University of Hawaii
Information Technology Services
Strategic Plan
Update: <July xx>, 2018


*Looking Forward to 2020 and Beyond*

## I. Introduction

This Information Technology Services (ITS) Strategic Plan, *Looking Forward to 2020 and Beyond*, updates the vision and strategies to provide planning context for moving forward with the delivery of information technology services for the University of Hawaii system.  This generation of the plan was originally published on May 22, 2015; this plan has been updated a few times, this version reflects updates and additions through <July, xx>, 2018.

As the sole provider of public higher education in Hawaii, the ten campus University of Hawaii system is committed to improving the social, economic and environmental well-being of current and future generations.  This ITS Strategic Plan is fully aligned with the University of Hawaii Strategic Directions, 2015-2021, approved by the Board of Regents in January 2015. <NOTE: update underway in 2018>

Over the past decades, information technologies have evolved to touch, enable and empower all aspects of our lives.  Information technology is a fundamental element of our society.  We must continuously work to ensure that *each and every individual within our University of Hawaii community is empowered with access to first-class information technology services, tools and infrastructure, that enables them to be productive, collaborative and participative global citizens.*

Effective use of modern information technologies has clear potential to help each and every member of our community realize their personal and professional goals.  Conversely, lack of access to modern information technologies can swiftly separate individuals from access to the mainstream benefits and opportunities of our modern society.  It is incumbent upon us to ensure our services are broadly available to our University of Hawaii community to help ensure that we can all be active participants in the global economy.

ITS has system-wide responsibility for planning, policy, coordination, external relations and operational activities related to information technologies for the University of Hawaii system.  This strategic plan represents the roadmap for ITS as it carries out its roles and responsibilities, plans and executes projects, and supports the University of Hawaii community.  To the greatest extent possible, the University will make IT investments that align with its mission and strategic directions.

While having a first-class information technology infrastructure and services will not guarantee success in achieving the outcomes directed through the University of Hawaii's Strategic Directions, the lack of robust information technology foundation will surely make success difficult at best, impossible at worst.  ITS has

a critical role to help ensure the success of each and every member of the University of Hawaii community as we work together to reach for our goals.

## II. University of Hawaii Strategic Directions 2015-2021

<NOTE: the Strategic Directions are currently under review for fine-tuning, with updates likely to be released in the Fall of 2018>

The University's Board of Regents approved the following strategic directions on January 22, 2015 (the full strategic directions document is included as Attachment A). These strategic directions articulate the University's system-wide business strategies, and serve as the guiding principles for this ITS Strategic Plan.

*Hawaii Graduation Initiative [HGI]* Increase the educational capital of the state by increasing the participation and completion of students, particularly Native Hawaiians, low-income students and those from underserved regions and populations and preparing them for success in the workforce and their communities.

*Hawaii Innovation Initiative [HI2]* Create more high-quality jobs and diversify Hawaii's economy by leading the development of a $1 billion innovation, research, education and training enterprise that addresses the challenges and opportunities faced by Hawaii and the world.

*21st Century Facilities [21CF]* Eliminate the university's deferred maintenance backlog and modernize facilities and campus environments to be safe, sustainable and supportive of modern practices in teaching, learning and research.

*High Performance Mission-Driven System [HPMS]* Through cost-effective, transparent and accountable practices, ensure financial viability and sustainability to ensure UH's ability to provide a diverse student body throughout Hawai'i with affordable access to a superb higher education experience in support of the institutional mission of the university, which includes commitments to being a foremost indigenous-serving university and advancing sustainability.

The next section describes the overall vision and strategic planning framework upon which the strategies within this ITS strategic plan have been crafted. Each of the strategies carries a notation identifying that component with one or more of the University's four strategic directions. If a strategy represents critical foundational or organizational infrastructure that is not specifically tied to a strategic direction, but is essential to empower execution of other strategies, that strategy will carry a Foundational Infrastructure [FI] notation.

### III. Why Do We Do What We Do?

Effective and strategic use of information technology is critical to the mission of the university, and is an integral part of

Classic Gretzky – skate to where the puck will be

Anticipate the future of technology and the role and fit of future technologies to empower the future success of the institution.  Create and manage incremental efficiency of the status quo, and create the unanticipated future needs of the institution to support mission-focused evolution and revolution to empower institutional success.

Celebrate our invisible heros – as part of the institutional infrastructure and foundation, our success will be mostly invisible to our community.  Our success will be embodied in the success of the institution.


### IV. Vision and Strategic Planning Framework

The University's July 2000 Strategic Plan for Information Technology was crafted around the following vision:

> *All members of the University of Hawaiʻi community will have access to a first-class information technology infrastructure consisting of the tools, services and support that will enable them to be the most effective they can be.*

This vision remains on point today, in the context of our current environment and the University's strategic direction.  While previous execution of this vision focused around core IT infrastructure and services, and enterprise applications, the current perception by our community at large considers IT services in a much broader and more comprehensive view that includes the broad integration of services, highly automated self-service systems, and data-driven decision support.  It is with this forward facing view that we will embrace the vision of information technology as an integral part of the framework that supports our community.

The University's strategic directions also point to the need to expand ITS' active participation in research, innovation, workforce development and outreach.  Given the increasingly pervasive role of information and telecommunication technologies in our society, it is natural that ITS will be called on to play an expanded role in the University's business.  Also, given that ITS is one of the largest and most sophisticated IT organizations in Hawaii, we have both the

opportunity and the responsibility to take on a leadership role in Hawaii's IT community.

In consideration of this expanded role, ITS' vision is updated to include services together with infrastructure, and an expansion of outcomes to go beyond our local community.

> *Each and every member of the University of Hawaiʻi community will have access to sustainable, first-class information technology infrastructure and services that enables active participation and leadership in local, national and global economies.*

This updated vision and its underlying values are reflected in the strategic planning framework, or set of core values and guiding principles, upon which this ITS Strategic Plan is constructed.

**Strategic Planning Framework**

The strategic planning framework is akin to the steel skeleton of a modern building. The elements of the framework represent the underlying themes or tenets that form the basis for ITS plans and actions. Each of the seven elements of the framework is described below.



*Engage With Our Community* - ITS will continually engage with our customers, partners and stakeholders to ensure our actions are maximally aligned with the University's strategic direction, our IT vision, and our customer needs, to ensure that we deliver results-driven, high-value benefits to our community.

*Expand Our Reach* - ITS will continue to move beyond technology-centric roles to embrace non-traditional (from the perspective of a traditional IT service organization) participation in research, outreach, innovation, workforce development and economic development activities. ITS will also collaborate with external local, national and international partners to extend benefits to associated external research and education communities.

*Demonstrate Technology Leadership* - ITS will take a leadership position in the understanding, adoption and implementation of new technologies, in the context of ensuring we maintain a thorough understanding of technology trends and how they may potentially benefit the University and our community. We will work collaboratively with decentralized IT organizations throughout the University to provide technology leadership, guidance and access to benefits of our (ITS) scale and comprehensive reach. Where practical, this may extend to participation in external efforts to generate public benefit via collaboration with external local, national and international partners.

*Deliver High Performance Infrastructure* - ITS will deliver consistent, high-performing, and relevant IT infrastructure, inclusive of systems, networks, applications *and services*, to our community. We will balance the open access principles of our higher education community with necessary and appropriate levels of cybersecurity protections and oversight, while effectively managing the risks related to our technology operations.

*Innovate* - ITS will leverage opportunities to enable, empower and take advantage of economies of scale available to our community, inclusive of our global partners. This includes leveraging opportunities available to ITS as one of the largest and most sophisticated IT operations in the State of Hawaii. Where possible and reasonable, ITS will look to test and experiment with innovative technology solutions and approaches that have the potential to yield long-term value.

*Continuously Improve* - ITS, as a service organization, will continually work to improve the quality and consistency of our customer-facing products and services.

*Promote Efficiency and Sustainability* - ITS will continually work to improve and enhance our operational efficiency, including working to control long-term operational expenses, and ensure that our efforts are sustainable. Where possible and practical, we will leverage judicious use of capital investments with an eye to increase efficiencies and lower recurring, operational costs. We will make effective use of automation and tools to improve operational efficiency at scale.

## V. ITS Strategies

The following strategies will guide the prioritization of efforts and allocation of resources for ITS over the next three to five years.  They are based upon the University's Strategic Directions, and guided by the IT vision and strategic framework laid out in the prior sections.  The strategies are designed to provide guidance and direction for ITS in its approach and response to delivering high value systems and services to our community, and shaping its response to market forces, changes in the environment, and the constantly evolving information and telecommunications technology landscape.  They are intended to be flexible enough to persist through the three to five year planning horizon based on our current expectations and understanding of our community and the environment in which we live and work.



From time to time, these strategies, along with the ITS Strategic Plan may require changes to reflect any significant movement in any of the aforementioned set of guiding principles, or material changes in the needs and wants of our

community. Tactical level adjustments are expected at many points over time as ITS works to respond to specific requirements, or executes on any number of project efforts under these strategies.

Each strategy is described below, and includes a discussion of major projects or efforts, critical infrastructure components, and, organizational and resource impacts in order to assist in the understanding of how each strategy benefits our community. Each strategy includes reference to one or more of the University's Strategic Directions [HGI, HI2, 21CF, HPMS] to directly and clearly align each strategy with the University's Strategic Directions. Strategies that are not clearly tied to one of the four strategic directions, but that are tied to critical Foundational Infrastructure supporting one or more of the four strategic directions will be marked with the [FI] notation.

Each strategy is associated with a letter (Strategy A through H), and described in **bold**. Action items related to each strategy are listed and numbered following each strategy. Strategies and actions are not listed in any particular order.

Reality check: Readers should note that many of the strategies and actions relate to *stretch* goals for ITS, i.e. any expectation that 100% of these strategies and actions would be fully delivered on within the three to five year time horizon may not be realistic. That being said, the collective plans, strategies and actions of ITS shall be guided by these strategies to aim high, and achieve success where possible.

Support Student Success

**A. Enhance the student experience and support measurable improvement in student success through the implementation of information technology (IT) systems, services and tools. [HGI,HI2]**

A-1. Enhance and integrate enterprise systems by reengineering the user interface, and integrating disparate enterprise systems to advance the customer experience and remove unnecessary pain from the teaching, learning and administrative systems experience.

A-2. Provide access and support for infrastructure, tools and applications to improve the effectiveness of teaching and learning in all instructional modes. Connect students and faculty to learning both in and outside the classroom, and enhance opportunities to collaborate throughout our communities.

A-3. Collaborate in the creation and delivery of courses and programs, in particular, in areas where IT directly enables major subject matter or delivery mechanisms.

A-4.  Embrace consumer IT apps, tools and services, preferred by students and faculty, including those that are not delivered or directly managed by ITS.

A-5.  Enhance and integrate the use of IT systems and services in all aspects of education, including for-credit, non-credit, and workforce training.

A-6.  Implement enterprise systems and processes to support measurement and analytics of student progress and success.  Create and deploy systems to support use of embedded analytics in enterprise applications.

A-7.  Enable mobile access for enterprise applications to extend the reach of key enterprise functions.

A-8.  Embrace the diversity of our customer needs and wants, where possible and reasonable, to deliver solutions that deliver broad-based customer value.

A-9.  Enhance and integrate IT systems and services to provide information dashboards for advisors and counselors to support student success initiatives.

A-10.  Enhance and integrate IT systems and services with 3rd party vendor products, services and data sources to provide information dashboards for advisors and counselors to support student success initiatives.

Promote ITS as a Research Partner

**B.  Promote and continue to develop ITS as a trusted research partner.  Identify and participate in extramural funding opportunities to enhance our institutional cyber-infrastructure capacity and enable its broad use by our research community. [HI2]**

B-1.  Collaborate with local, national and international communities to help ensure that our institutional cyber-infrastructure is on par with global research leaders.

B-2.  Pursue extramural funding opportunities to enhance and expand our institutional cyber-infrastructure capabilities.

B-3.  Partner with public and private sector organizations to maximize access to extramural funding opportunities.

B-4.  Enable broad access to cyber-infrastructure for our research community, in particular to provide access to and experience with high quality, high value cyber-infrastructure assets to researchers that may not have been otherwise able to gain such access.

B-5.  Collaborate with local, national and international partners to innovate, build and operate research cyber-infrastructure that might not have been feasible without the cooperative efforts of all partners.

**Proactively Build Capacity**

**C.  Proactively and continuously address the expanding and evolving IT demands of our community, and help to ensure that our community members can participate alongside their peers from top tier national and international research communities. [FI]**

C-1.  Maximize the value of our capital and operational spending by leveraging relationships with local, national and international partners on shared infrastructure and services.  Lead collaborative efforts where possible and practical to create broad community and public benefits.

C-2.  Embrace the implementation of process automation to improve the overall quality and reliability of IT systems and infrastructure while lowering operational costs.

C-3.  Reduce the frequency and duration of outages and service disruptions through process improvements and the effective implementation of system quality control services.

C-4.  Take fullest advantage of the experimentation, development and experience of our institutional peers to keep current with evolving IT trends, technologies and practices.

C-5.  Maintain standards based core technologies throughout the University's infrastructure to help ensure long-term support and reasonable capital and operating costs.

C-6.  Ensure that the University's IT infrastructure is provisioned to support reasonable recovery and continuing operations from any anticipated natural disaster or other threats.  To the degree possible and reasonable, critical enterprise systems shall remain available while accommodating degraded operations for non-critical systems.

C-7. Organize ITS customer facing and non-customer facing operational support functions to maximize service and support to the customer, efficiency of operations, and ability to effectively and timely respond to incidents affecting the University's infrastructure and enterprise services.

C-8.  Thoughtfully manage the lifecycle of our systems and infrastructure.  This includes evaluating when systems should be refreshed, upgraded, replaced or retired to best meet the changing requirements of the University community.

C-9.  Equally consider on-premises and cloud solutions when implementing new systems or replacing old ones.  Pick the provider and architecture that best meets the University's long-term goals, while ensuring a reasonable refresh, exit or transition strategy to accommodate future opportunities or needs.

C-10.  Reduce unnecessary redundancy in our IT infrastructure and tools by maturing our architectural planning processes and practices.  Ensure that new tools and products are selected in an intentional and inclusive manner.

<div style="float:left">Improve IT Workforce</div>

**D.  Engage with the University community to improve and enhance the IT workforce development pipeline in order to increase the quality and quantity of our students entering the IT workforce, including those working for ITS. [HGI, HI2]**

D-1.  Coordinate activities across the University system to increase engagement with potential employers, including ITS, to improve the quality of University students entering the IT workforce.

D-2.  Increase ITS support for student employment, internships and graduate assistantships to improve the quality of work experience and workforce readiness of University students.  Consider providing multi-semester or multi-year project based work experience which tracks with the increasing scope and complexity of a standard degree pathway.

D-3.  Increase ITS participation in external events and projects, which include student participation, with the objective of raising the level of quality experience for both the participating students and ITS staff.

D-4.  Engage as a bridge with the local business IT community to promote the University's workforce development agenda and to help ensure alignment with the needs of prospective employers.

D-5.  Encourage participation by the local community in supporting student internships as a critical element of the workforce development agenda.

D-6.  Increase in-service training opportunities for ITS staff to improve skills and capabilities.

D-7. Increase ITS participation in outreach and IT related community workforce development events.

D-8. Align professional development activities to support and encourage the development of future IT workforce and industry leader.

**Build Innovative Environments**

**E. Build innovative and effective places to learn, study and work. Provide leadership in the integration of technologies in the construction and renovation of modern facilities supporting our community. [21CF]**

E-1. Actively participate throughout the construction and renovation process to ensure technology infrastructure are fully considered throughout the process, from planning and design, through construction and FF&E (furniture, fixtures and equipment) phases.

E-2. Proactively identify opportunities to improve our IT infrastructure where construction and maintenance activity is not planned, in order to address unmet customer demand in those areas or facilities.

E-3. Lead by example in operating ITS assets as efficiently as reasonable based on the operating environment.

E-4. Promote the colocation of departmental and research IT systems within ITS operated facilities, along with shared use of ITS centralized systems, to improve overall operating efficiency.

**Deliver Value in Enterprise Systems**

**F. Implement enterprise systems that deliver customer value. [HPMS]**

F-1. Continuously upgrade enterprise systems to ensure compliance with legal and regulatory requirements and changes. Include upgrades and additional functionality where possible to improve customer value. Integrate accessibility by design to support the broad access needs of our diverse community.

F-2. Aggressively move to replace or re-envision systems that deliver poor value, inflict excessive pain upon customers, or that simply do not work.

F-3. Where possible, work to consistently simplify the user interface and improve the customer experience to reduce the level of effort and complexity in our enterprise applications.

F-4.  Continuously monitor and intervene as necessary to ensure the community's data and infrastructure assets are secure.

F-5.  Integrate legacy in-house systems with available off-the-shelf software or software-as-a-service where useful and of high value.

F-6.  Establish the infrastructure and support services to implement an effective enterprise data repository to support business intelligence and institutional analytics.

F-7.  Establish and promote industry-standard integration services between enterprise systems to create systemwide consistency and data standards.  The approach should generally follow best practices to decouple modifications across two or more enterprise systems, resulting in limiting the future impact on system maintenance.



## G.  Continuously work to improve ITS. [FI]

G-1.  Organize ITS to maximize effectiveness serving our community.  Review and make organizational adjustments as needed to ensure that ITS is optimally structured to execute its strategies.

G-2.  Implement professional development programs across ITS to develop and enhance technical, communications, management and leadership skills.  Utilize a combination of delivery methods as appropriate for the topic and audience, including online, self-paced, instructor and individual mentoring.  ITS leadership should also focus on identifying and mentoring potential candidates for future ITS leadership positions, as well as highly specialized technical positions.

G-3.  Deliver clear, consistent and transparent messaging throughout ITS to ensure all staff and student employees have a clear understanding of ITS strategies and operations.

G-4.  Deliver clear, consistent and transparent messaging to our community to ensure that our customers understand what ITS does and where we stand on operations and strategic project efforts (i.e. transparency).

G-5.  Increase the integration of student employees into ITS workgroups with the dual objective of supporting workforce development (see also Strategy D), and supplementing the pool of available, skilled candidates eligible for ITS entry level positions.

G-6.  Increase and promote direct participation in cross-functional and cross-organizational teams by ITS to improve and enhance our understanding of the business of the community, and our cumulative ability to participate in its success.  Create the organizational and functional structures to support and promote cross-functional and cross-organizational teams.

G-7.  Encourage and support ITS participation in external events, conferences and workshops.

G-8.  Invest in internal systems to support business process improvements for ITS, to improve efficiencies, increase productivity, and improve service quality.

**Enhance Value of Data Assets**

**H.  Free the hidden value in our institutional data assets. [HGI]**

H-1.  Implement enterprise infrastructure to support analytics, including building staff capacity both within and external to ITS to champion data-centric decision making and measurement.

H-2.  Expand and extend existing enterprise application reporting capabilities to enhance customer value, e.g., configurable standard reports, application dashboards, embedded analytics.

H-3.  Build institutional capacity to understand and exploit the University's data assets.

H-4.  Expand and extend enterprise applications to provide institutional leadership with business intelligence dashboards to support informed decision-making and operational excellence.

H-5.  Expand and extend enterprise applications to provide institutional leadership with the ability to search and exploit institutional data assets to support informed decision-making and planning.

## VI. ITS Strategic Plan Review and Approval

This document was drafted by ITS, under the guidance and oversight of ITS leadership using the University's Strategic Directions 2015-2021 as its overarching principles.  Once the document was fully vetted by ITS staff, ITS management reached out to UH senior executives to ensure consistency with institutional plans and strategies.  Additional comments and suggestions were solicited from the community of Hawaii public and private sector CIOs.

Feedback and suggestions were incorporated into the initial version of the document dated May 22, 2015 (ref. v15-1).  Updates to the initial published plan were developed, vetted and incorporated in a manner similar to the original document.  This updated version of the document dated <May xx>, 2018 (ref. v17-0) can be found at www.hawaii.edu/its/about/.

Additional periodic updates will be posted to the plan as they become available.

## VII. Next Steps

ITS will utilize this living document as a guide for aligning and prioritizing major projects and investments.  All strategic project efforts will be documented and regular status reports posted monthly accessible from the ITS web site (www.hawaii.edu/its/projects/).  Note that a number of significant internal efforts tied to operations, infrastructure and security are not included in this public facing project status page.  A sample of the Project status dashboard as of <*** xx>, 2018 is included as Attachment B.

Dissemination and open discussion of the plan and strategies will be an integral part of the annual statewide IT All-Campus Workshop beginning with the workshop scheduled for June 19, 2015.  This annual workshop, open to all University of Hawaii IT staff, is held on an annual basis to provide updates on IT efforts across the system, and provide face-to-face networking opportunities for staff engaged in IT functions at all ten campuses.  Materials from these annual workshops are maintained at the ITS site (www.hawaii.edu/its/about/).

This current update is based on our collective recent experience, and will be shared at the upcoming annual workshop scheduled for July 13, 2018.  ITS will continue to review and update this ITS Strategic Plan on an regular basis to ensure that the document remains current and consistent with the University's overall strategic directions.

Updates on the year-over-year accomplishments and forward looking plans are presented to ITS staff in the annual *State of ITS* presentation, typically at the first ITS Talks session of the year in January.  These presentations are archived at the ITS web site (www.hawaii.edu/about-cio/).

From time to time, ITS will continue to consult with peers and leaders from the local business community, and the higher education and research community to solicit suggestions and recommendations as to this ITS Strategic Plan, major project efforts and operational programs.

Please direct any questions, comments or suggestions to:

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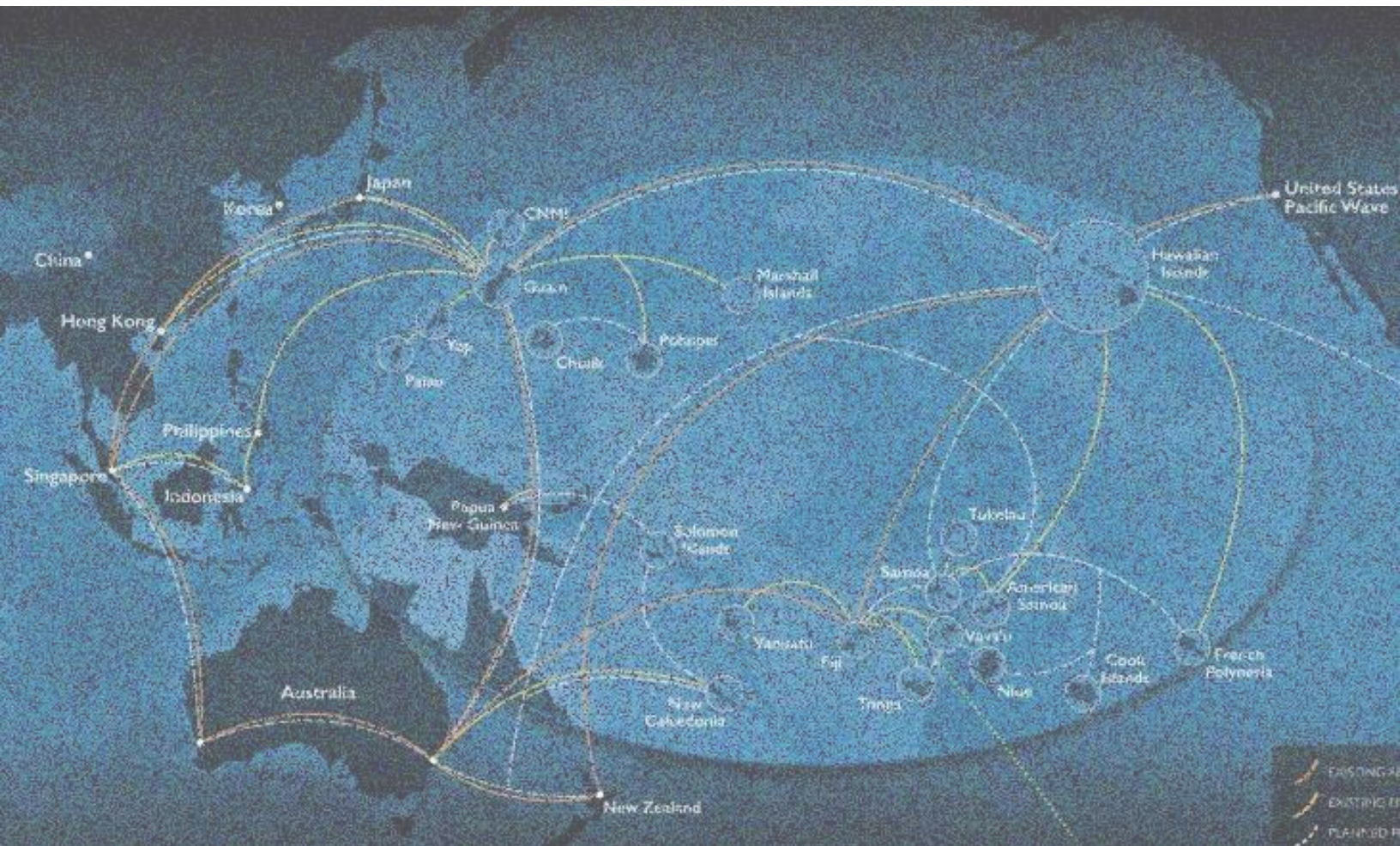
**Attachment A.  University of Hawaii Strategic Directions 2015-2021**


http://blog.hawaii.edu/strategicdirections/files/2015/01/StrategicDirectionsFINAL-013015.pdf

# Attachment B.  ITS Project Status Dashboard
## (as of January 19, 2017)
## <UPDATE SNAPSHOT IN FINAL>



MY UH    GOOGLE@UH

**its** INFORMATION TECHNOLOGY SERVICES

HELP DESK    SERVICES    INFORMATION SECURITY    ALERTS    ABOUT

ITS » Projects

# PROJECTS

**Hawaiʻi Graduation Initiative**
- Banner-STAR GPS Registration
- Course Evaluation System
- Kuali Curriculum Management
- Learning Mgmt System (Laulima)
- Open Educational Resources (OER)
- Student Info System (Banner)

**Hawaiʻi Innovation Initiative**
- CI Agave
- CI HPC Expansion
- EPSCoR ʻIke Wai
- Intʼl Research Network Upgrade
- Research Storage

**21st Century Facilities**
- Manoa Network Upgrades
- Recovery and Resiliency

**High Performance Mission-Driven System**
- Document Imaging Implementation
- Enterprise Reporting & BI
- Kuali Financial System KFS
- MyUH Services Portal
- Enhance UH Login Security

University of Hawaiʻi Strategic Directions 2015 – 2021
Information Technology Services Strategic Plan

## Completed Projects

Banner DB from Solaris to Linux

Enhance Student Learning System Laulima Upgrade to 2.9.3

Improve Useability & Content of ITS Website

Student Information Systems (Banner) Improvements

CyberCANOE

HPC Cluster Upgrade

Build & Support Shared High Performance Computing Cluster and Service

Campus Network Upgrades to Support Research (CCNIE)

Disaster Recovery Testing

State of Hawaiʻi Colocation

Palamanui Campus IT & AV

VoIP (Voice Over IP)

Incident Mgmt Capability

Establish Disaster Recovery Capabilities

HR Mgmt System Peoplesoft

System Logging and Hardening

Upgrade HR System Phase 1 People Tools 8.51

# ITS Project Status – Example Project Milestones
## <UPDATE SNAPSHOT IN FINAL>