CAPE COAST TECHNICAL UNIVERSITY

INDUSTRIAL COLLABORATION POLICY

2016

Overview

The collaboration between academic world and the industry has always become so important due to the fast advancement of the business environment and the enormous increase in changes throughout the academic realm. However, since the universities and industrial companies have different business models, some investment needs to be made to put the two institutions together before the mutual benefits can be achieved.

Collaboration between academia and industry is increasingly a significant constituent of efficient modernization systems of a country. This has become so because, universities focus on educating people and in creating new knowledge as well as excelling in existing technology, while industries concentrate on striving for market success penetrating the test of a competitive business environment.

The role of the technical university for the 21st century, anchors as a vital centre of competence to help tackle social challenges and drive economic growth using modern technology through research and development. In order to achieve this, it requires an engagement with industry through merging of the discovery-driven culture of the university with the innovation-driven environment of the industry.

The ascendancy rate of a worldwide awareness for economic laurels for the university has intensified the need for strategic collaboration with

industry that goes beyond the traditional research and the publication of ideas and events.

World-class technical universities are at the forefront of fostering such collaboration which is designed to be stronger with much more investment orientation from both the university and industry. When technical universities and industry work together to push the frontiers of knowledge in innovation they become a powerful engine for economic growth.

The Industrial Collaboration Policy has been developed by taking into consideration The Technical Universities **Act; 2016. Act 922,** (Section 6) which states that the functions of a Council of a Technical University shall include the following:

i: Promoting applied research including provision of technology innovations and solutions to firm and businesses as part of the outreach activities of that Technical University,

ii: Fostering linkages and collaboration with relevant national and international industries and institutions in furtherance of the mission of that Technical University,

iii: Ensuring relevance of the programmes and courses of that Technical University to the employment and productive sectors of the economy and,

iv: Ensuring that the academic staff has relevant industry experience.

The Purpose of the Industrial Collaboration Policy Statement

The Technical University needs frantic efforts to ensure that industry-university collaboration become strategic priority and communicate the message regularly to the entire academic community by making the goals and benefits of partnering clear to the entire faculty.

Strategic collaboration needs input at the highest level from both the university and the industry. Whereby there is evidence of the creation of a joint steering group including senior academics both teaching and non-teaching and top management bodies in industry.

Design incentives for university faculty and curriculum as well as provide resources to manage a cultural shift that does not underestimate academic research but puts a clear priority on engaging with industry for mutual benefit for university, industry and the nation as a whole.

The Industrial Collaboration Policy Statement

In view of the purpose of the industrial collaboration, nine (9) key policy statements have been identified and outlined in this policy document.

Policy 1: Collaboration in Industrial Visits/Guest Lectures.

Industry-university collaborations must be aligned to go beyond academics with industrial visits/Guest Lectures as development strategy to address a tangible need of the University. The industrial visit exposure provides the student with a practical perspective in the world-of-work.

Linking the University curriculum with internal industry interests will create a strong continuing basis for collaboration when the curriculum is considered important for the industry's technological leadership. Further, when executive personnel from the industry with specialization on areas linked to the university curriculum is invited to present a lecture to students, the knowledge flows connected with the collaboration are heightened, providing additional pathways for uptake of the results.

These additional linkages broaden and diversify the communications channels that are key to maintaining collaboration alignment, and in some cases this can even enable a realignment of the curriculum goals with changing industry strategy. For a good employable uptake to have an impact the issue is not whether there is support at a high level, instead it is whether the programme of study addresses a real need as perceived by the industry's working objectives.

Policy 2: Collaboration in Industrial Attachment

Boosting student's exposure to new technological equipments and how to manipulate them by reinforcing theoretical instruction through the use of applied learning facilities, which provide opportunities to enable students interact and share experiences and ideas with those in industry on issues relating to safety precautions, industrial health, environmental pollution and culture of work in industry

The empowerment of students in acquiring practical skills and sharpen old ones by trying their hands on machines and equipments related to their courses of study for a result oriented critical thinking abilities and understanding of the problems and contributions of industry to national development.

General Objectives of Industrial Attachment Training

- Enhance the practical and communication skills/competencies of the trainee
- Strengthen industrial/institution partnership
- Provide a nation-wide mechanism to address key skill demand
- Provide employers the opportunity to give back to society
- Enhance training levels in acquired skills and competencies
- Provide an opportunity for training institutions to respond to identified areas of national key skill needs

- Develop the manual skills of trainees associated with scientific and technological operations
- Develop the trainees' personality and understanding of individuals and groups in work situations
- Provide the trainee with background information and experience in career choice.

Policy 3: The Role of Industrial Liaison Officer

In every organization, there are certain individuals who naturally engage in networking activities, maintaining relationships that cross organizational lines. They are referred to as "liaison officers" and are the main conduits by which knowledge is acquired from external sources and disseminated inside the organization and they play an essential role in how any organization benefits from and adapts to its environment.

The Industrial Liaison Officer serves as indispensable mentor, providing guidance and inspiration to undergraduate students in the Technical University to achieve academic excellence through real-life exposure to industry thinking and practices. The Officer helps students arrange for attachment and internship. The Officer encourages dialogue and technology exchange between the academic and industry communities assisting by providing expertise, equipments and feedback about

industry needs, as well as guidance and material help during all phases of the research.

In the end, research results are realized faster, are more closely aligned with real industry uses, and use the most relevant, state-of-the-art technology that can be made available. Faculty and students need to welcome and work with the practical, real-world insights that a Liaison Officer can provide.

Industries dependent on new technology and rely on a particular type of university's ability to disseminate the use of this technology effectively and successfully as a result of personality or training, recognize their responsibility to facilitate knowledge exchange with both the university research group and within their industry. These are keys to turning collaboration research outcomes into positive impacts.

Industrial Liaison Officers contribute to the success of industry-university collaboration in two primary ways. First, they effect a broad dissemination of the research results inside the industry. That is especially true for introducing the findings to individuals beyond the research community who have responsibility for development, manufacturing and other functions. Second, they provide feedback to the university faculty through information they bring back from the company's technical community, a

mechanism for keeping the research aligned with the company's needs and aspirations.

Policy 4: The Role of Departmental Industrial Liaison Coordinators

Contact between the faculty and individuals in the company over and above the project manager increases the research's impact for the company. The Faculty who are introduced to professionals from different functional areas are likely to share methods, lessons or discoveries on a broad front. As a result of this wider awareness, the university team may receive useful suggestions from other company's perspectives than that of the project manager's group.

Project outcome and the subsequent value of a research is likely to be higher for projects that have larger numbers of company employees involved while the research is under way; broad participation is important during the active research stage and before final outcomes are being produced. Specifically, there is the likelihood of a positive correlation between the number of people involved, directly or indirectly, in the collaboration and the project outcomes. If companies actively foster this broader engagement, in essence they may create additional boundary-spanning activity to augment that which is to be done by the project manager.

An effective communications framework can help bridge the gap between outcome and mpact. It is important to have two-way knowledge transfer between Faculty and the Industrial Liaison Officer, as well as between the Industrial Liaison Officer and others in the industry. In addition, the Project manager should keep groups inside the company abreast of progress report on the research collaboration, and inform the university team of ideas from the industry regarding potential linkages to other industry activities.

Senior members of the institution can also facilitate the identification of new ideas and applications that can lead to successful outcomes not envisioned in the original contract. The Departmental Liaison Coordinators will be nominated by the Heads of Departments to serve on the Industrial Liaison Committee for at least two (2) academic calendar years.

Policy 5: Formation of Departmental Advisory Board

Academic research is more likely to have positive impact on a company if the university faculty has a strong knowledge of the business setting, company practices and how the research fits company strategy. These conditions occurred more often when faculty had worked in the same or similar industries in the past,

giving them insight into linking research results to industry practices. If faculty does not already have this background, the Head of Department through external members on the advisory board must find a way to provide that knowledge to them.

Some members of the Advisory Board are derived from the industrial partners. The Board meets to review and to discuss the needs of the industrial partners, thereby communicate their needs to their university partners, and to carry out the annual industry SWOT (Strengths, Weaknesses, Opportunities, and Threats) analyses for the University and the industrial partners. In order to achieve result oriented programmes it may be more effective to keep the Advisory Board to a manageable size. The composition of the Departmental Advisory Board will determined by the Academic Board of the Technical University.

Policy 6: Investment in Long-Term Research and Development Consortium Collaboration

Industry and academia do research on markedly different time frames. Industry is driven by economic and product cycles, while academic research project duration depends largely on the time required for a graduate degree program (four years for first degree, a year and a half to two years for a master's degree, three to four years for a doctorate). Both parties thus need to be upfront, and realistic, about their time

expectations. The creation of multiyear collaboration programs addresses this mismatch and improves the chance of a successful research outcome.

Over longer time periods, members of research teams develop better joint understanding of the research problem and common vocabulary in which to communicate the research results. The effect of duration can be contrasted with that of project budget size, which may not have a significant effect for the projects analyzed.

There is thus a benefit to developing and maintaining such connections, even if they are at the personal level and not contractual. Industrial consortium funds generally are used to directly support industrial collaboration activities coordinated and managed at the lead institution. At times, however, the university may find it necessary to earmark a portion of the industry funds to support research or other program enhancement initiatives. In these cases, it is important to make sure that industry and university partners all agree with the purpose of the initiative and understand the funding allocation process.

Policy 7: Establishment of Strong Communication Linkage with the University Team

It is beneficial to have the faculty visit companies and interact with the personnel there. The more often these visits occur, the better the outcome and impact of the project. Such visits can

facilitate the creation of strong personal relationships. Personal interactions are also crucial in the transmission of unwritten tacit knowledge such as details of design or development practices. Regular meetings at the company thus foster the success of the collaboration.

Industries can complement these personal interactions with regularly scheduled video and telephone communications. These communications are used to establish known and mutually friendly atmosphere for the timely resolution of small problems. They also provide the company an opportunity to foster project discipline, helping to prevent the project from drifting away from its original purpose. Such teleconferences alternatively allow the company to communicate changes in interests or strategy that the research could be adapted to address.

- While companies located close to the university partners have apparent advantages in increasing the level of visits and interactions, geographic proximity may not differentiate the success of the examined collaborations. The most probable reason is that face-to-face visits will be made with roughly the same frequency regardless of distance, and colocation has little value if the opportunity that it creates is not taken advantage of. Further, companies should increase interaction with the university by sending company personnel on extended stays as

visiting researchers, by providing opportunities for faculty sabbaticals and leaves at the company and by providing student internships. These activities depend little on geography.

- Finally, with the objective of ensuring that face-to-face meetings happen regularly, companies can (and do) actively encourage project managers and other employees to meet researchers at the university.

Policy 8: Building Broad Awareness of the Competency Based Training (CBT)

Successful management of industry-university collaborations implies a wider view than deliverables and contract fulfillment, because creating and sustaining a peer-to-peer relationship is central to success. Strong personal relationships serve as a catalyst for increasing knowledge flows. If these exist, people are more willing to invest time and effort in communicating knowledge to others. To incentivize and enable such investment, company project managers need to provide appropriate internal support for their work in the collaboration. The amounts to be quoted may vary, but one general rule of thumb is that for every amount spent outside, the company should devote another inside.

The most effective industry-university collaborations are characterized by a sense of partnership — company project managers should feel they and the university researchers are partners exploring an area together. The level of project manager effort needed for such joint exploration implies provision of appropriate internal support. On the other hand, surveys showed that some project managers had demands that keep them from being able to devote what they thought was a suitable amount of time to the project. Those collaborations tended to produce lower outcomes than projects in which project management needs are more fully supported. Insufficient internal support means more than insufficient management time; it also implies negative impact on the relationship with university researchers.

To foster ownership of, and commitment to, a project, it is thus useful to include the dissemination of project results as an explicit part of the project manager's performance review. Establishing this practice will make it more likely that people inside the company would take steps to exploit the opportunity delivered by the university project's outcomes, and ultimately increase the project's impact on the company.

Policy 9: FORMATION AND ROLE INDUSTRIAL LIAISON COMMITTEE

The committee as a whole has to work towards maintaining a good relationship with current industry Work with other committees to find opportunities for the students to work with industry while seeking new industry sponsors. The provision of technical advice to the industry on related matters. To carry out all duties and perform all functions assigned to it report periodically at meetings.

Specific Roles

Members of the Industrial Liaison Committee must assist the Industrial Liaison Office in carrying out such duties as:

- The development and implementation of common policies and strategies for University in as far as they relate to technology and industry matters.
- The recruitment of new industry partners by networking and actively seeking opportunities for industrial participation in research as well as educational visits activities;
- The retention of an increase in interaction with current industry partners.

- The facilitation of student/industry relations through internships, student participation in joint projects with industry, fellowships, seminars, career placement, etc.;
- The organization of periodic meetings with center industry partners and ability to maintain an active website for industry partners;

The composition and formation of the Industrial Liaison Committee will be determined by the Academic Board of the Technical University

CONCLUSIONS

To support and strengthen collaboration between the university and industry economic it

is required to form scientific and industrial consortiums for joint research and

development projects leading to implementations and inventions which can be applicable

on the market, The ability and success to promote university resources via the internet,

publications (such as publications presenting the offer of individual research units) and public databases and inventions to support initiatives from academic staff, aimed at cooperation with industry and business development, disseminating results of scientific research,