The Role and Function of Institutional Research in Institutions of Higher Education: Theory and Practice

Karma El Hassan[1]

Abstract

The last decades have witnessed an increased concern in higher education over accountability, quality, and productivity and a struggle to meet increasingly complex challenges. Institutional research (IR) evolved with the changing needs of higher education, and its nature and the role it plays continues to evolve as a consequence of policy decisions, changing student clientele, advances in computing and telecommunications, the growing internationalization of higher education, the increasing complexity and sophistication of decision-making, and the growing interest in institutional effectiveness. Examining the role and function of IR has been a major pre-occupation of the field since the 1960s and a focus of continual debate; accordingly this paper will attempt to answer the following questions. What is IR? What is its institutional role? How has it evolved? What are its primary functions and activities? How is it organized? What skills and expertise does it require? And what are challenges facing IR? The paper will attempt to answer these questions through first a descriptive analytical review of recent literature on theory, models, and practice of institutional research, and secondly, through presenting a case study of an IR office operating in the Arab Region, that of the Office of Institutional Research & Assessment (OIRA) at the American University of Beirut (AUB). The paper will focus on evolving nature of IR, on how effectively it meets higher education challenges of quality and accountability, and will conclude with future challenges for the field.

I. Introduction

Institutional research (IR) as a profession is a rather new phenomenon in higher education. During the past 40 years, the profession has developed and matured into a vital function in higher education (McLaughlin & Howard, 2001). This development has occurred in an environment of rapidly changing societal demands of higher education in which calls for accountability, planning, and demonstrating effectiveness to internal and external stakeholders intensified. Colleges and universities struggled to meet increased demands for their services, increasingly complex reporting requirements, shrinking resources and the need to plan more effectively in a highly competitive educational market. As higher education reacted to the changing demands of society, institutional research became a key player and stature and importance of institutional research offices has grown substantially.

[1] Professor, American University of Beirut, Beirut, Lebanon. E-mail: kelhasan@aub.edu.lb

As the field of institutional research is a relatively young profession and little has been written about it in the Middle East, the purpose of this paper is provide a general description of the nature and practice of institutional research. The first part of the paper regarding conceptual nature aims at answering the following questions: What is institutional research? How did it evolve? What is the role it plays in institutional governance? How is it organized? What are its contributions to the functioning of postsecondary institutions? And finally, what are the challenges and future developments? The second part aims at providing an exemplar of the practice of institutional research in the Middle East through presenting the case of the Office of Institutional Research and Assessment (OIRA) at the American University of Beirut.

Understanding institutional research can best be done through an understanding of the changes in organizational, management, and performance patterns in postsecondary institutions. Therefore, this paper will start with providing a brief description of several changes that higher education has passed through and which had direct influence on the role and practice of institutional research.

II. Higher Education Transitions and Institutional Research

Changes in higher education over the decades have been remarkable and they can be placed within the context of the larger changes occurring within society. Volkwein (2008) best summarizes these changes as follows: The economy has grown from being dominated by agriculture and then by industry, to now being much more knowledge-based. Social values transitioned from being very elitist, where education was offered for the few, to being very meritocratic, where education was conceived as something for the most deserving and the most talented to being egalitarian, emphasizing education for all. Organizational structures have gone from being administration-centered, bureaucratic, and formal to becoming much more open and faculty-centered. Many institutions of higher education are much more client-centered and learner-centered. There is a move towards performance-based budgets, and the changed accountability atmosphere has gone from one emphasizing resources and reputation—the old accountability model—to a period when concentration was on goal attainment and program evaluation and processes, such as student ratings of instruction, and now much more emphasis is placed on results, outputs, and outcomes. Peterson (1999) views the changes in higher education more broadly and attributes them to two major transitions: move from an industry of traditional higher education to one of mass higher education and from an industry of mass higher education to one of postsecondary education. These transitions occurred primarily as a result of two forces: the addition of new organizations to the competitive mix and the new bargaining power of consumers as their numbers increased and the control of financial aid shifted to them.

Societal conditions and industry reshaping forces referred to above interacted to promote change through higher education. These changes have increased the value of information to institutions of higher education. It became no longer sufficient for institutions to know only their own inner processes, resources, and goals; they must understand the social, political, and economic currents shaping the society at large and the external constituencies they serve in particular to be successful (Olsen, 2000). Competing concerns like cost, productivity, access, effectiveness and accountability all collided on campuses resulting in heightened tensions for planners, administrators and institutional researchers. Campuses experienced a variety of dualities, tensions, and policy collisions - internal versus external demands, academic versus administrative cultures, professional versus institutional needs, access versus

excellence, efficiency versus effectiveness, and assessing for improvement versus assessing for accountability. These contradictory pressures produced a variety of challenges for institutional researchers and forced them to play a medley of roles and to pursue a number of different purposes (Volkwein, 1999).

Twenty first century poses various challenges for the field of higher education. Some believe that universities as we now know them will cease to exist in twenty years, while others holding the traditional view contend that colleges and universities, only slightly modified, will always exist. A third group views that a more fundamental change than postsecondary institutions have ever faced in the past lies ahead-a redefinition of the industry that could lead to institutional redesign (Peterson, 1999). In response to this new industry, new organizational models are emerging. They include entrepreneurial, network, and virtual organizations and also new forms of strategic alliances and joint ventures with non-educational partners for the design, dissemination, and discovery of knowledge (Peterson, 1999). As postsecondary institutions address redesign, they will also need to change their long-term performance criteria. A key component of that criterion is extent each institution has redefined the nature and role of knowledge it requires in an industry with rapidly changing participants and dynamics. Responding to such a need has implications for institutional research in terms of functions and activities.

Before discussing role and function of institutional research in institutions of higher educations of the twenty-first century, it is important to present a definition of institutional research and to briefly describe its development and evolution.

III. The Theory of Institutional Research

1. Definition

Although there is no commonly agreed-upon definition of IR, Peterson and Corcoran (1985) conceive of IR as research designed to generate information that serves planning, policy development, resource allocation, and management or evaluation decisions in all functional areas. Similarly, Saupe (1990) emphasizes institutional research as a set of activities that support institutional planning, policy formation, and decision making. The Association of Institutional Research (AIR) officially defines institutional research as "research leading to improved understanding, planning and operating of institutions of postsecondary education" (Peterson, 1999). Terenzini (1999) views institutional research as "organizational intelligence" and it extends from gathering data about an institution, analyzing and transforming them into information, to the insight and informed sense of the organization that a competent institutional researcher brings to the interpretation of that information.

An investigation of mission statements of institutional research offices through content analysis revealed that the majority of mission statements included the IR functions of support for institutional planning and decision making, assessment, conducting research, data management, and providing information to internal and external constituencies (Thorpe, 1999). To a lesser degree, the mission statements also referred to the responsibilities for data analysis and support for policy formation decisions.

So it appears that the practice of IR may has much to do with the production of data, but art is needed to contextualize that data, convert it to information, and make it meaningful (Olsen, 2000). The subject of institutional research is the individual college, university, or system, and thus can be distinguished from research on postsecondary education which has as its purpose the advancement of knowledge about and practice in postsecondary education generally.

Institutional research, then, is an essential ingredient of sound college or university governance. In this respect, it has been described as an attitude of commitment to the institution›s purpose in society and to the value of critical appraisal and careful investigation. Institutional governance is informed and rational to the degree that such an attitude pervades the institution (Saupe, 1990).

2. The Evolution of Institutional Research

Institutional research as a profession is a rather new phenomenon in higher education. Development of institutional research as an administrative process or function is primarily a post-1950s development (Peterson, 1999). As external conditions affecting higher education have changed, as described above, institutional research developed concurrently, played a critical role in helping institutions respond to the challenges, and has at same time been shaped by the same forces expanding its role and array of activities in the process.

Generally, the broad phases of the development of institutional research operations fall into three major timeframes (McLaughlin & Howard, 2001). The first phase was the decentralized operations of information creation and inquiry occurring in the late 50s and 60s. In these years, institutional research tasks were often completed using tally sheets, stand-alone databases which were not computerized, and calculators to complete calculations. With advent of mainframe computers, the centralized institutional research office came into being with many institutions consolidating the institutional research tasks in a specific organizational unit. This second phase also reflects the creation of the identity of institutional research, allowing it to begin developing as a profession. Again, in mid-to-late 80s, the second phase of centralized institutional research began to move into a third phase. In this phase the function began to be distributed across the campus. It has become a complex organizational function driven by technology and the resulting impact technology has had on the infrastructure of colleges and universities.

IR has evolved as a key component of an institution's explicit knowledge base and continues to evolve as a consequence of policy decisions, the changing student clientele, advances in computing and telecommunications, the shifting budgetary climate, the growing internationalization of higher education, the increasing complexity and sophistication of decision making, and the growing number and volume of calls for internal and external reporting and for increased institutional effectiveness (Peterson, 1985; Terkla, 2008; Terenzini, 1999). In this development, IR primary role and the tools used in the field have changed, in addition to the topics that are of high importance to IR professionals. Volkwein (2008) provides a comparison of topics of interest to institutional researchers between 1992 and 1999 derived from AIR survey of its members (Table 1). As evident from the table, new areas of interest emerged like accountability and performance indicators, technology and efficiency issues, and information systems and data management. Other areas have gained importance as compared with 1992 like outcomes assessment and student retention and persistence. Another survey of AIR membership was done in 2008 but results have not yet been published and it will be interesting to identify changes in areas of interest, if any.

Similarly and to meet changing needs, IR has evolved to become associated with the advanced technical and statistical competencies that are the cornerstone of the information culture (Peterson, 1985). Primary role of IR has changed over time from emphasizing and requiring primarily descriptive statistics, fact books, and reporting to more analysis and evaluation, both quantitative and qualitative. Today there is a demand for IR skills requiring multivariate analysis and modeling: forecasts of revenues, enrollment projections, analysis of policy issues, and modeling alternative scenarios of tuition and financial aid and their impact on admissions attractiveness and therefore on enrollments (Volkwein, 2008).

Table 1: Topics of High Importance to IR Members

Topic	1992	1998
Outcomes Assessment	53%	61%
Research Design and analysis	50%	52%
Persistence and retention	48%	63%
Management issues	42%	32%
Enrollment management	35%	39%
Financial issues	25%	21%
Minority and diversity issues	25%	19%
Faculty issues	24%	22%
Student affairs issues	13%	15%
Accountability and performance indicators		71%
Technology issues		63%
Information systems and data management		63%
Efficiency issues		36%

Source: Sarah Lindquist (1999).

3. Institutional Research: Role and Functions

Examining the role and function of institutional research (IR) has been a major preoccupation of the field ever since the first AIR forum in 1961 and the literature reflects endless debate over the nature and role of institutional research (Terenzini, 1999; Volkwein, 2008; 1999; Trainer, 2008; Bers, 2008; Middaugh, Kelly & Walters, 2008; Delaney, 2008; Brittingham, O'Brien, & Alig, 2008; Voorhee, 2008; Brown, 2008; Peterson, 1999; Olsen, 2000; Saupe, 1990; Borden, Massa, & Milam, 2001).

Performance of institutional research involves a full range of activities from collecting data, the analysis and restructuring of these data into information, and the dissemination of the results of the activities to key constituents to be used for decision making and strategy support. In this respect, the information is converted into increased organizational intelligence which supports organizational learning.

Terenzini (1999) was a proponent of viewing the role of institutional research as institutional intelligence in three mutually dependent but distinct forms or levels. The first, most basic level is the technical and analytical. This type of intelligence is foundational and includes familiarity with terms and definitions and knowledge of methodologies like research design, sampling, surveying, statistics, qualitative methods etc. It is needed to produce the facts and figures about an institution: Admissions, enrollment, degrees awarded, faculty workload, faculty student ratio—all the elements that add up to describing the basic profile of the institution. Terenzini's second level is issues intelligence. It includes knowledge about the particular issues and problems facing

the institution. Issues such as resource allocation, program evaluation, enrollment goal setting, and planning that are of immediate importance to the institution. It also requires knowing about and working with the key actors and people at the institution who are addressing these issues. Level 3, or contextual intelligence, requires an understanding not only of the culture and customs of higher education in general but also of the particular institution in which the institutional researcher serves. The context involves knowing the institution not just internally but externally its history, culture, evolution, external environment within which the institution functions, and trends in that environment such as trends in population of high school graduates and economic health. The sum of contextual intelligence understands all the relevant trends in the external environment: financial, social, political, and demographic. These three forms of organizational intelligence are mutually dependent and supportive: only in the presence of the other two is the value of any specific form of organizational intelligence fully realized.

The practice of IR in an institution of higher education involves dealing with several roles and different purposes and audiences. The IR professional has to deal with the IR administrative role, in which he is a member of the administration and the management team, and the professional role, which is more academic and scholarly and emphasizes the need for impartial and objective research (Volkwein, 2008). He also needs to report to both internal and external audiences and for formative (improvement) and summative (accountability) purposes. To meet these various opposing pressures, IR professionals are forced to play a number of roles. Table 2 presents a typology of four overlapping yet distinguishable types of IR purposes and roles as conceptualized by Volkwein, 1999 and 2008. They include that of IR as information authority, policy analyst, spin doctor, and scholar/researcher. A fifth role was added by Serban (2002) that of IR as a knowledge manager with main functions of gathering and transforming data into information and knowledge; creating and maintaining information repositories; and facilitating the process of knowledge creation and sharing.
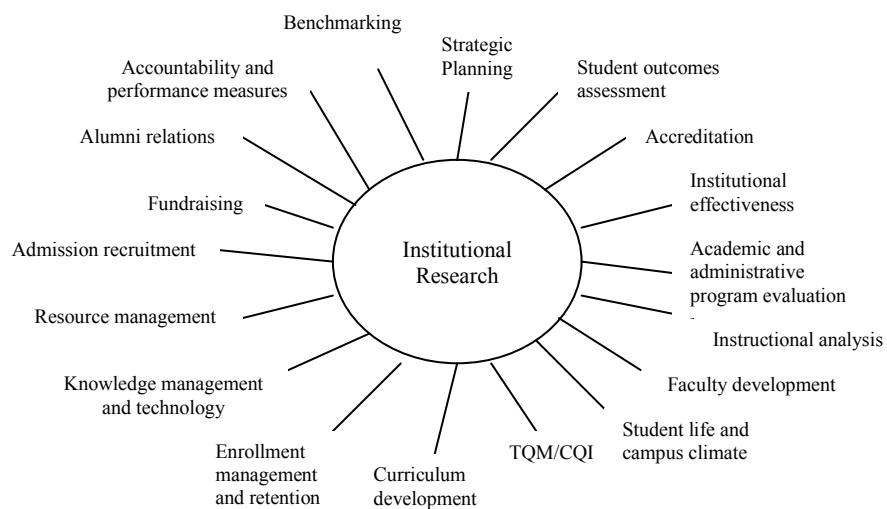
Table 2: Four Faces of Institutional Research

	Purposes and Audiences	
Organizational Role and Culture	Formative and Internal- for Improvement	Summative and External- for Accountability
Administrative and Institutional	To describe the institution- IR as information authority	To present the best case- IR as spin doctor
Academic and Professional	To analyze alternatives- IR as policy analyst	To supply impartial evidence of effectiveness- IR as scholar and researcher

Source: Volkwein, J. F. (2008), p. 5 -20.

Volkwein viewed IR as the center of gravity for all of the university's analytical activities and he portrayed that pictorially as in Figure 1. As evident from the figure, areas in which institutional researchers may offer useful insights include assessment, accreditation, strategic planning, faculty workload analysis, peer group identification, benchmarking, comparative institutional analyses,

and understanding student populations from prospective applicants to alumni. In addition to these topics, there are myriad other areas where institutional researchers have or could lend assistance like program evaluation (both academic and administrative), campus climate intelligence, fundraising analysis, and curriculum development, formulation of performance and institutional effectiveness measures, and creation of management information tools (Terkla, 2008).

Figure 1: Volkwein's IR: The Guiding Light

Benchmarking

Strategic
Planning

Accountability and
performance measures

Student outcomes
assessment

Alumni relations

Accreditation

Institutional
effectiveness

Fundraising

Admission recruitment

Institutional
Research

Academic and
administrative
program evaluation

Resource management

Instructional analysis

Knowledge management
and technology

Faculty development

Enrollment
management
and retention

Student life and
campus climate

TQM/CQI

Curriculum
development

Source: Volkwein, J. F. (2008).

Central to all of these activities and to IR role is that of conversion of data into management information. The purpose is to develop a set of data which provides a meaningful and comprehensive picture of the institution and its operation and accordingly lead to increased organizational intelligence. In this respect the role of IR in the Information Support Cycle (ISC) is central and it involves several roles and a sequential set of tasks to create information that effectively supports decision-making (Mclaughlin & Howard, 2001). Figure 2 presents the steps involved in the ISC and different roles played by IR. Roles played by IR are those of supplier (custodian) of the data, the producer (broker) who converts data into information, and the customer or manager who uses information as increased intelligence. Data are identified, collected, stored (supplier), then they are restructured, analyzed or integrated to create information, data interpretation, and data reduction to be communicated and reported for use in decision-making (broker).

Figure 2. Information support Cycle
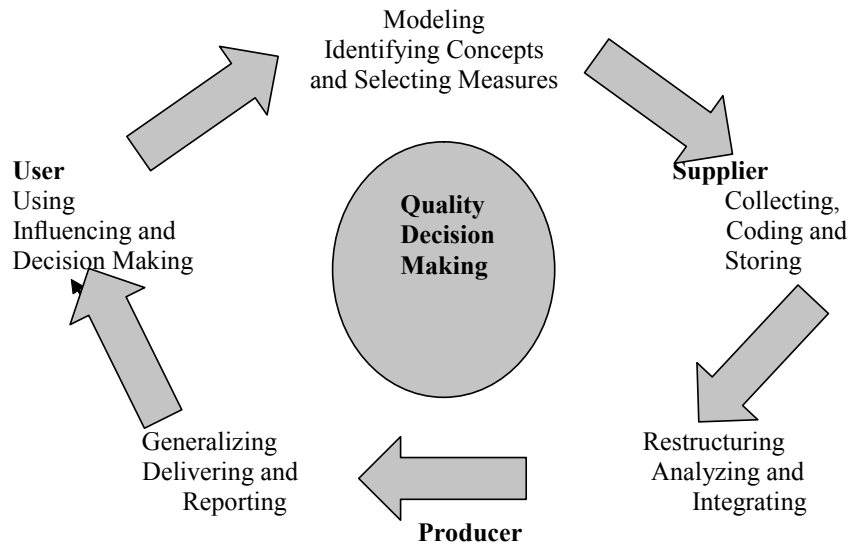
Source: McLaughlin, G. & Howard, R. (2001).

Borden, Massa, & Milam (2001) had quite a similar view to the information roles of IR professionals. The life cycle of IR included collection, preparation, analysis, and dissemination of data (Figure 3). For collection of data, data may come from one of three sources: institutional information systems (student, HR, fiscal systems), surveys and other local data collection efforts and external resources. Data then needs to be prepared before use, checked for errors and validated, reconciled, and scrubbed and files merged. Analysis then makes use of both descriptive and inferential statistics before dissemination of information through written reports and oral presentations. The role of IR professionals is that of information executive, architect and engineer in this cycle. The executive role occurs at beginning and end of the cycle and it involves coordinating design of the tasks, including specification of research design, resources, timelines, and division of labor among staff (modeling). At end it includes coordinating interpretation, packaging, and presentation of results to decision-makers (producer role). As architect, IR professional uses data extracted from various sources, builds secondary databases for use in analysis, conducts analysis and prepares summaries for information executive (broker role). As data engineer, IR professional creates and maintains data warehouses, has direct access to administrative system, develops queries to extract data and port it to self-designed structures for archiving, analysis and reporting (supplier role).

Based on wide range of activities performed by IR professionals and different roles they may be called to play, Volkwein (1999) proposes the following ideal job description for institutional researchers: Their job should cover:

- measuring and improving inputs, because of the strong empirical connection between input measures and important outcomes like academic achievement, graduation rates, and loan default.

- measuring critical processes, both because of the role of these processes in student integration and growth and because such measurement facilitates corrective intervention.
- measuring a variety of outputs and outcomes, because results matter most.

The previous paragraphs have provided an overview of the different models or conceptions of what is IR and what are its roles and functions. Although the role is viewed differently either as organizational intelligence with three levels (Terenzini) or as changing roles depending on purpose and audience (Volkwein), or as main provider of institutional information using Information Support Cycle (Mclaughlin & Howard) or IR Life Cycle (Borden, Massa, & Milan), yet all views share a common perspective. They all agree on importance of the role played by IR in providing reliable information and evidence that supports decision making, institutional governance, and quality management.

Figure 3: Life cycle of institutional research
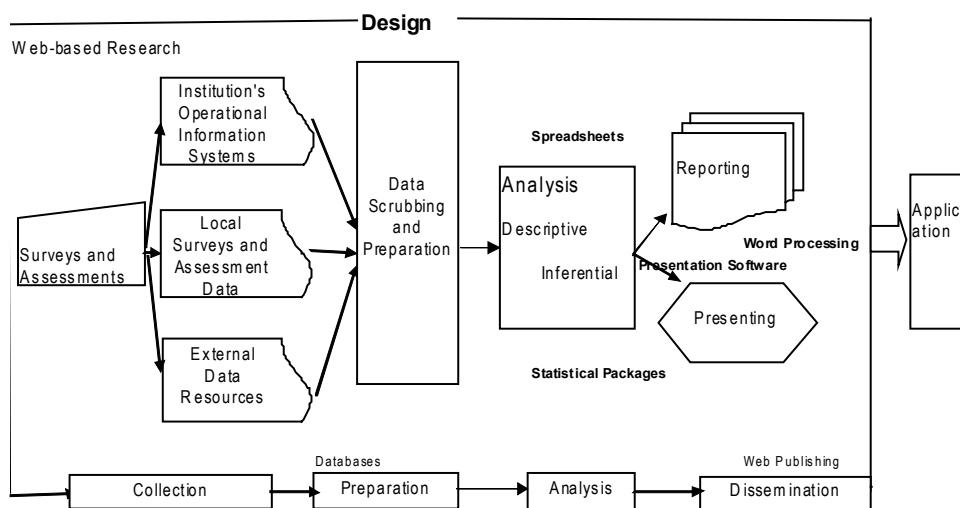
Source : Borden, V., Massa, T. & Milam, J. (2001).

4. Institutional Research: Organization

The above section presented the various roles and activities conducted by IR, however the actual practice of institutional research in any one institution tends to be shaped by the part of the organization the IR office is located in and the title of the office. There are various possibilities for where IR offices are located in an organization; similarly IR offices use various titles, may follow different organizational charts and can be centralized or dispersed across campus. They may differ in their reporting lines, range of responsibilities, level in the campus hierarchy, and work emphasis. The following paragraphs will briefly outline these organizational issues as they are highly variable from campus to another and may affect role exercised by IR.

Institutional research is conducted in offices with varying titles. Table 3 presents a listing of these titles as reported by Volkwein 2008. The table reveals the diversity in titles, in addition to focus of each office. A strategic planning office is definitely going to have a different emphasis from one of research or assessment or budget analysis.

Table 3: IR Offices Used Titles

|	
• Research	• Assessment
• Institutional research	• Evaluation
• Research and information	• Enrollment research and planning
• Research and planning	• Budget analysis
• Strategic planning	• Effectiveness
• Academic planning	• Institutional effectiveness
• Institutional planning	• Enrollment management

Source: Volkwein, J. F. (2008).

Similarly, the location of the IR office in the institution's organizational structure varies among institutions. The 1999 AIR membership survey reports that 38% of the IR offices participating in the sample were located under academic affairs/ provost, while 26% were located under president/chancellor and 8% under business services. Others were located under student affairs or development offices (Volkwein, 1999). When IR office reports to the chief academic officer, office then becomes heavily shaped towards academic and instructional side of institution like faculty workload, salary, equity, student ratings of instruction, etc (Volkwein, 2008). If office reports to the President or chancellor then planning and resource allocation functions become central to IR office work. This organizational arrangement recognizes the function as one of central importance and so broad that to be effective it must be placed near the top. (Saupe, 1990). An office of student research may exist within the institution's student affairs organization and be responsible for research on campus climates and subcultures, on the characteristics of various services provided students, on residence hall life, and on factors involved in retention and attrition (Saupe, 1990). IR function could also exist within the organization of chief financial officer where studies of business operations and budget and cost analysis will be principal responsibilities of such a unit.

IR offices can be centralized in one office within an institution or various administrative units may be charged with some responsibility for institutional research. According to Saupe, 1990, the dispersal of institutional research activities which has been multiplied by the widespread use of personal computers and personal computer networks and access to central computer data bases has introduced problems of data comparability. The data analysis of the deans may conflict with that of the vice president for academic affairs simply because of differences in definitions and sources of basic data. Additional problems of dispersed institutional research are duplication, a lack of research expertise in some or many institutional domains, an inability to deal with issues which cross organizational boundaries, and an absence of an institution-wide view in the research activities. The benefit of an office of institutional research, based upon its in-depth comprehension of institutional data systems, should be its capacity to combine, analyze and interpret data resulting from the several operational activities of the college or university. The office can thus serve as a reliable source for comprehensive and authoritative information about the institution (Saupe, 1990).

Even within central IR offices, there are differences in organization chart between those where the organizational chart follows a functional arrangement or ones where it is organized by customer. According to Volkwein, 2008, the most common arrangement is to have office organized by function. Figure 4 presents such an arrangement where core IR functions are divided into areas that are each responsibility of a well-trained analyst: external and internal reporting, planning and special projects, data management and technical support, and research and development. In such an arrangement, someone would be the lead person for compiling official statistics about the institution for both internal and external uses. Another person would be responsible for decision-support studies and a third for data management and technical support. A fourth person will be in charge of research and survey design and statistical analysis.

An alternative centralized version of an IR office would be having it organized by its major customers (Volkwein, 2008). The benefit of such arrangement is that each major part of the organization has a contact person he can go to for information needed. The IR director is supported by an assistant for data warehousing and technical support and supervises work of four others, responsible for support of each of academic affairs, business/finance, enrollment management, and student affairs. This alternative arrangement emphasizes customer service and makes sure all key decision makers on the campus are getting the information they need.

As evident from above discussion, organizational arrangements of IR offices are varied and the functions or activities are dependent on the part of the organization the office is lodged in. What is of importance is that IR offices should be sufficiently separated from the operational responsibilities of administrative processes to maintain the needed objectivity, credibility, and focus (McLaughlin & Howard, 2001).

Figure 4: IR organized by function
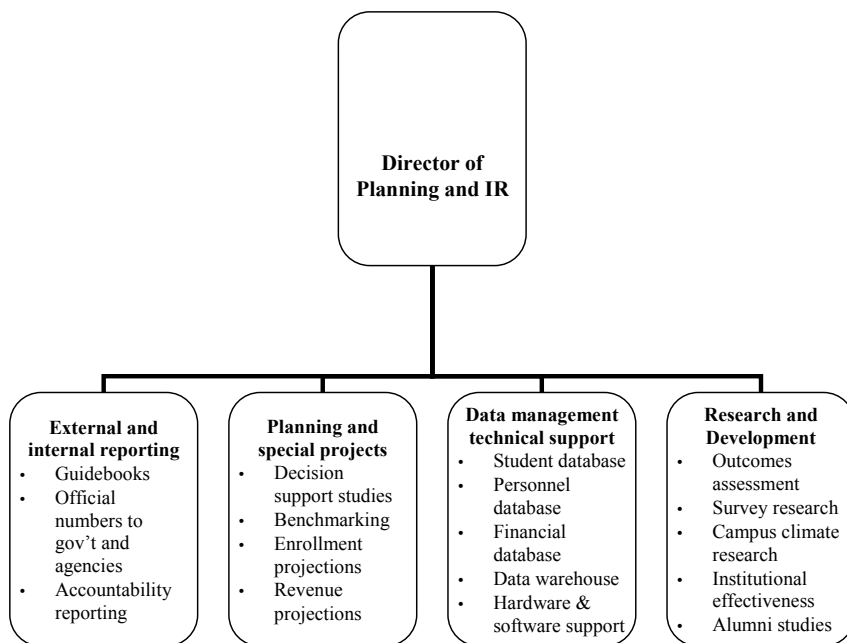
Source: Volkwein, J. F. (2008), 141, 5- 20.

5. Institutional Research: Contributions and Challenges

From the above discussion one can infer the significant contributions of IR and the role of IR offices in maintaining the quality of institutional governance. Institutional researchers do a lot more than collect statistics; they are more than 'bean counters' or 'number-crunchers' as they were sometimes ignorantly labeled. As Terkla (2008) summarized, they have contributed to creating a culture in higher education of decision-making based on evidence. They are often called upon to provide information to senior administrators that enable them to make decisions based on factual evidence as opposed to relying entirely on anecdotes. Such information will lead to increased institutional intelligence and accordingly a better understanding of the institutional environment, i.e. enhanced institutional learning.

Institutional researchers make many contributions that foster institutional change and improvement and that assist management. In strategic planning, skillful institutional research personnel play a pivotal role in accessing an institution's data and converting those data into "actionable" information needed for planning. Actionable information makes obvious the next steps an institution should consider as it helps in posing realistic goals and strategies (Voorhee, 2008). Of importance here is IR professionals' ability to provide operational definitions of data to facilitate common understanding. Similarly, according to McLaughlin and Howard (2005), institutional researchers can develop a list of peers, conduct comparative peer analyses, and make use of results in evaluating competition, providing benchmarks, identifying areas of weakness, guiding policy development, and justifying such things as budget requests, salary adjustments, teaching loads, and tuition increases.

Among the most important strengths IR brings are researchers' knowledge of institutional student data and the ability to link institutional and assessment data from sources such as external datasets, portfolio evaluations, and surveys (Bers, 2008). Similarly, IR plays an important role in understanding and describing faculty work, and in an institution's preparation for accreditation. In this respect the IR office supplies the Self-Study team with additional, current, and useful institutional data and reports. What additional data is required, the IR office sets out to get (Brittingham, O'Brien, & Alig, 2008).

Other contributions institutional researchers make are methodological expertise in conducting research, skill in selecting measures to ensure appropriate balance of quantitative and qualitative and direct and indirect approaches, and the knowledge of how to present results meaningfully bringing at the same time neutral perspective to the assessment conversation. An IR office can be a critical asset in helping an institution reports its assessment results, especially to external audiences as IR data have a high level of credibility (Bers, 2008). In addition, because IR office stores data from year to year, trends can be analyzed and reported over time to both internal and external stakeholders.

Despite these significant contributions, major challenges lie ahead for the field of institutional research. At least five of them will be outlined below:

- Institutional research will need to evolve in the future and play a new role or function in response to the challenges of postsecondary knowledge industry that is emerging with rapidly changing participants and dynamics. IR has the opportunity of assisting in and shaping institutional responses to a major challenge by providing its management service and institutional improvement function and going beyond by becoming a proactive management guide.
- The issue of data is a major challenge for IR professionals. Advances in access to raw data and relatively unprocessed information have outpaced advances in the ability to screen

and process this information into usable and timely information (Borden, Massa & Milam, 2001). In fact and as expressed by Trainer (2008) we are awash in data, some useful and some less so. There is a need to allocate attention efficiently among the overabundance of information resources and to extract needed data and draw meaningful interpretations that will expand user's knowledge base. The reduction of uncertainty, however, depends on the timeliness, sufficiency, and relevance of information provided. Information must be available before decision is made to have value and should focus on key issues without including a large number of surplus facts that have little bearing on the situation (McLaughlin & Howard, 2001). So, it is important to decide on data needed, and to report it in timely and understandable manner to various stakeholders.

- Another challenge for IR is to be effective in influencing planning and policy. This can be done by focusing on policy relevant questions and by being action-oriented in reporting through inclusion of recommendations formulated based on results. Research has shown that assuming a proactive role by formulating recommendations and conducting follow-up studies enhances the potential for influencing policy (Delaney, 2001). To enhance IR role in planning and policy and as administrators play a critical role, it might also be important to educate administrators about the usefulness of IR, particularly if they are not data driven (Delaney, 2008).

- The rapidly evolving and changing postsecondary environment will entail the need for continuous professional development of institutional researchers to keep pace with changes in technology, data collection, and data collaboration. Muffo (1999) proposed that future profiles of IR offices will be influenced by emerging trends in four areas: technology, demographics, pedagogy and policies. Sanford (1995) outlined four main challenges that institutional researchers need to address to ensure success in tomorrow's academic environment: adaptability to change, access to data with modern technology, better comparative data, and the policy analysis/technology resource dilemma. For this purpose, IR has begun to develop its own training and quality assurance mechanisms through summer institutes and the IR certificate program, and there are several mature AIR publications that form the knowledge base for the field as a field of practice and study. Central to efforts to sustain the practice of institutional research has been the development of a Code of Ethics which includes a set of standards for conducting institutional research (Schiltz, 1992).

- Another important challenge for IR professionals is for them to be fully engaged partners on campus as well as across campuses and other higher education organizations. They need to be included in institutional dialogue and to be brought in the discussion early as this will enable institution to be proactive with potential of greater benefit to the institution (Terkla, 2008). An IR culture of sharing best practices internally and across should be enhanced.

The above paragraphs have presented the evolvement of institutional research as a profession and the role it plays in an institution of higher education. As evident, the field of IR is gradually evolving toward a state of greater maturity as a profession and it is playing a critical role in developing a culture of inquiry on campuses that says, 'we use data to make decisions'. There are many challenges that need to be addressed to attain and maintain such a culture, but IR has overcome many of the challenges since its infancy around forty years ago and will continue to do so. A primary force behind such a commitment is the fact that no quality academic management can be accomplished without quality institutional research.

The following paragraphs will describe an example of IR practice that of the role played by the Office of Institutional Research & Assessment (OIRA) at the American University of Beirut.

IV. The Practice of IR: The Case of OIRA

The Office of Institutional Research & Assessment (OIRA) started its IR activities in 2001-2. Initially, it functioned as Office of Tests & Measurement (OTM) charged with conducting admission tests to AUB and other assessment research. The growing importance of assessment and accountability in higher education and AUB's growing interest in institutional and teaching effectiveness have necessitated the change of focus in OIRA's activities to institutional research. Since then, OIRA's activities and functions have expanded and the Office plays an important role in AUB's institutional renewal and improvement processes.

The following paragraphs will describe OIRA's organizational structure, activities and functions, and the challenges that need to be overcome.

1. OIRA mission, vision and functions.

OIRA reports to the chief academic officer at AUB, the Provost's Office. Its staff consists of five professional members and administrative support. Staff qualifications range from a doctorate in educational psychology to two masters degrees in education and one in statistics to a bachelors in computer and communication engineering. In addition to their academic qualifications, all members have attended and/or participated in professional development IR workshops and conferences to enhance their IR skills and to keep up to date with evolving IR field.

OIRA engaged in strategic planning in order to devise a strategic plan for the office. For this purpose a mission was elaborated, SWOT analysis was conducted, goals and objectives were formulated, and initiatives were identified with a certain vision for the office in mind. OIRA's mission reads as follows:

> 'The Office of Institutional Research and Assessment at the American University of Beirut undertakes to coordinate institutional assessment and research activities, and in this respect is responsible for the collection, analysis and dissemination of accurate and timely information about the University's environment and performance. This information supports institutional management, operations, decision-making, planning functions, and assists to achieve excellence in student learning and community service. Furthermore, the Office develops and conducts assessments for various purposes at institutional, regional and international levels'.

The above mission statement defines the role of IR as collection, analysis and dissemination of accurate and timely information about the university to support planning and decision making to achieve excellence. OIRA's vision is in line with the mission and sees OIRA as

> A regional leader in institutional research and assessment that serves AUB community information needs with the most up-to-date technology and IR advances in order to support AUB's strive for excellence in learning and service to the community.

AUB Information needs, advances in IR and technology, and excellence in learning are key words and guide posts for OIRA's functions and activities. Figure 5 presents main OIRA activities and as evident from the figure, OIRA follows functional approach.

Figure 5: OIRA main functions
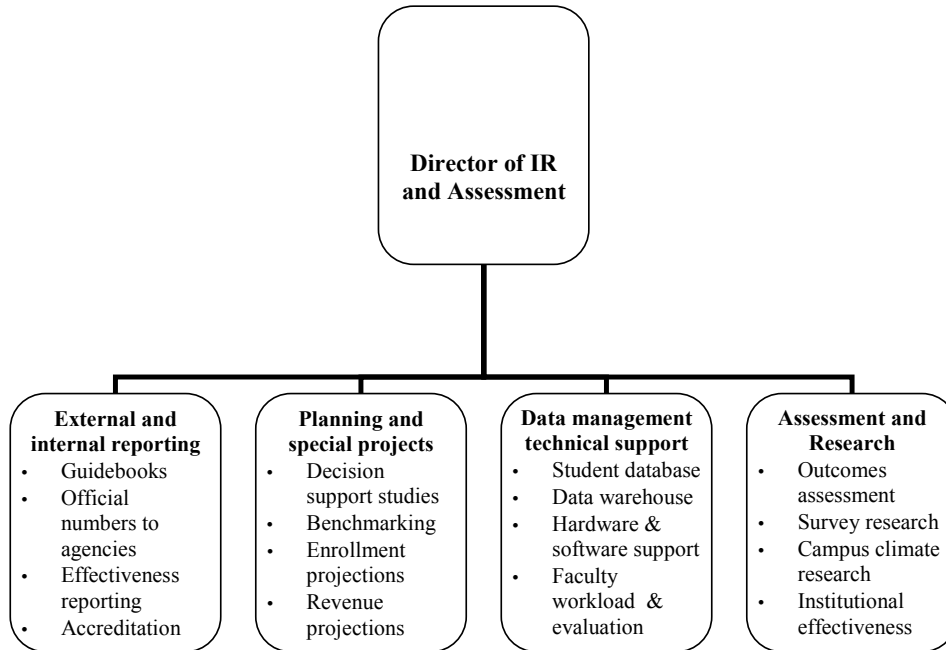
Source: OIRA, AUB.

OIRA prepares an annual assessment plan and each staff member is responsible for a set of functions within this plan. More specifically, the following activities are performed under each function:

a. Data co-ordination, disclosure and reporting. OIRA acts as a resource and repository for official institutional statistics and information. It discloses information to AUB community and to the public through its published reports and on its website. Main reports include

1) Internal
   - Fact Book
   - Facts & Figures
   - Faculty Workload Figures

2) External
   - College Board Survey
   - Common Data Set
   - Thomson Peterson's Survey
   - Middle States Commission on Higher Education Institutional Profile
   - Universities. AC website
   - ASHA
   - Times Higher Education Rankings

b. Planning and assessment support services. OIRA provides support to

1) Enrollment management and other university units through
   - Conducting special research projects;

- Providing enrollment trends, projections, yields, and standardized records.
- Providing projections for budgeting and planning purposes.
2) Strategic planning through tracking key performance indicators (KPIs)
3) Accreditation self-studies by providing institutional data and conducting institutional self-study.
4) Units in preparation of their unit assessment plans.
c. Assessment and research.
1) Coordinate assessment and evaluation of university programs and processes through formulating and implementing data-gathering activities such as surveys, interviews, and focus groups for a wide variety of purposes. They include
- Student Registration Survey
- Exit Survey
- Alumni Survey
- Employee Satisfaction Survey
- Faculty Survey
- Accreditation Surveys, etc…
2) Collecting information on student learning outcomes assessment, and they include annually administering
- College outcomes survey
- CAAP
- Instructor course evaluations (every term).
d. Data management and technical support. Maintain databases for student, faculty and institutional effectiveness information ensuring secure, reliable, timely, and user-friendly data extraction and use.

As revealed from above analysis, roles played by OIRA are very similar to ones described in the literature. While preparing annual assessment plan, OIRA is playing role of information executive, then with collection of data from various sources for various purposes OIRA acts as architect of information. The data management and technical support is very much aligned with data engineer and supplier role where OIRA creates and maintains warehouses, develops queries to extract data and ports it for archiving, analysis and reporting. OIRA acts as producer in the data reporting function influencing use and decision making. During these processes, data is collected then transformed into actionable information that increases organizational intelligence and learning leading to evidence-based decision-making.

2. Achievements and future challenges.

In the past five years, OIRA has considerably progressed towards realizing its vision. It has met AUB information needs, tried to keep with latest advances in IR and technology, and worked towards attaining excellence at AUB. A culture of inquiry and assessment is being formed but the progress made was not easy because of prevalent assessment illiteracy. Terms like assessment, effectiveness, excellence, and accountability were found to be threatening and were initially met with rejection and refusal. One had to go slowly, educate stakeholders, and gain their trust and confidence before anything could be achieved. Assessment for improvement was emphasized and activities were accomplished with complete transparency and objectivity. Communication and collaboration were the keys to the success of many activities and dissemination of findings was essential for ensuring that results were made use of in planning and effecting change. In addition to publishing reports on OIRA webpage, copies were sent to respective units and

meetings were held to further explain the findings and trends. Information derived from OIRA reporting assisted in strategic planning, accreditation, process improvement, and assessment of teaching and institutional effectiveness. The above accomplishments place OIRA as a leader in institutional research in the region, yet despite attaining them, several challenges remain and they can be summarized as follows: OIRA needs to

- Maintain leadership position in region. Higher education has witnessed considerable expansion and many internationally known institutions are now operating in the region, and AUB faces the challenge of maintaining its lead in the domain of quality education and institutional research.
- Keep working on building a culture of assessment at AUB and outside in the community. Although progress has been achieved in this area, but it is a challenge to further develop this culture by making assessment an integral part of all operations and on a continuous basis.
- Keep up-to-date with technological advances. Technologies, software, statistical packages and applications, internet uses are constantly being updated and they are providing quicker and more efficient solutions to IR problems and one need to keep abreast of these developments.
- Keep up-to-date with advances and developments in the field of institutional research. The field of IR is developing into a mature profession and one needs to keep updating methods and practices adhering to research-based best practices.
- Better serve AUB needs for information through automation and producing needed reports efficiently and in simple format. Timely reporting and in language understood by users is necessary for use of results for improvement.
- Ensure data and system security and comparability. Data security and integrity are serous challenges as they affect the reliability of information provided and accordingly its use.
- Build uniform and standardized lexica (definitions) for measures/criteria used at AUB. As assessment is still a relatively new field at AUB, some of its terms are not well understood, and may be defined and interpreted differently. This is especially so as different professional and/or accrediting bodies do not always use same language. Therefore, it is important in any one campus and for comparability purposes to adopt same definitions of common indicators like persistence, yield, graduation rates, full-time and part time faculty loads, etc. Developing standard definitions would enhance common understandings and would facilitate the building of an assessment culture.

References

Bers, T.H. (2008). The role of institutional research in assessing student learning outcomes. *New Directions for Higher Education* 141, 31 - 39.

Borden, V., Massa, T. & Milam, J. (2001). Technology and tools for institutional research. In R. Howard (Ed.), IR: *Decision support in higher education* (pp. 195222-). Tallahassee, FL: Association of Institutional Research.

Brown, J. (2008). Institutional research and external reporting: The major data seekers. *New Directions for Higher Education* 141, 87 - 96.

Brittingham, B., O'Brien, P.M., & Alig, J.L. (2008). Accreditation and institutional research: The traditional role and new dimensions. *New Directions for Higher Education* 141, 69 - 76.

Delaney, A.M. (2001). Institutional researchers' perceptions of effectiveness. *Research in Higher Education* 42(2), 197 - 210.

Delaney, A.M. (2008). Typical institutional research studies on students: Perspectives and examples. *New Directions for Higher Education* 141, 57 - 67.

McLaughlin, G. & Howard, R. (2001). Theory, practice, and ethics of institutional research. In R. Howard (Ed.), IR: *Decision support in higher education* (pp. 163 - 194). Tallahassee, FL: Association of Institutional Research.

McLaughlin, G. & Howard, R. (June 2005). Comparison Groups: Data and Decisions. Workshop presented at the Association for Institutional Research 45th Annual Forum, San Diego.

Middaugh, M.F., Kelly, H.A. & Walters, A.M. (2008). The role of institutional research in understanding and describing faculty work. *New Directions for Higher Education* 141, 41 - 56.

Muffo, J. A. (1999). A comparison of findings from regional studies of institutional research offices. In J. F. Volkwein (ed.), What is institutional research all about? A critical and comprehensive assessment of the profession. *New Directions in Institutional Research* 104, 51 - 59. San Francisco: Jossey-Bass.

Olsen, D. (2000). Institutional research. *New Directions for Higher Education* 111, 103 - 111.

Peterson, M. W. (1985). Institutional research: An evolutionary perspective. In M.W. Peterson and M. Corcoran (eds.), institutional research in transition. *New Directions for Institutional Research* 46, 5 - 15. San Francisco: Jossey-Bass.

Peterson, M. W., and Corcoran, M. (ed.) (1985). Proliferation or professional integrity: Transition or transformation. *New Directions for Institutional Research*, 46, 99 - 112. San Francisco: Jossey-Bass.

Peterson, M. W. (1999). The role of institutional research: From improvement to redesign. In J. F. Volkwein (ed.) what is institutional research all about? A critical and comprehensive assessment of the profession. *New Directions in Institutional Research* 104, 83 - 10. San Francisco: Jossey-Bass.

Sanford, T.R. (1995). Higher education and institutional research: What lies ahead? *New Directions for Institutional Research*, 85, 85 - 87.

Saupe, J. L. (1990). *The functions of institutional research* (2nd ed.), Available at http://www.airweb.org/page.asp?page=85.

Serban, A.M. (2002). Knowledge management: The fifth face of institutional research. *New Directions for Institutional Research* 113, 105 - 111.

Shiltz, M. (ed.) (1992). Ethics and standards and institutional research. *New Directions for Institutional Research* 73. San Francisco, CA: Jossey-Bass.

Terenzini, P. T. (1999). On the nature of institutional research and the knowledge and skills it requires. In J. F. Volkwein (ed.), what is institutional research all about? A critical and comprehensive assessment of the profession. *New Directions in Institutional Research* 104, 21-29. San Francisco: Jossey-Bass.

Terkla, D.G. (2008). Reprise. *New Directions for Higher Education* 141, 97-99.

Thorpe, S.W. (1999). *The mission of institutional research*. Paper presented at the 26th conference of the North East Association for Institutional Research. ED 439 640.

Trainer, J.F. (2008). The role of institutional research in conducting comparative analysis of peers. *New Directions for Higher Education* 141, 21-30.

Volkwein, J. F. (1999). The four faces of institutional research. In J. F. Volkwein (ed.), what is institutional research all about? A critical and comprehensive assessment of the profession. *New Directions in Institutional Research* 104, 9-19. San Francisco: Jossey-Bass.

Volkwein, J. F. (2008). The foundations and evolution of institutional research. *New Directions for Higher Education* 141, 5-20.