH's financial crisis offers an immediate opportunity for vital decadal changes. A major break from the past is essential. The notion that UH can and should "be everything to everybody" is no longer tenable. A shift to strategic and prioritized programming will be painful but it will help UH evolve into a far more coherent and efficient system over the next ten years.

3. **Rightsize**. UH needs system-led program reviews that have real consequences and that lead to program prioritization (especially, consolidation and elimination) based on clear criteria that may include: (a) criticality to mission; (b) workforce demands; (c) community impact; (d) enrollment projections (or return on investment) and; (e) locational advantages. UH has hundreds of programs but, for the System as a whole, concentration on a few targeted areas of excellence will attract enrollment, enhance research funding, and improve cost management.

4. **Organizational Shifts**. UH should consider two long term administrative governance moves. The first involves bringing executive intellectual and academic leadership to groups of clearly related program areas across and inclusive of all campuses. These could align with what we perceive as UH's "Top Ten" (see Question #4). Some examples are allied health; sustainability and environmental management; Hawaiian studies and languages; agriculture and culinary, and ocean, earth, and space science.

   The second involves creating "academic clusters" that are aligned to the state's traded and non-traded "economic clusters". "Traded Industry Clusters" are those that export goods and services outside of Hawai'i to other regions and countries. "Non-traded Industry Clusters" are those that sell to in-state buyers. Broadly stated, traded clusters bring benefits into a region while non-traded clusters circulate economic benefits within a region.

   A 2017 study by UHERO found that while the typical US state has ten strong "traded clusters" of industries, Hawai'i has only three. In Hawai'i, apart from Hospitality and Tourism, many of the state's jobs are in sectors that are "local industries," that is, industries that do not draw significant revenue into the state. These areas include some aspects of tropical agriculture; allied health; ocean, earth and space sciences; culinary and food science, and a few others.

5. **Technology**. The change-over to distance learning nationally is moving quickly but UH has a lot of ground to cover to become a serious player in online learning. As fast as possible, UH needs to leverage technology to personalize learning for its students and engage them better online.

Creative application of new technologies – Artificial Intelligence (AI), robotics, 5G, informatics, and gamification – can give UH an opportunity to leap ahead if it acts fast. These technologies are not merely separate programs to be added. They need to infuse, permeate, and become foundational to the content and pedagogies of UH's offerings.

6. **Academic Flexibility**. The University's adherence to conventional academic structures and norms puts it at a disadvantage in supporting non-traditional students and rapidly changing workforce needs. Stackable certificates (potentially leading to degrees), micro-credentials, shorter modules, and other flexible programs can attract new types of learners to the University and better respond to the State's educational and training needs. Supporting joint degrees in partnership with other universities and offering semesters abroad or on the mainland may encourage local students to stay in Hawai'i.

7. **Outside-In**. UH spends a great deal of time navel-gazing, i.e., deliberating, introspecting, and incrementally evolving in isolation. A major "head-turn" is needed, an outward-facing orientation to ensure tighter links to Hawai'i's public, private, and civil sectors. UH's town-gown interaction comes down to individual, entrepreneurial bridge builders who create practical working links to external communities and organizations. While, these isolated efforts need to be incentivized, UH needs to institutionalize and expand on its town-gown relationships. UH needs to build deeper community relationships. UH must move faster in response to evolving industry needs, and with heavy inputs from industry leaders.

8. **Continued focus on racial equity**. On the whole, UH has increased access to better align enrollment diversity with diversity in Hawai'i's population. Greater attention is needed for increasing access for Black and Latino students, while continued improvements are needed in degree completions and inclusion in faculty and staff positions for Native Hawaiians and other Pacific Islanders.

Our conclusions derive from more detailed answers to the questions below and in the hundreds of pages of research attached in Annexes A, B, C and D.

III. Planning Assumptions About the Next Decade

Over the next 3 to 5 years, and probably farther ahead in the coming decade, "uncertainty" will hang over all plans. UH's Third Decade Plan is unlikely to be a firm guide in the face of shifting and fast-moving realities. Nonetheless, creating a working hypothesis about the future is important.

Over the course of our information and data gathering, and more specifically in our focus groups, interviews, and discussions with advisers, GUILD Consulting gathered a long list of potential assumptions from different respondents about what may lie ahead over the next ten years. "Assumptions" form a foundation for formulating and grounding future plans, and we encourage UH to clearly state theirs at the front of their coming decadal strategy.

There are three reasons this is important. First, economic, technological, political, social, and other beliefs, especially evidence-based beliefs, form a potential basis for future actions. Second, they are a reference and check point for future updates. If assumptions change, plans may need to change. Third, the articulation of assumptions provides transparency and clarity to system rights-holders, stakeholders, and observers.

The full list we collected from all respondents is found in Annex C ("Interviews, Focus Groups, and Survey Results") and are roughly divided into seven categories. A sample is presented here. GUILD Consulting does not advocate any or all of them but encourages UH system planners to use what may be helpful from the list we have gathered and/or state their own when a plan is written.

1. **Demographic.** Hawai'i will experience a loss of residents annually in the next five years and the State will continue to experience an aging population, a declining birthrate, and the exodus of many young people for college or post-college careers. Any population growth will likely take place in Maui, Kaua'i, and Hawai'i counties. As technology improves, Hawai'i will likely experience an in-migration of virtual workers from other locales absorbing jobs that might have been done here. Similarly, new jobs elsewhere may get filled by skilled workers living here.

2. **Economic.** Hawai'i's economy will remain in free fall from 2020-2021, then slowly stabilize by 2025 with gradually rising employment numbers and improving tax collections. No "V-shaped" recovery will occur and Hawai'i will recover more slowly than states on the mainland. The overall cost of living in Hawai'i will not decrease and Hawai'i's total unfunded liabilities will grow and likely affect bond ratings. For cost reasons, rail will not extend to Mānoa which will inure to the benefit of UHWO and LCC and create possible enrollment revenue losses to Mānoa.

3. **Educational.** The core business model for public and private postsecondary schools is breaking down. Twenty-to thirty percent of American colleges may fail completely in the next decade. Most of these will be private schools, though some smaller regional branches of public universities will be in jeopardy. The general utility of a bachelor's degree will lessen, and other credentials and certificates will increase in value. Rigid employment rules, which limit opportunities for downsizing or eliminating academic programs, will pose an increasing financial burden. Traditional standards for faculty advancement will continue to create silos and fiefdoms. However, interdisciplinary projects will be increasingly recognized as new frontiers for ambitious younger faculty. Expansion of degree completion programs and other initiatives to attract adult students will require flexible scheduling, including more modular courses.

4. **Political.** New political leadership will move into the Hawai'i legislative and executive branches in the next five years. They will be younger but will be just as vulnerable to union pressures to maintain the status quo for public employees. Legislative "meddling" will continue. In 2022 and 2023, the Hawai'i legislature will require substantial cuts in state funding for higher education beyond what has been experienced in the past and may insist on vertical cuts. However, there will be fierce fighting to protect special interests across all campuses and programs.

5. **Social and Cultural**. Regardless of whether the thirty-meter telescope (TMT) stays or withdraws, Native Hawaiian issues and populist anti-growth movements will continue to challenge the status quo and affect how UH pursues its stated mission. Sustainability, climate change, sea-level rise, and environmental resilience will become increasingly important for the State of Hawai'i and for UH. The current national conflicts over race will extend to Hawai'i and other ethnic and culture groups will press their own cases, including pressures for greater access to higher education.

6. **Technological.** Rapidly evolving technology will shape the University's ongoing pivot toward a greater emphasis on distance learning. Artificial intelligence algorithms, 5G technology, game theory, synchronous and asynchronous delivery systems, and other technologies will be significant factors in increasing the effectiveness of distance learning, personalizing educational experiences for individual learners, and transforming pedagogy.

7. **Legal.** Expect a continuation of the years-long trend toward proliferation of regulations and standards, emanating both from the U.S. Department of Education and from the regional accrediting associations, which will continue to make it necessary for higher education institutions to devote considerable effort and staff time toward ensuring compliance. UH will be perceived as a deep pocket and attract administrative and judicial litigation from students who eschew online education and faculty and staff who grieve when furloughs or Reductions-In-Force are put in place.

IV. Key Questions

1. FUTURE HIGHER EDUCATION NEEDS

Q. What higher education needs lie ahead in the Third Decade? What do local and national data tell us about what is changing in the marketplaces for higher education?

General Findings:

Hastened by the COVID-19 crisis, the next ten years will redefine higher education in the U.S. Crumbling economies and the erosion of public funding, the rise of online learning, changing expectations of students, and technology-led disruption of the workforce, each by itself a major force, are all simultaneously in play. In this environment, the University needs to ensure that it provides necessary critical thinking skills for a rapidly changing world along with career, technical, and professional programs responsive to workforce needs. UH, as the sole provider of public higher-education in Hawai'i, was quick to pivot to address the teaching crisis due to COVID. However, long-term success needs strategic rethinking in multiple areas including continuing education, credentials, CLEP (College Level Examination Program), distance education, and other adaptive strategies.

More specifically:

In the post-pandemic financial recovery in Hawai'i, workforce and enterprise development will be especially prominent in the minds of policymakers, business professionals, and other influential community leaders. (Annex C)

1. Occupations requiring postsecondary education will experience higher rates of growth than those just requiring on-the-job training, making college degrees more attractive in some areas. (Annex A)

2. The current mismatch between jobs and educational attainment is evidenced not only by the large numbers of underemployed college graduates, but also in the large number of skilled and relatively high-paying jobs, especially in STEM-related fields, that go unfilled because of an inadequate supply of workers with relevant credentials. (Annexes A, B)

3. The rapid advance of automation amplifies the urgency for greater adaptability and flexibility on the part of school administrators, teachers, and learners. The World Economic Forum estimates machines will perform 42% of all task hours in the workplace by 2022, compared to 29% today, leading to some 75 million jobs being displaced—while simultaneously creating an even larger number of new roles for those with proper skills. (Annexes A, C)

4. Micro-credentials, or badges, designed in cooperation with industries looking for particular skills and competencies will better address the needs of displaced workers. Previously, much of this market has been met by for-profit programs. However, since 2010 nearly half of the for-profit higher education institutions have closed and the student population in for-profit schools has declined by 1.6 million. (Annex A)

Strengths and Weaknesses of the UH System:

Programs that promote economic and workforce development at UH are most prominent at two levels of the UH System: 1) at the community colleges, which respond to local needs and train for trades, crafts, and preparation for other degrees; and 2) in the professional schools which prepare their students for specialized careers in law, business, engineering, healthcare, and other areas. (Annex C)

At UH West Oahu more than half of the classes were offered online before the pandemic. To facilitate recruitment of adults, UHCCs have instituted a 5-week online AA degree. In addition, UH Mānoa has increased the number of online degree completion programs over the last five years with the addition of online bachelor's degrees in economics, sociology, psychology, and women's studies. In response to the COVID-19 pandemic, this will expand and become attractive to a wider range of teachers and learners. It will also change the "culture" of UH. To better address the scheduling needs of working adults, the campus has joined the UH CC System pilot of 5-week terms for online degree programs. (Annex B)

UH has much ground to cover in the global shift to online learning. It needs to build the course content and support structures needed for attracting, enrolling, counseling, and educating students seeking online or hybrid education. In addition, UH has done little in the area of micro-credentialing and industry-acknowledged certificates. (Annex A)

The autonomy it grants to its campuses in their programming has come at the cost of serious program duplication, internal competition for enrollment and systemic balkanization. Like many other public universities, UH finds itself hamstrung by a structure designed to grant degrees and diplomas. (Annexes B, C)

Recommendations for UH to Consider in a Decadal Plan:

1. As Hawai'i struggles to recover from the economic effects of the pandemic, UH should be a leading force in planning and implementing programs to equip the workforce with advanced skills and capabilities. Moving well beyond serving the needs of traditional students graduating from Hawai'i's secondary schools, UH must expand its efforts to attract new cohorts of learners, including workers displaced as a result of the COVID-19 crisis who need retraining, out-of-state students, working professionals, and active-duty military. Building online delivery capabilities, expanding online support services, gaining greater flexibility in programming, focusing on fewer programs and more active marketing of those offerings are various ways to attract the new demographics of potential students. (Annexes A, B, C)
2. UH needs to offer both high school graduates and adults who are changing careers more options than just two-year or four-year degrees. Micro-credentials, especially those designed in cooperation with specific industries, offer enormous possibilities for spurring workforce readiness. UH should liberalize its policies on acceptance of transfer credit or Competency -Based Education (CBE) and develop more online degree completion courses with flexible scheduling to attract working adults. (Annexes A, C)
3. To recruit the more than 210,000 State residents who have partial college credits but no degree, UH will need to liberalize its policies on acceptance of transfer credit or policies of granting credit-by-exam, and ensure that it has adequate counseling resources to assist adults who are returning to school. (Annexes A, B)

2. MISSION

Q. Regarding the mission of the system and its component parts: How well positioned and responsive is the University System? In what ways is it prepared or unprepared to meet the needs of the next decade?

General Findings:

At the time of this report, UH System's formal mission statement is under review by the Board of Regents. We therefore examined progress made against the four pillars of the current mission: improving quality of life in the islands; providing quality higher-education to the people of Hawai'i; supporting Native Hawaiian people and their culture; and leading sustainability in Hawai'i and the world. UH has a strong foundation in Native Hawaiian and sustainability studies, though both require greater system-wide coherence across the ten campuses. UH's impact on the quality of life in Hawai'i is not well-understood, and more should be done in measuring and communicating this. UH has done a remarkable job in providing high-quality, accessible, and affordable higher education across the Islands, although this has come at the high cost of duplicative infrastructure and programming.

More specifically:

1. The written statements of mission and purpose are opaque and meaningless to many. As system 'unifiers' they fail to connect and integrate UH's ten campuses and its diverse schools, colleges, institutes and programs. There is a hunger for both a well-articulated vision and an envisioning process that will unify campus and disciplinary divergences. [v] (Annex C)
2. There is a deep philosophical disagreement about UH's role between those who favor purely career preparation and those who worry about the loss of fundamental educational grounding in the humanities and liberal arts. This is an ongoing strategic dilemma for many colleges and universities. The connective tissue between these two worldviews seems to be agreement that all learners need skills for (a) critical thinking, (b) communication and computation, (c) teamwork, and (d) creative problem-solving. (Annex C)

3. The large number of Hawai'i residents who are asset limited, income constrained, employed (ALICE) underscores the importance of developing educational programs that are likely to prepare students for living wage jobs. The significant portion of Hawai'i's population that is economically stressed is also likely to suffer when it comes to educational attainment. (Annex B)

4. Indigenous studies and languages are core elements of the system's current mission. UH has a fast-growing suite of innovative programs, projects, and initiatives which is a point of great pride among most Native Hawaiians, a source of irritation for some Hawaiian groups competing with others for the spotlight, and an area of resentment for some non-Hawaiians, including some non-Hawaiian disciplines in the university system. (Annex C)

5. The University of Hawai'i is uniquely suited to teach and support Native Hawaiian perspectives on land use, development, and governance. Increasing the number of Native Hawaiians in graduate and PhD programs will create a stronger sense of ownership for Native Hawaiian values and perspectives. (Annexes B, C)

6. A number of Native Hawaiians across the system are committed to the long-term indigenization of UH. They seek much greater participation in governance, more Hawaiian executive and faculty hires, and the incorporation of Hawaiian values and perspectives into all subjects. These perspectives are relevant across a spectrum of University programs and highlighting them will help provide bridges for greater intercultural understanding. (Annex C)

7. Some UH Native Hawaiian groups have spoken out against projects such as the Thirty Meter Telescope (TMT), GMO development, and other initiatives that UH institutionally supports. These issues appear to put some university faculty and students at odds with administrators and regents. Though difficult, the debates are healthy, and the issues are important. (Annexes B, C)

8. Similar to the focus on Native Hawaiians, and related to it, environmental resilience, adaptation, and long term environmental, economic, and social sustainability are key pieces of the University's mission. Sustainability for many is closely related to indigenous studies and the two are yin and yang. However, diverse sustainability efforts also seem balkanized and caught in dispersed and sometimes confining definitional debates. (Annexes A, C)

Strengths and Weaknesses of the UH System:

Consistent with its mission, the University's efforts to further Native Hawaiian culture and language, and local and international sustainability are core strengths. Support for economic and workforce development appear unevenly distributed across the system, with some programs (like Astronomy, SOEST, and others) having towering strengths and others (like Travel Industry Management, Pharmacy, and others) concerned about rankings, effectiveness, or relevance. (Annexes A, B, C)

The goal of democracy-building and creating good citizens in its mission is not realized in any organized or disciplined way. It appears at best as an afterthought and at worst, irrelevant. (Annexes A, C)

Native Hawaiian programs are mission-critical but balkanized. Despite a diversity of strong entrepreneurs, no individual seems to hold a key leadership position with a reasonable span of control to direct how these programs will mature in the next decade. (Annexes A, C)

Similarly, UH has many courses that address topics related to a more enduring and stable environment and economy but there does not seem to be a common definition of the term "sustainability" that anchors the diverse efforts underway on all campuses. Some efforts focus globally, others nationally, and still others on what the campuses themselves can do to reduce their own land, energy, and water footprints. Working with other organizations and initiatives to develop programs addressing social issues is consistent with the realization of the University's broad mission to improve the quality of life in Hawai'i. (Annex C)

Recommendations for UH to Consider in a Decadal Plan:

1. UH must create and market a stronger and more coherent system-wide "brand" and a clear and compelling vision as a fresh basis for further acquiring community support, new types of learners, alumni contributions, and faculty and student pride. A new and better expressed vision is central for both internal and external audiences. (Annex C)

2. UH's excellent Native Hawaiian programs will benefit from stronger direction and coordination. UH sustainability efforts also need a more robust and defined focus across the system. In general, to counter the trend of "everything for everybody," UH will benefit from a strategic emphasis on core priorities, mission-driven programming, and a short list of exceptional opportunities for the UH System and its individual campuses to compete nationally and internationally. (Annexes B, C)

3. As Hawai'i tourism – a current and likely future pillar of the State's economy – focuses on sustainable, authentic and "smart" tourism management (as opposed to unbridled promotion), the School of Travel Industry Management in the Shidler College of Business must take on a much stronger leadership role in research and curriculum development built on cultural values and sensitivity. This presents an excellent opportunity to champion high-technology solutions. (Annex B).

4. Colleges and programs must link more directly to areas where Hawai'i offers natural advantages. These include cybersecurity, tropical agriculture, allied health, ocean and earth sciences, astronomy, culinary, and others. Strategic curriculum alignment, both in research and educational preparation to Hawai'i's economic clusters is critical to further position system success. (Annexes B, C)

3. INDUSTRY ENGAGEMENT

Q. How has the University System engaged with major industries to enable "outside-in" planning? Is there potential for redefining industry relationships? Have there been efforts that haven't succeeded and why?

General Findings:

UH lacks systematic, rigorous, and continuous co-ordination with major Hawai'i industries. Community colleges and the four-year programs at West O'ahu and Maui seem to have stronger town-gown relationships and engagements led by dynamic individuals. Mānoa is seen as aloof and focused on research. Untapped opportunities of collaboration with the military, business, tourism, healthcare, and other sectors abound, but employers are largely unsure of the role UH can play in building and offering talent. They do not consider UH to be an easy partner to work with or a potential partner for driving innovation in their organizations. People both inside and outside the UH System report overly complicated bureaucratic procedures that impede collaboration.

More specifically:

1. Business professionals and others outside UH are surprisingly uninformed about the system's moving parts and, with a few notable exceptions, about the trade and craft-focused capabilities for small businesses. Unless they have a specific relationship to a specific campus, Mānoa appears to get all the attention whenever business leaders think about "UH" but other campuses remain remote unless they are specific to their community. (Annexes A, C)

2. One remedy for the skills mismatch between standard university programs and job requirements is "stackable credentialing." A growing number of colleges are allowing students to "test" degree acquisition by taking certificate-earning courses that can eventually be "stacked" to a degree, thus lowering the risk of full or premature commitment for students. The academic credits that students earn can be reused, or "stacked", to fulfill academic requirements of more advanced programs, including four-year bachelor's degrees. (Annexes A, B, C)

3. Hawai'i's well-established reputation in Tropical Agriculture and Culinary Arts is a good example of a possible academic "cluster" that can link to non-traded economic clusters. UH can contribute to the development of diversified agriculture in the state through innovative agricultural techniques and expertise in developing value-added food products (through Food Innovation Centers and Food Sciences curricula such as Culinology). The strength of the Hawai'i brand suggests that diversified agriculture and Hawai'i branded food products are reasonable initiatives to diversify Hawai'i's economy. Similarly, vertical agriculture and "agritourism" may offer clustering opportunities. As in other areas like health, engineering, or public administration, there is the potential to map and organize academic clusters that can be linked to the state's traded and non-traded economic clusters. (Annexes B, C)

4. All branches of the military, active duty personnel, and their dependents are a significant presence in Hawai'i and represent a large but generally untapped opportunity for the University, both for enrollment and in the development of programs, curriculum, and research aligned with their needs. Enrollment success requires special programming to "fit" their needs and schedules. Private institutions like HPU and ASU and online programs like SNHU have had success offering military students tailored modules that are shorter than University of Hawai'i semesters and offer subjects targeted to their interests. (Annex B)

Strengths and Weaknesses of the UH System:

On every campus certain individuals are cited as examples of especially productive, entrepreneurial, town-gown bridge builders. These individuals, both academics and administrators, are especially deft at working with communities of interest or geographic communities and creating specific areas of communication, coordination, and collaboration to the mutual benefit of both, many in areas related to economic and workforce development and some in other impactful ways.

The University of Hawai'i has select initiatives aimed at cluster development that can serve as models, including Honolulu Community College's M.E.L.E. (Music and Education Learning Experience and the Academy for Creative Media, but these appear to be exceptions to the norm. Additionally, some University programs (Tropical Agriculture and Culinary, for example) have bridged the divide between "town" and "gown" to create programs that are aligned with economic development opportunities. (Annexes B, C)

For purposes of enterprise and workforce development, UH lacks a broad, systematic way of engaging with the local community and industry. It lacks academic clusters, cluster leaders, and it does not have a dedicated system-level executive or rigorous process for the development of robust community, government, military and industry relations. Many of the UH-community bridge builders work around the UH bureaucracy and get little or no recognition for what they do. Building bridges and eliminating silos requires a change in culture that can only come from University leadership. (Annex C)

Recommendations for UH to Consider in a Decadal Plan:

1. A variety of workforce-related delivery programs including certificates, continuing education, and internships should be co-designed with local employers. In contributing to the State's economic development, the University can play a key role to identify economic clusters that recognize Hawai'i's natural and regional advantages and link them to related academic clusters. Working with the State, the University can strategically address workforce needs in critical cluster areas such as tourism, cybersecurity, or tropical agriculture and can play an important role in fostering incubators to accelerate development. (Annexes B, C)

2. The University's knowledge and understanding of how "clusters" of related economic activities might connect with related academic clusters can strengthen the State's initiatives for economic growth and diversification. (Annexes B, C)

3. UH would greatly benefit from partnering more closely with Hawai'i's large defense sector to offer military students modular courses tailored to their needs and interests. (Annexes A, B, C)

4. UH should forge stronger partnerships with industries for collaborative planning of academic programs, leveraging advisory boards where they exist. UH can play a foundational role in creating regional clusters involving UH and partner enterprises (e.g., in cybersecurity). Similarly, it can develop incubators and accelerators for converting research into entrepreneurial ventures. (Annexes A, C)

4. PROGRAMS

Q. How well are different programs in the University System prepared for emerging statewide needs? Are the programs that the University System offers aligned with future state needs? Which ones are, which ones are not?

General Findings:

UH could become Hawai'i's most significant public institution and help lead the emergence out of the COVID crisis. Through its extensive campus footprints and as a "system," UH can create comprehensive partnerships to meet community and State-level needs based on defined economic clusters. However, the State's long-term workplace and enterprise development needs are not clear and there is no comprehensive State plan in place so the path to economic recovery and stability remains elusive.

UH can take a leadership role here, providing an objective voice in identifying and focusing on a limited set of best prospects. Currently, UH contributions to Hawai'i's development are not well understood within the community, although it is commonly felt that robust higher-education is essential for Hawai'i's economic vitality.

More specifically:

1. There are structures and programs in place in Hawai'i to foster economic growth based on currently identified economic sectors (e.g., technology, tourism, film and media, and others). However, State of Hawai'i lacks a coherent plan for future economic development and diversification, or the specialized expertise needed to formulate and implement one. There does not appear be a high level, coordinated, inter-agency, multi-jurisdictional approach to identifying new economic opportunities for the state. (Annex B)

2. Innovative programs to stimulate the local economy and create high-quality jobs include creating regional "clusters" to address workforce needs in critical areas through training programs or turning research programs toward incubators and accelerators of strategic new commercial enterprises. Another strategy is for enterprises to contract with higher education institutions to provide academic programs for their employees. (Annex A)

3. UH's many hundreds of degree programs are indicative of how balkanized the system's credential and degree specializations have become. UH offers several similar programs across the system and sometimes on the same campus. These have different course titles or numbers when in reality they are often the same or similar. For example, "gender and women's studies" is taught on one campus while "women's studies" is taught on another. The same holds true with courses and programs in dozens of areas. There are often good reasons for offering similar courses on different campuses, but the array and distribution of programs suggests years of unchecked growth of distributed silos and faculty fiefdoms and a possible lack of connectivity between kindred but distributed offerings. (Annexes B, C)

4. In its Draft Academic Master Plan submitted to the Board of Regents in February 2020, the UH System identified "future critical state needs." Some of these same areas were also identified in UH's Second Decade Project vi and will, along with others, continue to be of strategic value to the State, and therefore to UH. Among them are health, education, environmental management, renewable energy (sustainability), oceans, space, agriculture, culinary, economics, creative media, IT and AI (including cybersecurity), engineering, and business. (Annexes A, B, C)

5. Accurately matching supply to demand is a challenge made more difficult by the State's own workforce and occupational projections which can be vague and confusing. The community college's Annual Reports of Program Data (ARPDs) are one source of insight. For example, they suggest that for persons with associate degrees there are too few agricultural and industrial technicians and too many diesel mechanics and small vessel repairers and fabricators. A separate analysis of majors at four-year institutions linked to job openings shows that, for persons with bachelor's degrees, there are too many environmental and creative media specialists and too few educators and business experts. For persons with master's degrees, there are too many business degrees being generated but too few anthropologists. These are examples derived from the ratios between current supply and demand. (Annex B)

6. Hawai'i's population is aging, with a large and growing number of retirees and a population aged 85+ projected to double by 2045. Academic programs tailored to the increased demand for age-related health services or areas of interest to retirees will become increasingly important. Some of these may include health sciences, culinary nutritional programs, geriatric medicine, and social work, among others. (Annexes A, B)

7. Continuing education will become increasingly important. To fully support future workforce training needs in a dynamic and constantly shifting workforce environment, academic degree programs and continuing education need to be coordinated to fully address emerging needs. Academic programs offer foundational knowledge but are slow to respond to changing needs and conditions. In contrast, continuing education programs are flexible and can be targeted to specific needs, offer shortened modules, faster development schedules, and valuable credentialing that can provide students with a path to higher paying positions. Planning at the system level can ensure that these two delivery systems together meet the strategic workforce needs of the State. (B)

8. The University of Hawai'i has an extensive system of program reviews through its Annual Reports of Program Data (ARPDs), academic program reviews, accreditation reports, and external evaluations. While there may be different purposes for reviews, it is unclear who reviews all of them or what system or campus-level decisions ensue. (Annex B)

9. Frustrations with the negative impacts of high-volume tourism have resulted in a deep erosion of resident attitudes supporting tourism, Hawai'i's largest economic sector. The recently published (2020) Hawai'i Tourism Strategic plan calls for rebalancing priorities to place more emphasis on "tourism management" relative to tourism promotion. Dramatic changes in tourism both globally and in Hawai'i offer the University an opportunity to reorient its travel and hospitality programs to take a stronger leadership role in emerging trends. (Annex B)

10. There are other examples of areas where a change of emphasis can help build a national reputation. Agriculture can shift its attention to more modernized "large scale ag," the use of new technologies, and crops that substitute imports or make money. Tourism is ripe for a makeover but UH's offerings have not evolved into a powerful influence. It should, since one way or another hospitality and travel will continue to be a pillar of the economy. UH should stake out a leadership role in destination management and leverage the recent consolidation of the School of Travel Industry Management with the Shidler College of Business. UH can create Big Issue-Focused "Signature" Projects, perhaps starting with sustainability (Annexes B, C)

Strengths and Weaknesses of the UH System:

UH has developed "Career Explorer," a web application that provides an excellent and easily accessible, one-stop shop for prospective learners to examine job openings and high demand and high earning options; however, the effectiveness of this innovative tool is dependent on awareness and usage, which is limited. (B)

Over the last five years, UH Mānoa has focused on increasing the number of STEM- related programs to attract competitive students and to respond to the needs of the State. Over the same period, UH Mānoa developed professional master's degrees in Asian international affairs, environmental management, finance, information systems, landscape architecture, and marketing management. While STEM programs, per se, align with the general needs of contemporary society, it is important that they align with more specific needs in Hawai'i in order to ensure that graduates find jobs and earn a living wage. (Annex B)

The University's continuing education programs are nimbler than degree programs and well-suited to provide workforce training responding to the specific needs of industry. Government and union-funded programs, in particular, can provide support for workforce training programs that can be delivered through a partnership with the University. (Annex B)

UH Mānoa has the infrastructure to be innovative in the development and delivery of new degree programs through the Interdisciplinary Studies (IS) Program, which has incubated a number of successful programs, including the BA in Creative Media, and the Bachelor of Environmental Design. In Spring 2020, the campus launched the Sustainability BA program, which is a collaboration between the new Institute for Sustainability and Resilience and the IS program. Programs under development in IS include major equivalents in data science, health sciences (a collaboration between JABSOM, public health, nutrition, social sciences), and design. (Annex B)

Like other programmatic areas critical to UH's mission, workforce and enterprise development do not appear to have a central, catalytic driver, manager, or high-level executive leadership. Both functions — assisting sector businesses to strengthen and helping the workforce to grow and adapt — are diffused and spread across the system. They are most prominent in two places: (1) the community colleges, which are more responsive to their own local communities and train for needed trades and crafts or continuation to other degrees; and (2) the professional schools which prepare their students for specialized careers in law, medicine, engineering, health, and other areas. (Annexes C, A)

Currently, UH lists 724 degree-programs. Such an extensive number of offerings presents a challenge for prospective students to search for a program by career or job. Analysis of program reviews and the annual report of program data, however, do not provide a clear indication that the results of these reviews trigger a meaningful response by the University. (Annex B)

Program development for the University is uneven. New programs or changes often take years (sometimes decades) in the face of contentious debate by siloed and entrenched academic fiefdoms. The merger of the Shidler College of Business with the School of Travel Industry Management, the Thirty Meter Telescope, the Academy for Creative Media, and other programs have been characterized by political objections, budgetary restrictions, and other impediments. A few programs (the Maui Food Innovation Center, the music initiative M.E.L.E., advanced professional certificates in the CC System and others) have developed smoothly. (Annexes B, C)

Recommendations for UH to Consider in a Decadal Plan:

1. UH needs to partner with the State, counties, local communities and with various economic development organizations to identify specific opportunities for economic growth. UH should provide specialized regional economic development expertise to the State. UH's accelerator should prioritize ideas aligned to its mission and the State's plans for economic development. (Annex C)

2. UH needs to focus leadership and resources in areas identified as strategic priorities. Broadly, this must stem from data gathering, course inventories, assessment of future growth potential, and program consolidations led by the University system office. More specifically, a high level executive leadership team must be specifically tasked with bringing greater unity and coherence to the following areas which offer possible "top ten" strategic intellectual and financial payoffs over the next decade: (1) allied health; (2) sustainability and environmental management; (3) Hawaiian Studies and Languages; (4) IT, AI and Data Sciences; (5) agriculture, culinary, food science; (6) education/teaching; (7) business, economics, and tourism management; (8) creative media; (9) public policy and administration; and (10) ocean, earth, and space science. To foster continuous improvement in these areas a system-level analysis and "report card" on assessments and the responses to them can highlight both opportunities and gaps in program performance. (Annex C)

3. With the current COVID-generated economic free fall, UH must inevitably downsize, prioritize, and reduce or merge some programs. While there is no painless way to do this, some colleges and universities have used Robert C. Dickeson's review criteria. vii "Dickeson Reviews" can take anywhere from six to twelve months depending on the thoroughness and depth of system-wide participation. An expedited review could utilize some or all of the following criteria: (1) mission criticality and centrality to the system; (2) requirements needed for associate, bachelor's, master's, or doctoral degrees; (3) enrollment demands; (4) marketplace demand for graduates; and (5) return on investment (ROI). (Annex B)

4. Incentivizing and developing interdisciplinary big issue "signature" projects with limited three- to five-year buildouts offers a means to attract both research funding, academic clustering that links to business clusters, and town-gown partnerships. UH can look to prominent national examples of universities that tailor academic offerings to changing economic conditions and to challenges such as climate change, development of renewal energy, sustainability, and "smart" tourism. (Annexes A, B, C)

5. To improve its program review system and move towards continuous improvement, UH must ensure system-level analysis of all programs and should issue "report cards" that drive decision making. Procedures for the development of new programs need to be less cumbersome and involve external stakeholders. (Annex B)

5. HIGH SCHOOL

Q. How can the University System better align with high school programs to meet workforce needs? What is required to support student success in their career choices?

General Findings:

UH increasingly collaborates with the Department of Education and the Executive Office of Early Learning to offer the P-20 program pipeline, which seeks to create a general through-line of educational offerings from early childhood to higher education. While it is a significant achievement, UH's track record in course articulation and career guidance to its students needs an overhaul. Large numbers of local high school graduates are opting to pursue higher-education outside Hawai'i and a large number decide not to progress beyond high school at all. The University System, with its interconnected two- and four-year programs offers students a clear 2+2 pathway to a timely and affordable bachelor's degree, especially if the benefits are seeded in Hawai'i's high schools through programs like dual credit, advanced placement, academies, and similar initiatives.

More specifically:

1. There are wide variations in success rates among different ethnic categories of public high school students completing degrees or certificates. Native Hawaiians and Pacific Islanders, in particular, are less successful than the norm. The multi-ethnic nature of Hawai'i's population, including the relatively high percentages of foreign-born residents and people who speak a language other than English at home, is likely a contributing factor in the percentage of University of Hawai'i system students who require assistance in becoming "college ready" in English. (Annex B)

2. The P20 "pipeline" has been successful in creating a variety of programs to expose Hawai'i high school students to UH programs and career pathways, enabling them to more seamlessly connect to the University and more efficiently explore academic and career areas of interest. Advance Placement, dual credit programs, academies, and career pathway programs provide a robust set of programs linking the university and the Department of Education. Improving the integration between the DOE and UH is intended to improve student success and increase capture rates for UH enrollment. (Annex B)

3. Complementing the efforts of the P20 program, Hawai'i foundations have developed initiatives like the "Hawai'i Roadmap," "Jobs for the Future" and others to develop pathways for career training and education.

4. The expected higher rate of population growth on the Neighbor Islands indicates the need for expanding education programs outside of Honolulu and creating more opportunities for Neighbor Island residents to connect their high school and college experiences and engage in Honolulu-based programs through distance learning. Another area for improving enrollment growth is to increase the number of transfers from the Community College System into UH four-year programs (and contain the "leakage" of Hawai'i transferees to non-UH programs). (Annex B)

5. The Carl D. Perkins Career and Technical Education Program (Perkins) is a federal fund investing in secondary, post-secondary and adult education career and technical education. In Hawai'i, available funds are split between DOE programs and the University of Hawai'i career and technical education programs. The recent reauthorization of the Perkins Program now requires a needs assessment to align local CTE programs with identified in-demand, high-growth, and high-wage career fields. UHCC funds are distributed to the colleges as grants awarded through a competitive process. (Annex B)

6. Out-migration from Hawai'i is high among young adults 18-24, many of whom leave Hawai'i to attend colleges outside the state. Out-migration is a complex phenomenon requiring further research, but factors are likely to include the high cost of living in the Islands and weak increases in per capita income, causing young adults to look for brighter and more affordable opportunities outside the state. (Annex B)

Strengths and Weaknesses of the UH System:

Collaborative efforts through the Department of Education and the P-20 program are resulting in progress for college readiness and persistence but there is room for improvement. More progress is needed to support student success and graduation goals. Career Explorer integrates data from the US Department of Labor (O*Net), Economic Modeling Specialists International (EMSI) and other sources to provide administrators, students, and counselors with timely assessments of career opportunities linked to educational programs, skill sets, and lifestyles. Development of applications such as Career Explorer provide an opportunity to better align programs with economic sector needs and with student interests and abilities. To be optimally effective, counselors and students both need to be aware of and actively utilize Career Explorer and similar apps, which require an ongoing training and awareness initiative. (Annex B)

Out-migration of Hawaii high school students is a significant marketplace challenge to enrollment. However, the burden of reducing out-migration from the state cannot fall solely on the UH system since many of the forces that propel it are beyond UH's control; however, improving the University's brand and reputation and marketing its benefits can make the University more attractive to potential students. Career counselling, especially outside Mānoa, is generally viewed as an area of weakness. Affordability is a likely impediment to UH enrollment for some and the general "going rate" to college given the large number of Asset Limited, Income Constrained, Employed (ALICE) families in Hawai'i. While acknowledged as a step in the right direction regarding coordination between Hawai'i's colleges and public schools, some want greater P-20 improvement. (Annexes B, C)

Recommendations for UH to Consider in a Decadal Plan:

1. Continue to support and advocate for programs that promote college for all, such as "Hawai'i Promise." (Annex B)

2. Strengthen the programs that support a frictionless transition from high school into the UH system. (Annex B)

3. Work closely with high school counselors and students to promote better awareness of pathways, tools such as Career Explorer, programs like the Castle Foundation's Windward cohort project, and other options. (Annex B)

4. The dispersion of Hawai'i's high school graduates to the mainland for higher education may call for developing joint degrees with leading universities to provide students with "the best of both worlds." A clear goal expressed in terms of "the percentage of Hawai'i high school graduates enrolling at UH within five years" can serve as a key metric for success. (Annex B)

6. AFFORDABILITY

Q. How can the University System address affordability for ordinary students, especially for underserved populations? Is the University adequately addressing affordability now and for what will be required in the next era?

General Findings:

Hawai'i's cost of living is among the highest in the nation (as cited in Annex B). About half of the state's population is categorized as having income either below the federal poverty level or slightly above it but insufficient to afford basic necessities. Low wage jobs dominate the economy and cost of living increases outpace wage growth. Affecting the high cost of living is beyond the system's mission and capability but stimulating the creation of higher-paying jobs is not.

More specifically:

1. Reduced state support and shrinking federal student aid nationally has shifted a greater portion of the cost of education to students and their families, through rising tuitions and fees creating a national "affordability crisis". Hawai'i's public higher education system has remained remarkably affordable. (Annex A)

2. About half of Hawai'i's population is categorized as having incomes either below or slightly above the Federal Poverty Level but insufficient to afford basic necessities (ALICE – Asset Limited, Income Constrained, Employed). Low wage jobs dominate the economy and cost of living increase outpace wage growth. These factors underscore an ongoing need to manage tuition costs and maintain or expand financial aid and support. (Annex B)

3. Out-migration from Hawai'i is high among young adults 18-24, many of whom appear to leave Hawai'i to attend colleges outside the state. Apart from college bound students going to mainland institutions, out-migration is plausibly related to the high cost of living in Hawai'i, fewer high-paying job opportunities locally, and the relatively weak increases in per capita income. These factors incentivize young adults to explore mainland options and look for brighter and more affordable opportunities outside the state. (Annex B)

Strengths and Weaknesses of the UH System:

One factor in enrollment declines nationally has been the decreasing affordability of higher education as the higher proportion of the cost of attendance accrues to the student and amplifies student debt. However, affordability (along with access) is broadly acknowledged as one of the great pluses for UH over other higher education options. A 2016 College Affordability Diagnosis by the Institute for Research on Higher Education (University of Pennsylvania) analyzes college costs in relation to family income level. It ranks UH as the third most affordable in the nation. [viii] (Annex A)

In addition to the more than $120 million from all sources awarded to undergraduate students in the UH, system, in 2017-18 the Hawai'i State Legislature created Hawai'i Promise, a "last dollar" scholarship program for the UH Community College System to cover any financial needs not covered by other financial aid. The program was established with $2.5 million in State funding. In academic year 2017-18 1,443 Community College Students received Hawai'i Promise grants totaling $1.7 million. (Annexes A, B, C)

While UH System revenues derive from a variety of sources, "affordability" is largely a value preference established by the Hawai'i State Legislature. Affordability as an ongoing advantage over other colleges and universities, especially for Hawai'i's citizens, is not completely in UH's hands. It appears to be a policy preference in the hands of Hawai'i's lawmakers. The prevalence of State funding and the related relative lack of diversification in its sources of revenues make the University vulnerable to state budget cuts and hamper its ability to expand or undertake new programs.

Recommendations for UH to Consider in a Decadal Plan:

1. UH System is generally rated as one of the most affordable higher-education options in the nation. This may not be true for every campus, especially Mānoa. Even so, UH should develop a system-wide strategy for affordability and access for Hawai'i residents, especially those financially disadvantaged. To remain affordable in an era of tight budgets, UH must become more disciplined about cost containment and productivity enhancements. (Annexes A, B)

2. As UH moves to an increasingly virtual teaching environment, it should aim at reducing duplicate programs and delivering them more cost-effectively across the system. There are too many programs and too much duplication. (Annexes B, C)

3. UH should become nimbler in managing its staff headcount so it can change quickly and proportionately with student enrollments. There seem to be too many outdated, manual procedures at the system-level. Worse, there are many redundant processes in support functions at the system and campus levels. These are in serious need of simplification, consolidation and automation. Periodically, UH should consider undertaking program prioritization to reduce program costs, and comprehensive administrative reviews ix to reduce support costs. Progress in these areas should be monitored through a system-wide performance dashboard. Finally, the cost savings realized through these initiatives should be passed on to students. (Annexes B, C)

4. Wherever possible, UH should cut expenses by allowing students to earn credits for prior experience (possibly with reasonable fees charged for doing so) and by increasing Competency-Based Education which allows students to reduce the number of classes they take (and the amount of tuition they pay) by earning credit for work and life experience. Degree programs tend to be less expensive, self-paced, and more career-oriented if students can demonstrate the competence and knowledge required for a particular subject via a test. This will likely have a positive impact on retention and graduation rates. (Annex A)

5. UH needs a deeper understanding of those segments of society that are underserved or that have declining enrollment trends. Facilitating transfers from the Community Colleges to four-year institutions should continue to be a part of a coordinated strategy to address negative enrollment trends. UH must continue to strengthen its support for programs that provide "college for all" such as "Hawai'i Promise." (Annex B)

6. UH should consider relaxing credit by exam and transfer credit policies to enable students to cut expenses and expand its use of open educational resources (OERs), empowering faculty to improve the quality, currency, and accessibility of learning materials. (Annex A)

7. UH can probably find valuable economic gains by partnering with outside entities such as Trilogy Education or Orbis Education to deliver programs, deferring student tuition payments until they are employed (Income Share Agreements). (Annex A)

8. UH might study and test new arrangements with students. For example, instead of charging students tuition upfront, which often requires expensive loans, students could go to school for free but then sign binding contracts that require them to pay back a percentage of their income after graduation if they get a job with a good salary. Some universities recruit corporate partners to participate in such programs. (Annex A)

9. UH can also try to persuade the state to revise its funding rationale for the University, shifting to a model based on defined outcomes. If it pursues this direction, UH should put careful measures in place to avoid increased political interference. (Annex A)

10. Long-term affordability of education improves when students borrow less money. Given the adverse financial circumstances of growing numbers of Hawai'i families, especially over the next several years, UH should consider a financial literacy program for its students to reduce student debt. The progress on this front can be measured by "decrease in average loan amounts and/or the percentage of students borrowing". [x] (Annex A)

11. UH should keep tuition affordable. Diversification of revenues through an increase in gifts and endowments and potential repurposing of facilities to lower costs or increase revenues (as UH shifts towards distance education) can help reduce the tuition costs. (Annexes B, C)

7. TECHNOLOGY

How should UH respond to technology's impact on research, learning and society?

General Findings:

In the next decade, technological advancement will have an unprecedented and transformational effect on education, workforce, and society globally, nationally, and locally. While the use of internet and smart phones is ubiquitous, artificial intelligence (AI), big data, 5G, data visualization, robotics and other disruptive technologies will take center stage. Catalyzed by the COVID-19 crisis, rapid change is underway at UH. Existing and new programs aligned to high-growth fields will merit early special intellectual and financial investment. Not only will they offer sizable opportunities to students, ignoring them risks Hawai'i missing the next generation of educational innovation.

More specifically:

1. Offering greater access regardless of where students live or when they can participate, and augmented by artificial intelligence to provide pacing and content fitted to the individual student's needs, online courses are now offered by thousands of higher education institutions at almost every level and in almost every imaginable field of study. One-third of all college students take at least one such course during their college career, and the number of students who opt for curricula that are taken exclusively online will grow rapidly post-COVID. (Annex A)

2. AI will automate many tasks performed today by professionals and lead to a decline in employment in several occupations, while at the same time creating new careers. xi In education, AI's impact is already significant by personalizing learning that leads to better student engagement, higher graduation rates, and by eliminating gaps in research programs. Distance learning capabilities are increasingly sophisticated, and UH must move fast to catch up with other leading colleges and universities. (Annexes A, C)

3. Originally seen as the harbingers of the demise of place-based universities, enthusiasm for Massive Open Online Courses (MOOCs) has faded after a few well-funded consortia with impressive pedigrees failed to deliver on the original idea of transforming education worldwide. Typically, even though many thousands of learners enrolled, only a very small portion completed MOOC courses. Nevertheless, offerings of courses in a more restricted environment (fee-based for-credit offerings with less ambitious enrollment goals) have continued to expand. (Annex A)

4. Although distance learning courses in existing programs are essential, especially in attracting adult students, the goal of capturing a wider market is more difficult to attain. It has been and will be even more competitive. Unless late entrants can offer distinctive programs on a wider scale that target the work force needs of their particular region, their online divisions are not likely to prosper. Online enrollment growth at UH can occur if it emphasizes region-distinctive programs and courses aimed at specific job needs in the State or targeted on adult learners. (Annex A)

5. The number of students who opt for curricula that are taken exclusively online is growing rapidly. For the UH system as a whole, 13.8% of students are fully online, compared to a national average in public institutions of 12.4%. But at UH West O'ahu, 39% of students are fully online and 81% have at least some online courses. (Annexes A, B)

6. Numerous studies of adult education have concluded that most adults learn best when a combination of "high tech" and "high touch" instruction is utilized. Accordingly, there is a growing use of "blended" or "hybrid" courses that utilize online asynchronous instruction for theoretical or informational content and face-to-face instruction for discussion and "hands-on" experiences. For best results, students and instructors need to be IT (Information Technology) literate, learning materials need to be "state of the art," and the classroom needs to be equipped with appropriate technology, well supported by campus IT. (Annexes A, C)

7. Rapid technological change will require programs and disciplines to respond by incorporating appropriate applications into curricula to remain relevant. The growing importance of technology will also increase the need for interdisciplinary and multidisciplinary study so that technology is infused across disciplines. Technology may heighten the importance of disciplines (like cybersecurity and computer sciences) that are becoming increasingly linked to emerging workforce needs. (Annexes A, C)

Strengths and Weaknesses of the UH System:

As of this moment and as a result of the rapid shift brought about by the COVID-19 crisis, UH has a good start in advancing technologies and coordination related to distance learning. UH is also attentive to the technology regulations that are coming into place. The system also has excellent data-visualization capabilities on the Mānoa and UHH campuses. UH executives also appear to understand the need for advancing the integration of other technologies into all aspects of its higher education offerings.

Up to now, the University of Hawai'i system has been somewhat sporadic in its efforts to adopt online modes of education. The emergency pivot to remote learning due to the COVID crisis should not be confused with the strategic development of a fully coherent systemwide initiative for delivering best-in-class, personalized online education at scale. UH provides limited faculty support for both distance and conventional instruction (instructional design, professional development, and others) at the campus level, but faculty training and IT back office support become far more critical as UH moves through the rapid transition to distance learning. (Annexes B, C)

UH faculty want technology teams to seek greater feedback from instructors in new technology rollouts, for example the Learning Management System, and feel that is hindered by the current approach to consolidation of IT personnel at the System-level without adequate regard to individual campus needs. (Annex C)

Recommendations for UH to Consider in a Decadal Plan:

1. Consolidate distance learning professional development for faculty at the system level to provide focused direction, strategy, and support for personalized instruction and learning. Ensure the consolidation process is inclusive, i.e. it incorporates feedback from faculty and individual campus representatives. This will involve across-the-board leadership, standard setting, and technical support for all campuses. (Annex B)

2. Develop and perfect a "hybrid" model (combining "high tech" and "high touch") wherever possible so UH can rapidly expand the use of online instruction augmented by Artificial Intelligence and possibly gamification techniques. The strategy should include safeguards for potential problems of privacy breaches, anti-cheating proctoring, and distance education regulations that are emerging federally. As the transition to distance education moves forward, UH should focus on greater personalization so that course pacing and content are fitted to individual student needs. (Annexes A, C)

3. Develop online courses that are distinctive to Hawai'i and the Indo-Pacific region and its projected job needs and invest more in professional development programs that support faculty teaching online. Ensure that all existing programs are state-of-the-art by integrating selected technologies, including AI, Big Data, Analytics, ICT, and more. (Annexes A, B, C)

4. Better align University programs to high-growth fields in the state by maintaining or expanding UH's collaboration with the State's technology initiatives, including the Hawaii Technology Development Corporation (HTDC), Natural Energy Lab (NELHA), incubators, and other public and private technology development programs.

8. FINANCES

Q. What financial models for the system and its component parts will prove efficacious in the third decade? Is the University deploying modern approaches to the financial management of public higher education?

General Findings:

General funding (from the State) and tuition are the only funds available to the University for general use. All other sources of funds are restricted or use-specific. UH's reliance on the State as the major funding source leaves it especially vulnerable in the current crisis, where a cut in state funding will likely not be counterbalanced by a simultaneous rise in tuition revenue. While there is no early evidence of a decrease in federal funds, UH can do more to generate endowments and alumni gifts. This will require disciplined marketing outreach. Increasing the contribution of funds apart from State funding could free up University resources for new or expanded mission related projects. As it turns to online learning, UH may create new revenue streams by repurposing some of its physical assets. Other non-traditional sources of funding and its own cost-effectiveness need careful study.

More specifically:

1. UH needs to diversify its funding sources. One opportunity may lie in attracting endowments and alumni donations. In turn, this may require a vision reboot and disciplined marketing. (Annexes B, C)

2. In the face of falling state appropriations and rising national tuitions, rigorous control of costs and a continuing search for innovative ways of financing universities will be needed and sooner rather than later. Public universities are stepping up their efforts to raise funds, both for annual operations and for endowments, from private sources. (Annex A)

3. Annual private giving to public doctoral-level universities like UH Mānoa, on average, was $73.8 million in 2019. In the same year, the UH Foundation raised $71.6 million for the entire UH System. (Annex A)

4. As public funds for renewal and modernization of facilities have been cut, some universities have been able to forge public-private partnerships with municipalities and private developers (P3 contracts) for designing, building, financing, operating and maintaining facilities. Through P3 programs, colleges enter into long-term contracts with private developers, many of whom take responsibility for funding and construction in exchange for long-term payments from the institutions. Such partnerships have become increasingly common in higher education, especially to build new housing, which enjoys a clear revenue stream. Colleges are drawn to these companies primarily for their specialized skills, access to investment capital and the ability to quickly bring a project to completion. (Annexes A, B)

5. Other ways universities are stretching funding for facilities involve utilizing buildings for multiple purposes. Some universities find long-term savings by designing sustainable infrastructure that offers long term utility savings (e.g., use of rainwater harvesting to reduce water consumption and reduced electricity costs). (Annex A)

6. Moving to greater distance education should stimulate a right-sizing and reduction of fixed costs. Such planning could lead to reduced physical footprints, taking old buildings down, or renting space to outside entities. (Annex C)

Strengths and Weaknesses of the UH System:

The University's "Hawai'i Innovation Initiative" and its Office of Innovation and Innovation and Commercialization establish a framework and process for effectively pursuing extramural funding. Individual colleges and departments have consistently generated research funding, although the level of success appears highly variable across the system.

In the face of a falling economy, the University faces vulnerability because of its reliance on State funding. The state's tax revenues will likely fall for next few years. If so, diversification for UH can come from the expansion of alternatives, especially, gifts, endowments, and grants. UH needs to develop an agreeable system of measuring and managing performance which makes the case to funders for investment. (Annex B)

Annual support from private contributions for the UH System falls below the average raised by U.S. public doctoral universities. (Annexes A, B)

Recommendations for UH to Consider in a Decadal Plan:

1. To contain costs, UH should eliminate or consolidate duplicate programs and administrative functions, improve its procedures for "sunsetting" programs with low enrollment that sufferer from strategic misalignment or have questionable quality. UH can investigate Public-Private Partnerships for development of its facilities. New facilities at UH must be multi-use and developed with sustainable infrastructure and maximum long-term energy savings. (Annex A)

2. Facing reduced state funding for new or expanded programs, UH must ensure its ability to innovate by diversifying its sources of revenues via increased philanthropy (including increased annual alumni giving) and R&D funding from government or industry. (Annex B)

3. UH can reduce its fixed costs significantly by expanding distance learning, as suggested by a recent national study involving 30 public institutions. (Annex A)

4. Payroll is the single-largest expense item. Consequently, headcount of different categories of staff should be carefully monitored in relation to the growth or decline in student enrollments. (Annex B)

5. Even though garnering federal research dollars appears quite successful, in the coming austerity UH must further increase its revenues from research and innovation. Universities, research institutions in particular, play a critical role in economic development through general and applied research, extramural funding, patents, and collaboration with local industry. (Annexes B, C)

6. UH should increase revenues by recruiting more international and out-of-state students who pay higher tuition. This may arouse political opposition from those who believe only in-state students should benefit from the state's subsidy to public higher education. (Annexes A, C) Expanding the marketing and promoting the WUE reciprocity program to prospective students on the US Mainland is a potential source for increasing enrollment and revenue. (Annex B)

7. Influencing tuition revenues, the Mānoa and Hilo campuses appear to have more than 30% of their undergraduate student bodies drawn from out-of-state—with Mānoa above and Hilo just below the state's 35% cap on such enrollments. A consideration for the state, in the face of heavy out-migration by Hawai'i resident students, is to raise the enrollment caps. (Annex A)

8. Another vehicle UH can use for bolstering revenue is the Office of Innovation and Commercialization. It is guided by the Hawai'i Innovation Initiative (HII) articulated in the University's strategic plan whose goal is to *"Create more high-quality jobs and diversify Hawai'i's economy by leading the development of a $1 billion innovation, research, education and training enterprise that addresses the challenges and opportunities faced by Hawai'i and the world."* It has three strategies: (1) sustain and advance the UH research enterprise; (2) advance innovation and entrepreneurship within UH and the community; and (3) invest internal resources and seek external resources for strategic infrastructure requirements and hires that leverage our location and strengths as well as address critical gaps. UH seems to be accomplishing this though UH policies on patents and discoveries may need reexamination. (Annex B)

9. SYSTEM AND SYSTEM PARTS

Q. How effective and efficient is UH in acting as a single system of ten campuses? What more can be done to improve its effectiveness and efficiency?

General Findings:

Over the past few years, UH appears to have slowly moved towards becoming closer to a single system. While outside stakeholders and students seem to want it to fully behave as a single system, staff opinion is divided. Some faculty complain about siloed discussions and heavy-handed implementation of important decisions. Today, UH still appears to be more like a confederation of campuses, departments, colleges, programs, institutes, and centers, each with its own agenda, power structure, and special access to legislators.

Perhaps because it is an R-1 research campus, Mānoa seems to have disproportionate access to recognition and resources. Some administrative functions have been consolidated to the system level, some collaborate well, and others remain more autonomous. There is disagreement as to what activities should be handled by the campuses and what responsibilities should be consolidated in the system office. Campuses compete with each other for enrollment. This leads to redundancy in support roles, weakness in strategic mission-driven initiatives, duplication in academic programs, inefficacy of articulation arrangements, a higher cost structure, and poor engagement with the broader community.

More specifically:

1. UH is kaleidoscopic and seen differently by individuals in different sectors, by various actors within each sector, and within the university. There is no single, compelling, animating, and unifying image of the whole UH System, though many of our respondents are hungry for one. (Annex C)

2. UH is a bureaucracy, unwieldy and resistant to change. It is a source of many complaints attributed to three factors: (i) the nature of being a weak system with mixed types of colleges and universities and the need to manage this diversity rationally; (ii) numerous larger and smaller fiefdoms and silos over departments, colleges, schools, programs, institutes and centers; and (iii) political interference from the legislature which sometimes demands localized, reactive changes that have no larger planning context. (Annex C)

3. The UH System is hamstrung by not having an effective larger system brand and a committed and well-funded marketing program to proactively position the University as a "solution." (Annexes B, C)

4. There are many campus-level success stories, but the System seems slow to coordinate successful programs across campuses. (Annexes B, C)

5. To measure and report its performance, UH System has a range of metrics which are available to the public. These measures are detailed by campus and provide detail on various aspects of performance. The primary problem is not unavailability of metrics, but in their overabundance, without a clear understanding of "what is most important." Comparisons to other public institutions are established at the campus-level, not for System as a whole. These factors continue driving performance related discussions to campus-level, even as System aspires to optimize the whole. (Annex B)

Strengths and Weaknesses of the UH System:

UH has become a more coordinated system in recent years. The growing ease of student transfers, the increased centralization of support services, greater coordination between campus managements, and centralized planning all point to the greater unification of the System. At the same time, many of our interviewees opined that much more needs to be done by UH to be truly "One UH."

UH as a system does not fare well in projecting an external coherent identity and building a distinctive system brand. It does not have a consistent and coherent message to the world that explains why the University of Hawai'i is significant, unique, and valuable. Individual campuses do better, especially the community colleges which are embedded in their respective island communities. UH is largely an inward facing enterprise with unclear coordination and messaging to external audiences about the value of the "whole." Administrative functions are complex and cumbersome making UH ponderous and inflexible, which is a serious disadvantage in today's fast-changing environment. The UH System lacks clear and meaningful metrics to provide the basis for effective continuous assessment and improvement. (Annexes B, C)

Observers outside and inside the UH System almost uniformly view the system of ten campuses as an organizational jumble prone to programmatic proliferation and continuous and exhausting proceduralism causing lost opportunities as potential cooperative partners choose to operate independently rather than work with the University. (Annexes B, C)

Recommendations for UH to Consider in a Decadal Plan:

Led by the President's office, UH must appoint a very strong team of capable people to prepare, test, and implement a clear vision and strategy for the next ten years. The word "vision" often leads to fuzzy, sometimes hallucinatory thinking. We suggest UH assemble a collective "*One-UH*" ambition statement. To be truly "outside in", this "ambition" must be developed in partnership with the State's policy makers, employers and high school educators. From that, the University can conduct a rigorous analysis that identifies and proposes the removal of bottlenecks, gaps, and speedbumps that stand in the way. From this, UH can then create a short list of specific strategic goals and measurable 10-year objectives and key results. (Annex C)

To streamline the system and make it more coherent, UH should create a high-level dashboard to provide a fundamental, "outside-in" view of performance. We propose the starting point for such a dashboard in Annex D.

10. ENROLLMENT

Q. How are enrollment trends changing? What can UH do to attract and better address the needs of its non-traditional students?

General Findings:

Over the coming decade, there will be an increased demand for higher education by non-traditional students (i.e. not recent high school graduates), and for universities and colleges that can react nimbly to that need. Like many other industries, higher education will increasingly operate in a competitive global market. While some resist the idea, UH System must be ever more conscious of its return on investment and realize that it will be enrolling learners who come to UH for different things. Some will want the conventional associate, bachelor's, master's, and doctoral degrees. Some underserved populations may only be able to enroll if their unique financial and other needs are addressed. Others will come for career advancement, and be attracted by modular programs, certificates, and stackable micro-credentials.

More specifically:

1. Two-thirds of the UH System's first-time students are from Hawai'i. But while it is the sole public higher education option in the state, UH is recruiting a surprisingly small proportion of Hawai'i's public high school graduates. In 2018, although 55% of the DOE graduates went to college, only about one- third went to the UH System and only 12% entered four-year programs. (Annex B)

2. Looking beyond the "traditional-aged, college-going" cohort, there is a specific population of adult learners who remain a relatively untapped market: more than 30 million Americans who have some college credits but no degree (including, about 120,000 in Hawai'i). Considering the clear advantages that bachelor's degree holders gain in achieving higher lifetime earnings, these adults have an incentive to finish their degrees. To best take advantage of this opportunity, universities across the country may need to liberalize their policies on acceptance of transfer credits or granting credit-by-exam and ensure that they have adequate counseling resources to assist adults who are returning to school. (Annex A)

3. Degree completion within six years of high school graduation is significantly lower for Native Hawaiians and Pacific Islanders who may benefit from increased support within P20 pathways and academic support within the University.

4. Transnational higher education—the delivery of higher education programs by a provider across national boundaries by physical or electronic means—is an increasing feature of global higher education, often spurred by lack of local capacity, desire to raise local quality and access, and revenue needs of the overseas provider. (Annex A)

5. The University's participation in the Western Undergraduate Exchange (WUE) generates about the same number of students enrolling at UH as the number of Hawai'i students matriculating in participating mainland schools. These students pay a premium (150%) over in-state tuition and expanding enrollment through marketing this program is an opportunity for the University. (Annex B)

6. Currently, restrictive immigration policies and global public health measures will limit revenue from international students and will lead to restrictions on study abroad. Unless offset with innovative ways to penetrate the growing Asian market, this—together with the increasing competition for these students from both US and foreign universities—will reduce overseas participation in the UH system. Alternative delivery models vary from offshore campuses to franchising of a program to a partner or third-party arrangement. Partnership models include associating programs, joint degrees, credit transfer agreements, and preparatory programs. International partnerships, formerly concentrated on student exchange, are now much more comprehensive. (Annex A)

7. The large numbers of military personnel (about 46,000) and their dependents (another 60,000) are being recruited by other universities in Hawai'i, which offer them tuition reductions and programs tailored to their career interests, often in on-base classes conducted in modules shorter than the typical semester. (Annex B)

Strengths and Weaknesses of the UH System:

Facilitating recruitment of adults, UH Mānoa increased the number of online degree completion programs over the last five years with the addition of online bachelor's degrees in economics, sociology, psychology, and women's studies. To better address the scheduling needs of working adults, the campus has joined the UHCC System successful implementation of 5-week terms for online AA degree programs. (Annex B)

UH System enrollment has fallen 17.2% in the past 9 years. Demographic projections show it unlikely that substantial recovery of system enrollment will be achieved primarily through recruitment of "traditional-age" students from Hawai'i schools. In 2019, about one-eighth of the students in the UH System were over age 35—a number that needs to grow as the state's population ages and older adults become an increasingly important target for enrollment growth. Success in stabilizing or growing enrollment is hampered by missed opportunities in CLEP, lack of strategy for addressing non-traditional markets such as the military, few micro-credentials, and misalignment with emerging workforce needs.

Moreover, UH course scheduling currently lacks the flexibility that would be attractive to the larger potential market of adult students who are seeking employment in growing and well-paying industries. (Annex B)

Recruitment of out-of-state and international students to UH has not been a priority. Only 3.5% of first-year undergraduates at UH in 2019 were international students. (Annex A)

Recommendations for UH to Consider in a Decadal Plan:

1. In order to meet the state's workforce needs in the next decade, UH needs to develop or expand its efforts to attract new students. Moreover, UH needs to offer both high school graduates and adults who are changing careers, new options other than just two-year or four-year degrees, such as micro-credentials designed in cooperation with industry. Hawai'i's community colleges can play a critical role in job retraining. (Annexes A, B, C)

2. UH should liberalize its policies on acceptance of transfer credit or credit by exam and develop more online degree completion courses with flexible scheduling to attract working adults—including military personnel stationed in the state. (Annexes A, B)

3. While in the near-term recruitment of international students to the campus will prove difficult, UH should consider attractive alternative models, through transnational partnerships and marketing of STEM programs for instance, to reach out to the international market. (Annex A)

4. UH should message forcefully UH's central value proposition: 1) higher education is a personal and sociological investment that leads to better work and income, 2) state prosperity is closely tied to educational attainment of its citizens, and 3) research spurs enterprise, develops the workforce, and brings revenues. (Annex C)

5. Expand educational opportunities for Neighbor Island residents to engage in Honolulu-based programs through distance learning. (Annex B)

V. Appreciations

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Endnotes

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[ii] Frank Haas is a partner with GUILD Consulting and has held numerous senior positions in business and education including posts as Instructor and Acting Assistant Dean for the School of Travel Industry Management at the University of Hawai'i at Mānoa and Dean for Career and Technical Education programs at Kapi'olani Community College. He served as Vice President and Director of Marketing for the Hawai'i Tourism Authority; CEO of Ogilvy and Mather Hawai'i Advertising' and is past national chair of the American Marketing Association.

[iii] Peter Adler, Ph. D, is a partner with GUILD Consulting and has held executive positions as President and CEO of The Keystone Center (**www.keystone.org**), Executive Director of the Hawai'i Justice Foundation, and founding Director of the Hawai'i Supreme Court's Center for Alternative Dispute Resolution. Among others, he has helped develop strategic plans for the Research Corporation of the University of Hawai'i, the Hawai'i Emergency Management Agency, Mid-Pacific Institute, and the Hawai'i Community Foundation's Fresh Water Initiative.

[iv] Iqbal Ashraf is a partner with GUILD Consulting. He is a business expert with a background in project management and financial management. He is co-founder of GUILD (the parent of GUILD Consulting) that provides specialized expertise to businesses (**www.guild.im**). He led ProAccounting Hawaii, an outsourced accounting firm in Hawai'i, and prior to that, worked at General Electric in areas of finance, technology and project management.

[v] Although we have worked on this study of UH without the benefit of a formal vision statement, strategic goals, or OKRs ("Objectives and Key Results"), we offer the following regarding the aspirations of UH System as a starting point for UH's discussions. These are also suggestive of specific strategic goals around which quantitative Objectives and Key Results (OKRs) can be put in place. By 2030:

1. UH is financially stable, with diverse revenue sources and ample reserves to pursue its mission and weather shorter-term, financial crises
2. Every student who enters the UH System receives a personalized, world-class educational experience
3. UH offers a range of programs for non-traditional students, like working professionals, caregivers, partial-completers, the military and continuous learners
4. UHs programs are accessible to all qualified Hawai'i residents, irrespective of their financial background
5. UH has well-developed online offerings that meet the workforce, enterprise, and community needs

6. UH is the global leader in Native Hawaiian and sustainability studies research and representation
7. UH has the expertise and is actively engaged in driving sustainability, innovation and prosperity in Hawaii
6. UH embraces technology to be efficient, modern and student-friendly
9. And finally, UH acts as a single system, avoiding duplication of infrastructure and programming

[vi] http://www.hawaii.edu/offices/aa/seconddecade

[vii]

1. **History, Development & Expectations of the Program.** Why established? How has it evolved/adapted to meet changing demands/demographics? Fully mature program? (Rate maturity, adaptability, congruence with institutional expectations)
2. **External demand for the program**. National statistics re: freshman interest in programs. 5-year enrollments. How demand is being met by competitive programs in area. Would a minor meet demand?
3. **Internal demand for the program**. Courses required to support other programs? Significant presence in Gen Ed?
4. **Quality of Program Inputs and Processes**
5. **Faculty and Staff:** Current faculty profiles and numbers, breadth and depth of program exposure, knowledge bases. Terminal degrees, years of experience, expertise in related fields, scholarship/recognition. Market conditions, trend lines. How do faculty stack up against competitors?
6. **Percentage of instruction offered by full-time faculty**
7. **Students: quality of students attracted to program (HS grades, etc.)**
8. **Curriculum: appropriate?**
9. **Adaptability to technology**
10. **Equipment, Facilities, and Other Resources:** How current? What resources needed to bring program to high level of quality?
11. **Quality of Program Outcomes.** Test scores on national instruments. Degrees of student/alumni/employer satisfaction. Faculty scores on teaching surveys. Faculty public service.
12. **Size, Scope, Productivity of Program**. How many students served? How many faculty assigned? What resources committed? Breadth and depth of program.
13. **Revenue and other resources generated by the program**. Enrollments, cross-subsidies, research grants, fundraising, equipment grants, cultivated relationships.
14. **Costs and other expenses associated with the program**. Direct and indirect costs. What investment needed to bring to high quality?
15. **Impact, Justification, and Overall Essentiality of the Program**. Summative measure of why it deserves to be continued or strengthened. How does it help institution differentiate itself?
16. **Opportunity analysis of the program.** How the program might seize opportunities heretofore not considered by the institution. Can we contain costs via restructuring or technological innovation?

[viii] https://irhe.gse.upenn.edu/affordability-diagnosis/state_reports

[ix] https://www.usg.edu/adminreview

[x] https://www.usg.edu/know_more_borrow_less

[xi] https://www.cio.com/article/3565200/ai-conversations-reimagining-success-in-higher-education.html

ANNEXES

ANNEX A - ANALYSIS OF NATIONAL TRENDS AND EMERGING ISSUES (PROVIDED SEPARATELY)

ANNEX B - ANALYSIS OF STATE TRENDS AND EMERGING ISSUES (PROVIDED SEPARATELY)

ANNEX C - INTERVIEW, FOCUS GROUPS, AND SURVEY RESULTS (PROVIDED SEPARATELY)

ANNEX D - PROPOSED FOUNDATION FOR A UNIFIED SYSTEM DASHBOARD

As a public institution, UH has made several of its performance measures public. The most significant of these measures are published on,

- Hawai'i Graduation Initiative (HGI), of special interest is the Performance Funding Model
- Hawai'i Innovation Initiative (HII)
- 21st Century Facilities (21CF)
- Mission Focused System (MFS)
- High Performing System (HPS)

In our study, we have taken a multi-dimensional, "outside-in" view. The purpose is to serve as a quick, but holistic snapshot for regents, legislators and interested external stakeholders.

In the table below, we start on the Y-Axis, with the three primary purposes of any state university.

- Learning
- Research and Innovation
- Community and Economic Development

Then, on the X-Axis, we propose the criteria to measure relative success.

- Access
- Excellence
- Readiness for future

Then, given that UH is a system of 10-campuses, we introduce a dimension to measure the efficiency and vitality of the management of a single-system, the "System Effectiveness".

Lastly, we have populated the table with suggested measures in each priority area. It is important to note that this is not yet a dashboard. UH will need to screen the measures to see which are most representative of the intent and readily available. The measures will then be replaced by specific metrics to be quantified, and routinely updated for comparison to prior periods and other external benchmarks.

	Access	Excellence	Readiness for future	System Effectiveness
Learning	• Applications received • Applications accepted • Total enrollment • HI student enrollment • Cost to student • Student debt	• Graduation rate • Time to degree • Healthy programs • Licensure pass rate • Median earnings	• Online/hybrid enrollment • Working professional/military enrollment • STEM enrollment • "Cluster-enabler" enrollment • Personalized learning	• Students/ Instructor • Students/ FTE • Duplicate programs across system • Student transfers • Cross-campus faculty assignments • Shared grants • Shared services and infrastructure • System-wide analytics and decision support systems • Funding-source diversification • Total expense per completion
Research and Innovation	• Enrollment in research programs • Funding requests submitted	• Peer-reviewed publications • Members in national academies • Recognition awards • Research grants awarded	• Patents • IP licenses executed	
Community and Economic Development	• Native Hawaiian enrollment • Local internships • Graduates continuing education or employment in HI	• Community-based scholarly work • Businesses incubated	• Programs co-designed with industry • Strategic partnerships w/ local industry • Sustainability of local community • Ability to supply future workforce • Development projects	

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