A Review of System-wide Reporting at the University of Hawai‘i

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The following report was developed under contract between the University of Hawai’i and the State Higher Education Executive Officers (www.sheeo.org).

The author is particularly grateful for the assistance provided by Sandra Furuto and Malie Hirao of the University’s Institutional Research Office.

The author is also indebted to concepts and principles provided by Gerald McLaughlin and Richard Howard in their monograph People, Processes, and Managing Data (Association for Institutional Research, 2004). This resource is invaluable to anyone considering restructuring an institutional research function.
BACKGROUND AND CONSULTATIVE PROCESS

The University of Hawai‘i (hereafter UH) is a member of the State Higher Education Executive Officers Association (SHEEO). On December 28, 2009, the Office of the Vice President for Academic Planning and Policy (OVPAPP) contacted SHEEO to discuss concerns about and potential modifications to their system-wide reporting infrastructure. OVPAPP provides executive leadership in setting forth the system wide academic vision and goals for UH. Related general functions, as described in their functional statement, include managing University wide long range planning efforts and providing leadership and direction for institutional research for the ten campuses of the UH system. Specific institutional research functions include but are not limited to designing systemic reports and formats to be used when summarizing and analyzing data, developing and coordinating on-line database structures, warehouses and the university’s management information reporting system, developing and utilizing analytical techniques to support the University’s planning process, and providing system-wide direction for institutional research.

The request was presented as an opportune time “to re-think the operation...and plan for an integrated data system—that is, integrating fiscal, human resource, and student data.” The University expressed interest “in a consultant who can review the pieces we have in place, and provide a blueprint for moving forward.” Further discussion confirmed OVPAPP’s interest in an “integrated reporting system” or an overall plan for system wide analysis and reporting. They were also interested in clarifying “who does what” at UH and how the various organizational components interact. Interest in this area is particularly high given the loss of personnel from the System’s Institutional Research Office (IRO) and the University’s recent submission of a state longitudinal data system (SLDS) grant from the U.S. Department of Education. The overall goal is to be more effective in how UH handles reporting.

Hans L’Orange, SHEEO Vice President for Research and Information Resources, agreed to serve as a consultant; a sole source procurement contract for his time and appropriate remuneration to SHEEO was developed and a site visit was arranged for February 2-4, 2010. Scheduling and UH-staff participation was arranged by the IRO staff. Sixteen meetings were held during the site visit; these were all open-ended conversations facilitated by L’Orange. The participants in these meetings were universally gracious and helpful; many spoke candidly and expressed their interest in helping to address the reporting integration issues being discussed. An oral reporting of preliminary reactions, findings and suggestions was provided to the Vice President for
Academic Planning and Policy; this report provides the final deliverable of analysis and recommendations.

**INTERVIEW SUMMARY**

Sixteen meetings with a variety of staff from multiple functional areas were held on site at the University of Hawai‘i. In several cases, individuals or functional areas requested follow-up meetings during the site visit. The areas involved included the following:

- The Vice President for Academic Planning and Policy
- System Institutional Research Office (IRO)
- Information Technology Services (ITS) Management Information Systems (MIS) Data Warehouse
- Hawai‘i P-20
- Banner Central
- University Executives
- Human Resources
- Kuali (Finance and Accounts Receivables)
- Campus Institutional Research offices
- Financial Aid
- STAR

All participants were told their comments would be held in confidence; that confidentiality extends to this report. In no case are comments attributed to any individual or office. The consultant feels this collective acceptance of confidentiality led to a degree of candor that otherwise may not have been achieved. The summary comments, quotes and consultant’s impressions presented in this section of the report provide a general sense of the conversations and specific recommendations that were either particularly notable or repeated multiple times. The comments have been grouped into very broad subject areas to provide general trends that emerged from the various conversations. In some cases, comments from multiple individuals have been merged together where points of commonality were expressed.

**General Reporting Comments**

*We need less emphasis on tools and more on data... reporting drives data standards and not the other way around ... need a single source of the truth ... lots of ad hoc activity/reporting takes*
place in business areas … lots of ad hoc reporting [but] Interpretations can differ … would like standardized reports with clear definitions … everyone needs clear definitions … everyone gets lots of requests … some reports are manually created … people use any data sources available … there is a lot of frustration with who has access and why.

The old system was taken away and IRO took on ODS development and ownership … ODS is split between ITS and IRO … there’s lots of vested interest in ODS … [but] reporting against ODS was not very good … ODS is relational … and you lose performance with a very aggregated system … reporting in ODS is bloated … it just creates canned reports … the ODS tables are broken

We need an easy ad hoc reporting tool … Brio doesn’t do everything we want … it has poor presentation capabilities but we still love it and its ad hoc capability … Brio is no longer being maintained

MAPS takes a lot of time … want to get data out faster and in users’ hands faster and that led to the Cognos decision … we could rebuild reports in a year without using MAPS … STAR does everything we want

Systems were designed to meet specific functional needs … campuses should be able to generate their own reports … Discover allows users to run their own reports … want to push reporting out to others

Banner has a degree audit system but STAR is more sophisticated … decision was made to use STAR as a degree audit instead of buying the degree audit component from Banner … STAR has a data matrix crossing HR/Student/Fin Aid … it results in ad hoc reports, performance measures and static reports … STAR is filling a need

**IRO and Institutional Research Comments**

There is a lack of coordination between parts of the system … IRO has been isolated by choice for years … they work on the campuses behalf but are not appreciated … some great dedicated people … They support campus IR reporting for some needs but not all … IRO needs to demonstrate their value to us … Manoa is the primary requestor … Manoa trumps everyone else and we [the campuses] are really upset

Need to hire an IRO Director who can “walk on water”… they can’t be just the director of IR for student enrollment reporting
IRO Analysts spec the reports but the report writers build the reports … leads to a disconnect … they need to work better together as small teams

Dynamic Reporting is an IR tool but not really an enterprise tool … development stopped but it is still generating reports

The IRO system/report group met for the first time ever last week … others speak with each other unofficially a lot … last week with everyone talking together formally was great … the CC IR people meet regularly as a group

The campus IR offices need access to data in a timely fashion … they don’t depend on System to provide data … need data to be more current … data timeliness is critical … want to rely on MAPS more fully … Community Colleges and the 4-years have different needs [and] outer islands need more support

Data Management and Integration Comments

Couldn’t build a single data model for all campuses … impossible to satisfy everyone … have been working on longitudinal data for a decade … early feasibility work and conceptual model led to “motherhood and apple pie” but institutional priorities always win … we need a data layer and we bought a presentation layer with Cognos

We have a series of data stores, not a data warehouse … some are relational and some are not … systems are totally different and won’t hook-up with each other

Lots of IT savvy people in the user departments … staff are very computer literate …. shadow systems abound … there are normalized stores in many locations …. “Can you do it yourself? Ok – access is granted” …. rogue systems pull data from Banner … Banner has driven some systemization … May need to limit the ability of external users … lots of shadow systems and numbers don’t always match between reports … current reports address system needs but campus functional needs must be addressed

The data dictionary is out of date … we need a good data dictionary … no common data dictionary … hope that the field units enter data properly but they don’t have to work with the data directly … we need to educate users and shift responsibilities … retirement of people and their expertise is an issue

Campuses ask “who do I go to for reports” … Everyone is generating their own reports and don’t know if they are accurate … there are many silos
We don’t need to know as much about “what” but we do need to know more about “how”… forecasting is critical … much of what we get now is an effort … it can be done but it takes a lot of effort … there’s lots of good info but it takes work to get to it.

We would ask other questions if there were easy access to data – e.g. how many employees do we have? Cost of education at the dept level? Cost of a graduate?

**Cognos Comments**

Cognos was brought in to meet specific needs but we have been overwhelmed … Cognos was supposed to automate MAPS … we had group meetings but everyone was new to Cognos … we have the technical knowledge but we lack the functional knowledge … the intent was to roll Cognos out slowly … it stalled when it took longer than expected … it was deliberately designed to mimic our paper reports but after 2 years we only had 2 tables! … “Is this all it does?” …. everyone looked forward to COGNOS but it’s not working and has become a big PR disaster.

Campuses want access to Cognos … designed to automate canned reports, empower users, eliminate ad hocs … it’s not difficult and has a intuitive user end but needs more development for a data model and packages … it’s a presentation layer rather than a database.

**Cognos was intended to generate tables and was used by IRO for some MAPS reports … IRO has emotionally committed to Cognos**

In summary, the UH staff were very welcoming and the consultant was able to gather a great deal of valuable information; only a portion of the interview material is presented here but the enclosed material is representative of what was gathered over the three days.

**FINDINGS AND GENERAL RECOMMENDATIONS**

It is clear that there is a lot of good work going on at the University of Hawai’i by very dedicated, hard-working people. Everyone expressed their commitment to UH and interest in finding strategies to improve the reporting infrastructure even though, like any place else, there are political and turf issues. These issues are not reflective of technical or cultural concerns alone but an understandable mix of both. It’s likely that a number of these concerns have their foundation in the more general questions that have resulted from the University’s devolution and various relationships that have existed between the System and campuses over the years.
The result is a lack of focus and clarity on who does what and when it is done including uncertainty over centralized vs. decentralized roles for reporting and data management.

The concerns raised that resulted in this review and the related interest in identifying new and creative strategies indicate that this is, in the words of one staff member, “a good opportunity.” Many UH staff responded very positively to this suggestion and agreed it is time for a comprehensive, coordinated strategy for information flow and knowledge development. This is an opportunity to build on existing strengths and emerging tactics, consider new leadership demands, and jettison outmoded mechanisms and operating paradigms that exist strictly because “things have always been done that way.”

The current situation finds the University at a decision point: will the System-wide reporting function become increasingly distributed and fragmented or will a formal, centralized strategy be developed? Indications from UH executives imply a shared interest in a stronger, centralized reporting culture. If so, a collective and collaborative process is necessary to develop basic reporting principles where everyone knows who does what, how it is done, and when it is required. This is a leadership decision rather than a technical choice. It’s an opportunity to develop a comprehensive strategy for the future and move from a “data dump” (i.e. MAPS) culture into a decision-culture based on analysis. It is a process of moving from data management to knowledge management. This not to imply that data management is no longer important; if anything, it becomes even more critical as data resources are used to develop information and ultimately knowledge. Without structured processes for managing data, high quality, decision-support information cannot be provided to decision-makers.

The challenges faced by UH are not unique; rapid changes in technology and complimentary changes in organizational structures are found in many systems. Institutions are experiencing a simultaneous push by technology and pull from management to deliver useful information. Management’s requirements are driven by new needs to perform analysis related to both short-term and long-term decisions. The operational systems that were designed to perform day-to-day transactions were not designed to support management decision making. In response to increased pressures for information, informal procedures often develop to obtain data and generate reports. In addition, in many institutions or systems there is often no formal assignment for the responsibility of data management. The result is often a lack of policies to govern the processes by which those who manage existing data use those data to provide analytical support to executives and other decision makers.

These frequently-observed challenges are addressed by Gerald McLaughlin and Richard Howard in their monograph People, Processes, and Managing Data (Association for Institutional
Research, 2004). They suggest that today’s dynamic organizations need a managed data resource environment that anticipates future needs as well as the ability to respond to current concerns. They refer to this as an “information support cycle” that provides a basis for the process of creating decision support information. Very simply put, this cycle has five basic (and generally sequential) functions:

1. **Identify and Measure Concepts.** Develop a conceptual model of the environment and related reporting needs. Describe its major components. Identify individuals and groups of individuals with a stake in the environment. Define the essential elements required to make decisions.

2. **Collect and Store Data.** Obtain both qualitative and quantitative data from relevant sources. Store data in ways that are both secure and accessible to authorized users. Edit and audit for correctness. Document all procedures.

3. **Restructure and Analyze Facts.** Bring data together from multiple sources. Integrate, analyze and summarize to focus the data on specific situations.

4. **Deliver and Report Information.** Apply the information to the situation. Use appropriate delivery technology to make information accessible. Focus reporting on specific alternatives and support interpretations of causality and desirability of outcomes.

5. **Use and Influence Knowledge.** Use facts to clarify the situation, make a decision, or advocate a belief or value. Identify the ways new information expands previous knowledge.

There are three related key roles that can be thought of as clusters of responsibility. These roles bridge the tasks associated with the five basic functions previously described.

1. **Custodian.** Focuses on the integrity of the data and helps select appropriate data for the analysis. Adds value by contributing operational knowledge. Has data management and administration skills.

2. **Broker.** Transforms data into information. Integrates, restructures, and analyzes data looking for causality, desirability of outcomes, and parsimony of elements.

3. **Manager.** Takes information and applies it to the situation. Often a decision maker but may also be responsible for supporting the decision process. Primary responsibility to identify important elements as well as the unknowns.

These functions and roles are linked by two major properties: dependency and cooperation. Dependency is the property which deals with the influence each function has on the others; the value of each function is dependent upon the quality of the preceding function. For example, if...
the reliability of the data from the collect and store function is poor, than no sophistication in methodology or increase in resources will overcome the low reliability. Cooperation is the property which deals with the relationships between these roles. Mutual involvement, investment and interaction are necessary to achieve high quality. If an individual filing any of the roles decides to operate in his/her own best interest, the integrity of the overall information support process is compromised. Shared dependency and cooperative interaction among the three roles permits an opportunity to solve specific problems while creating an environment conducive to supporting future needs.

Several additional concepts based in the study of institutional resource management (IRM) by Dr. David J. Skyrme reinforce the ideas suggested by McLaughlin and Howard and form the foundational underpinnings of the specific recommendations that follow.

1. **Understand the role of Information.** Information adds value. Improved information flows can improve the quality of decision making and internal operations. Essentially assign value to information; treat it as a resource equal in value to the other fiscal, personnel, and tangible resources of the University.

2. **Assign Responsibility.** Developing value from information resources is often a responsibility that falls between the cracks of several departments - the user departments in different functional units, system planning, and multiple MIS units. Anything important enough to have value requires associated responsibility.

3. **Develop Clear Policies on Information Resources.** With assigned value and responsibilities come policies necessary for ascertaining information needs, acquiring, storing and managing information throughout its life cycle, and using that information. Particular attention should be paid to ownership, information integrity and sharing. These policies need to be consistent with UH’s general organizational culture.

**SPECIFIC RECOMMENDATIONS**

Creating a structure of the sort recommended in this report takes time and resources but most importantly, it requires leadership. The University of Hawai‘i would be well-served by executive leadership making system-wide data and information resource management (IRM) a strategic priority. This will require deliberate support for IRM and the conveyance of clear expectations from individuals, offices and functions across the system.
In short, the UH should establish a formal process to deliberately manage its information resources. In order to truly leverage these information resources, it is necessary to take charge of institutional reporting and analysis. This will not be easy given that this management function has been allowed, either deliberately or as a result of inattention to be dispersed. A forceful presence is necessary to regain control or to consciously manage the distributed function that is growing. This does not require centralizing all data and reporting operations but rather recognition of the need for a formal understanding of coordinated reporting management and a comprehensive approach to managing the process regardless of where it “lives” in the System.

There are several specific steps which can be implemented to begin addressing the goals suggested. The University of Hawai‘i should consider starting with the following actions:

1. **Develop and/or Enhance a Cooperative Environment.** There are many reporting and data “fiefdoms” in place at UH currently. It must be clear to all that the ultimate goal of an information resource management strategy is to find the means to collectively work together more effectively in making information and analytical reporting available to decision makers. The timing for this process is fortuitous given President M.R.C. Greenwood’s recent address to a joint session of the Hawai‘i Legislature outlining her new initiatives to increase the number of educated citizens in Hawai‘i, contribute to the workforce and the economy and advance the University’s reputation for excellence.

   Deliberate data strategies will be necessary to achieve these stated goals and these strategies must be coordinated and developed jointly; it is in everyone’s best interest to help the University move forward. There are many groups working on reporting at UH: Banner Group, STAR, DBAs, functional data analysts, IR staff, IRO. There are also many reporting tools: MAPS, Discover, Cognos, STAR, and Brio. These are all parts in the reporting puzzle but it is a puzzle that needs to have the pieces coordinated. There is an opportunity and a need to create common synergy; people are concerned about where they fit in the reporting environment.

2. **Establish a Data Culture.** As noted earlier, developing and managing information resources requires some very specific actions. Others will be identified but at a minimum, this includes developing standards for selection, standardization, integration and accessibility of system–wide data. This results in a common data dictionary available for all users. A shared data culture also includes cataloging and understanding reliable data collection and storage procedures, validity checks and correction procedures as well as data access and security guidelines. It incorporates what is known as the Shewhart Cycle (Plan, Do, Check, Act):
a. Plan - identify and establish processes for a data management structure
b. Do - create data standardization
c. Check – review edits, audits, and reports the results of those processes
d. Act – implement and monitor data access and data usage practices

This will require deliberate and cooperative work between System offices like IRO and ITS. There is often a tendency to view this as a technical exercise but it is a combination of technical and policy considerations.

3. **Catalog all Existing Data-related Activity and Needs.** A summary of which offices (and individuals) currently store data and generate reports is necessary. This is not a punitive process but necessary in order to understand both the extent to which these functions are distributed and the reporting needs that have been identified over time leading to the creation of these systems. Some will be determined to be “rogue” systems and should be either eliminated or incorporated into more formal structures. This will require following “data paths” (who gets data and how), identifying all generated reports (formal and informal), and meeting with every functional and administrative office. It was clear during the consultative process that many data stores and related reports exist; it was equally clear that no one had any real, hard data on how many of these reports currently exist within the System. It’s necessary to stress that many of these have a valid purpose and the primary goal is not to stop their generation but to create a comprehensive review of the activity currently underway. Only by understanding the full extent of the processes in place can a comprehensive plan for UH reporting be generated.

4. **Build Relationships with Campus Institutional Research Offices.** Deliberate attention will be necessary to rebuild the collective and individual relationships with the campus IR directors and offices. They claim to want a relationship but it’s clear they also enjoy a sense of autonomy that the distance of being “an island away” provides. It is obvious however that they need access to data in a much more timely fashion to be effective for their campuses. Waiting more than a few days for a census file is simply unacceptable (and almost unbelievable). A distinct but related portion of the cataloging of reports referenced above must be to identify both the reports being generated by the campuses for their use and their need for additional, different reports.

These offices have the potential to be valuable resources for the System. Building an IR community would be beneficial for all concerned. Ideas, strategies, and information on reporting needs must all be shared if there is to be any hope in creating the cooperative
environment referenced earlier. A great deal of institutional memory is present in the more experienced campus staff and there is a lot of potential for new directions with younger staff. The IRO Director needs the ability to interact with both groups; this requirement has implications for the level of experience inherent in this position. The group interview held during the consultant’s site visit was very informative; the potential for and interest in a community was high but it will require skillful management. Regular meetings via teleconference are a minimum requirement and the value in finding resources for periodic, regular face-to-face meetings cannot be underestimated. Everyone needs to feel they are equals in this interaction; the underlying tension between the Manoa campus and the other campuses was notable.

5. **Management of Report Initiatives.** There is a clear need for “reports of record”; what could be termed a single source of the truth. As noted earlier, it’s apparent there are too many disparate options for information generation; people don’t know where to go to get the information they require for their jobs. The current reporting environment feels “helter skelter” although it’s obvious this was never a deliberate approach to reporting; it has been allowed to develop over time. There are also many different options for report generation (MAPS (heavily relied upon), Discover, COGNOS tables, Dynamic Reporting, and STAR). Multiple report generators are by themselves not problematic but this is reflective of the distributed and random nature of the current reporting environment. The most notable example is STAR. This is not a “bad” system; it actually appears to be a valuable degree audit system but its growing presence and increasing use/reliance are a reflection of the gaps and uncertainty of the source of record.

As an extension of the data management strategies identified earlier, it is necessary to recognize a need for an integrated information / reporting strategy. Where do reports come from? What information needs to be conveyed? How is it best conveyed? This is an opportunity to evaluate and prioritize what is really needed in the way of reporting. This includes evaluating the shadow systems and rogue reports; their presence is not surprising but they do raise questions about what information is actually being presented about the University of Hawai‘i internally and perhaps externally.

The University's recent application for a state longitudinal data system (SLDS) grant is a timely example of the need for this coordinated strategy. The grant requesting funds to develop a P-20 data system presents many opportunities but it also will require very deliberate attention to management, coordination between various partners in the University and across the state, and decisions on the reporting structure. Will reports be
generated by the P-20 staff? Will they come from the Department of Education? What will IRO’s responsibility for P-20 reporting be given their expertise? Will multiple parties generate P-20 reports from the new SLDS system? Once again, there is no “right” answer; only a need for coordination.

Interest was expressed in “integrating reporting” at UH. The term “integration” may be misleading as it implies a merging or combination of functions which can be threatening to those staff involved. Integration is not the ultimate goal but rather the creation of a deliberate coordination strategy between various reporting resources (e.g., SIS, HR, FRS, and Fin Aid). These are valuable resources whose current primary value is operational but a fully realized information resource management system will develop ways to coordinate the data and information inherent in these systems. This is a successful outcome or result leading from the implementation of several of the other suggested actions. This is not to imply it will “just” happen but it does require deliberate attention and the implementation of other steps first.

6. **Next Steps for Cognos.** Utilizing Cognos is clearly related to the prior section on reporting initiatives but is critical enough to be deserving of a separate section. It is a good tool but it is necessary to recognize that it’s a reporting and presentation tool and not a data management strategy; data management decisions must precede the implementation of reporting tools. This is a classic example of a “cart before the horse” but given Cognos is currently available at UH, decisions are necessary to utilize it most effectively. The investment has been made and it doesn’t make sense to discard it at this time but it will require specific attention.

The responses to a recent SHEEO survey on business intelligence tools reveal several trends that reinforce what UH has already discovered:

a) Those state agencies or higher education systems without a BI tool would love to have one.

b) Analytics is one of the important resources for helping public higher education meet the challenges of decreasing public funding and increasing enrollment pressures.

c) Those with a BI system found it very difficult to maintain and integrate into their existing data management systems regardless of the tool (one respondent referred to himself as the “guy who puts round pegs into square holes.”)

d) It’s necessary to budget for ongoing maintenance.

e) It’s a challenge to maintain BI skills when the use of the tool is infrequent.
f) An understanding of data and system workflow is absolutely critical (i.e., this is not just a drop-in report generator).

g) Many BI tools are not sophisticated enough for power users or intuitive enough for other, less-experienced end users.

h) Cognos (or any sophisticated BI application) requires significant IT staff expertise and ongoing professional development. It’s not something that a power Excel user can just jump into and use when necessary.

Limited use of Cognos was reported in this recent SHEEO survey but in truth, no single tool emerged as the BI tool of choice. It’s clear that specific skills are necessary to develop a public reporting interface; this requires a rather unique combination of technical and policy/political skills. If Cognos is maintained, a recommendation is offered for the identification and purchase of the specific skills necessary. It is unrealistic to expect current staff to have those skills or to maintain Cognos on a part-time basis. This could be a formal consulting arrangement but in the long-term, this requires dedicated University support and expertise. Regardless of staffing decisions, there are resources which may prove valuable as Cognos is developed (www.hedw.org). It’s also worth noting if UH has been unable to move Cognos reporting forward in the next 6-9 months, considering a tool that is easier to use and manage should be investigated. The addition of a new IRO Director may present an opportunity to shift directions in business intelligence tools.

7. **Clarify IRO’s Role.** The UH System’s Institutional Research Office (IRO) needs to be clearly identified as the source of all official data of record regardless of what other reports present. This office should also be one of the primary sources for system-wide analytics. The core of a “quality” institutional research function is the ability to add value to data about an institution or system. IRO has allowed itself to become isolated; this office needs to reestablish itself as a function that adds value to the University. Without that added value, IRO becomes irrelevant given the current information management structure at UH. With renewed attention to a coordinated information resource management function, IRO once again has the potential to be a pivotal contributor of official reports and valued analytics. They need to be at the center of the IRM agenda setting suggested previously and become a necessary resource for the University. On a related note, if IRO is able to develop or purchase Cognos support and start to provide Cognos reporting options as previously anticipated, it would be a major step in reestablishing this office as one that adds value.

Deliberate efforts should be undertaken by IRO to help decision-makers and other constituents understand where they can get information. They need to focus on the system
priorities presented by President Greenwood; doing this effectively will require both data and analysis with a particular attention on what is termed “telling the story.” Data must be presented in clear ways using analytics that allow the user/reader to understand the message being conveyed. As an example, if a report or presentation requires additional interpretation, then it is not doing its job as effectively as desired. President Greenwood’s agenda should be IRO’s agenda; this moves the office away from the perception that they are the MAPS generating office and into the policy and planning arena.

While never expressed during the interviews, the relationship between IRO and ITS has the potential to be problematic and should be reviewed. Responsibility for the technical aspects related to reporting (e.g., ODS, Cognos) appear to be split between two offices. This can be managed but it requires strong collaboration and shared management between the two offices/functions.

8. **Identify new Director of IRO.** The Director must be a presence on several fronts: data management, reporting and analytics, and system-wide planning and policy development. This implies someone with a broad range of diverse experience. The most effective director is not just a technician, a department manager or a policy maker but has a combination of all these skills and has obvious credence with multiple departments, particularly ITS. There are often many candidates for an IR Director’s position but the circumstances at UH require some deliberate attention to finding an individual with a unique combination of skills if the University chooses to move in the directions suggested.

An effective IRO Director for UH at this point in time should have the following characteristics:

- Extensive experience in institutional research (system-level experience a plus)
- Graduate degree
- Management experience
- Combination of technical and policy skills
- Strong communication abilities, both written and oral
- Database management experience
- Business Intelligence (BI) experience (Cognos experience a plus)
- Ability to work collaboratively with varying constituent groups including executive management.

The “soft” skills are very likely more important at this juncture than the technical skills and may be more difficult to find. A possible job description follows:
The successful candidate will possess a Masters Degree; PhD is preferred, particularly in the areas of information technology, business, public administration, or statistics; at least seven years of progressive experience and expertise in institutional research or a related senior administrative position in higher education is a must; proven experience in data analysis and preparation of data reports that lead to informed decision-making; an understanding of the relationships between institutional research and business intelligence; managing within a multi-disciplinary, multi-campus environment and a demonstrated appreciation for and understanding of the academic environment; excellent strategic thinking, planning and implementation skills along with strong leadership, consensus building, relationship management and communication skills.

Two additional factors bear mentioning. If UH confirms its willingness to support Cognos, it may be desirable to search for that skill separately. It’s possible to find a Director with that skill set but if the suggested implementation of an information resource management structure is undertaken, those tasks will be very time consuming. Splitting the Director between technical implementation and broader, more general data management implementation will be very challenging and is likely to diminish chances for success. Second, the Director’s position within the System is important. The higher this position is placed in the University hierarchy, the greater its impact and ability to implement change is likely to be. Making a statement regarding the value senior management places in the changes suggested in this report by installing this position at the cabinet level, even at the ex office level, would be significant.

An individual with these skills and at the recommended level is likely to require a national search. Complicating this search will be the fiscal challenges of attracting experienced people to Hawai‘i; the pay range for an individual with these skills and a willingness to relocate (if necessary) is likely to be higher than previously budgeted for this position.

**CONCLUSIONS**

The University of Hawai‘i has a rich tradition of data usage, reporting and institutional research with many dedicated and hard-working staff members supporting these functions. The University is also a system in transition in numerous ways including technical and organizational. As the traditional reporting practices collide with these transitions and evolving management needs, it’s clear that an opportunity for change is available.
The original consulting request was for reporting integration. That goal is attainable but requires other system changes to shift the reporting environment and underlying infrastructure. These changes include deliberate attention to the University’s reporting needs; what do you need to know and how/when do you need to know it? This requires a careful review of the reporting that currently exists and an analysis of what the reporting could be. Installing an information resource management philosophy will be useful in creating the reporting structure of the future. This also provides a framework for building a collaborative data and reporting culture. IRO, with new or restructured leadership, would be ideally suited to serve as the focal point for that new development. This office should either assume these responsibilities or provide the coordination function to ensure that a systemic approach is taken to the recommended changes. These goals can be summarized in the three steps offered by Skyrme and referenced earlier: (1) Understand the role of Information, (2) Assign Responsibility, and (3) Develop Clear Policies on Information Resources.

The most effective change comes from within. An external consultant provides an opportunity for a fresh and unbiased perspective and can offer recommendations. But these are just recommendations; the difficult work is making the decisions that are right for the University and those decisions need to come from UH’s executive leadership. This will require committed and visible support from the top. Anything less will be a continuation of the random development that has, very understandably been created over time. While the task is large, the potential for the future is quite high and the tasks identified in the OVPAPP functional statement can be fully realized. Committed people with the right support can accomplish a great deal.