The Use of Industry Advisory Boards at Higher Education Institutions in Southern Africa

Full Paper

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Estelle Taylor[1][0000-0003-2848-7829] and Andre P. Calitz[2][0000-0002-2555-9041]

[1]Department of Computer Science and Information Systems,
North-West University, Potchefstroom, S.A.
[2]Department of Computing Sciences,
Nelson Mandela University, Port Elizabeth, S.A.

[1]Estelle.Taylor@nwu.ac.za
[2]Andre.Calitz@Mandela.ac.za

Preprint

Abstract. An Industry Advisory Board (IAB) can provide useful feedback to academic schools or departments relating to topics such as industry graduate requirements, IT trends, programme quality and curriculum development. Academic literature provides general guidelines on the role and responsibilities, membership, composition and functioning of IABs. Accreditation bodies further provide guidelines for the implementation and functioning of IABs at Higher Education Institutions (HEIs). Presently, recent literature on the use of IABs by HEIs in Southern Africa is limited. No literature studies on best practices and perspectives for the use of IABs for Computer Science (CS), Information Systems (IS) and other related IT departments (IT) in Southern Africa exists.

The research question addressed in this study is: How are IABs used by CS/IS/IT departments at HEIs in Southern Africa? The aim of the study is to investigate the use and practices of IABs by CS/IS/IT schools and departments at HEIs in Southern Africa. An IAB questionnaire was compiled and distributed to the Head of Departments (HODs) of 32 universities in Southern Africa. A total of 23 HODs or representatives at 17 HEIs completed the survey over a two-week period. The data were statistically analysed and the results of the study indicate that 17 of the 23 respondents actively use IABs and that the IABs play an important role in academic programme development and maintaining high academic standards. This research study could assist CS/IS/IT academic departments to implement and maintain an IAB and follow best-practice standards.

Keywords: Industry Advisory Boards, Quality Management, IAB Usage.

1 Introduction

Academic departments in Computer Science (CS), Information Systems (IS), Information Technology (IT) and other related departments at Higher Education Institutions (HEI) should offer programmes and curricula that are relevant in a fast-changing environment, as students should be prepared for a constantly changing workplace. Organisations, for example the IEEE Computer Society and the ACM, have made efforts to specify requirements or content for programmes in CS (CS2016), IS (IS2010) and IT (IT2017), however there is no clear specification on the graduate attributes required by industry [1]. Communication and collaboration between academics and stakeholders from industry therefore should play an important part in this effort. Summers [2] indicated that "Today, more than ever, a powerful and influential advisory board is essential for the success of an educational institution".

Maintaining contact with Industry Advisory Board (IAB) members and obtaining feedback from the IAB members on the quality of academic programmes have become an important activity at CS, IS and IT departments at HEIs and Comprehensive universities offering diploma and degree programmes [3]. IABs provide perspective and are a valuable source of advice on matters such as academic issues, career choices and guidance for academic department members and students [2; 4; 5]. According to available literature, departments may use IABs to provide diverse perspectives, gain input or advise to customise or strengthen programmes [2; 6], programme quality [7] and uniquely shape course content [1]. Additionally, IABs are used to monitor the effectiveness of curriculum and performance of graduates, enable academic departments to keep in touch with the trends and the needs of industry or to help academic departments to meet requirements for accreditation [6].

Accreditation boards in most cases require the existence and use of IABs by academic schools or departments. Even though it is clear from the above that having and using an IAB is to the advantage of HEIs, there is not sufficient data available to show if all CS, IS and IT departments at HEIs in Southern Africa do have an IAB and if they do, that they use the IAB in the most effective way. Departments that do not have an IAB can gain from guidelines for the establishment and use of IABs. Departments that do have an IAB can use standard practices and guidelines to ensure that they use the IAB in the most effective way.

Zahra et al. [8] referred to advisory boards as an under-researched contributor to education and indicated that it has become essential to gather more data about these boards as academic literature on the role and composition of advisory boards is sparse. This paper provides the current practices by CS/IS/IT departments in Southern Africa on the use of IABs and the roles and responsibilities of the IAB members and topics relating to meetings. The research problem, research questions and the IAB survey are discussed in Section 2. Literature on IAB composition, meetings, roles and responsibilities are discussed in Section 3. The IAB survey results are presented in Section 4. Conclusions and recommendations of this study, relevant to Departments making use of IABs at HEIs and future work are discussed in Section 5.

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2 The Research Problem and Research Design

Söderlund et al. [9] warn that a recent decline in scholarly interest in advisory boards may limit the understanding of the advantages and complications of IABs. They further refer to a lack of studies on best practices and perspectives relating to the use of IABs. According to Zahra et al. [8], further research on IABs would help departments better understand the role and attributes of advisory boards, as well as how to best realise their potential. Literature differs on the factors of effective and efficient IABs, such as size, members, number of meetings per year, etc. [10].

The research problem investigated in this study is based on the realisation that there is insufficient recent literature on the use of IABs by HEIs in Southern Africa. Only a limited number of CS and IS programmes are accredited in South Africa and the HEIs presenting these programmes have to comply with the accreditation body's IAB requirements. Further, there is also a lack of guidelines for CS/IS/IT departments HEIs on the use of IABs in Southern Africa.

The research question addressed in this study is: *How are IABs used by CS/IS/IT departments at HEIs in Southern Africa?* The aim of the study is to investigate the use, functioning and practices used by CS/IS/IT schools and departments at HEIs in Southern Africa that appoint an IAB. An IAB questionnaire was compiled from similar studies discussed in literature [7; 11]. In order to determine honest personal perceptions, it was decided to keep the survey anonymous. The IAB questionnaire consisted of the following sections:

- Biographical details;
- Twelve open-ended questions relating to the use of an IAB by the specific department/school; and
- Likert scale questions relating to IAB membership, IAB meetings and documentation, roles and responsibilities and functioning.

The questionnaire was captured using the Nelson Mandela University's on-line survey tool, QuestionPro. The next step in the research process was contacting the Head of Departments (HODs) from all 32 universities in Southern Africa. The first call for participation was distributed via e-mail to the HODs listed in the SACLA HOD list and later followed by personal requests to HODs. A total of 23 HODs or representatives completed the survey over a two-week period. The data were statistically analysed using Statistica and the qualitative results were thematically analysed using AtlasTi.

3 Literature Review

3.1 The Definition and Role of Industry Advisory Boards

Becerra-Fernandez et al. [12] suggested in an article entitled "Reversing the Landslide in Computer-Related Degree Programmes" that the introduction of an Industry Advisory Board (IAB) should be the first response to declining student numbers. Accreditation of programmes should be shaped by a process that involves Alumni, IABs, faculty members and students [1].

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According to Mandviwalla et al. [13], advisory boards in the IS-environment date back to the 1960s and can be defined as a group of qualified volunteers whose goals include providing direction, content and resources, professional development, research, curriculum, resources and strategic direction. An advisory board can also be defined as a group of professionals brought together with the aim of helping an academic centre to accomplish its mission [8]. For the purpose of this research, an IAB will be defined as an independent body established by a department in order to enable it to form and implement its vision and mission.

Universities provide general guidelines and policies regarding the functioning of a department's IAB [14]. For example, the objectives of an IAB as indicated in the Nelson Mandela University IAB Policy, include:

- Building relationships between relevant businesses and the Department;
- Providing guidance and giving advice on, for example, strategic direction with regard to trends, professional, business and management practice;
- Providing practical requirements; and
- Providing advice on graduate skill requirements.

Other literature sources indicate the objectives or purpose of the IAB as:

- To access the quality and skill of graduates [6];
- To advise on matters relating to new degree programmes and options, long term planning, community relations, development and policy matters [2; 9; 15];
- Research and programmes [13];
- Monitoring learning and research quality and impact, as well as the progress in fulfilling mission and plans [8];
- To operate at the strategic level in analysing industry needs and trends, as well as in the review and monitoring of the programme objectives [16];
- To provide guidance on academic issues and planning [15];
- To act as a link between academic departments and its industrial and professional partners [15];
- To act as advocate for the programme [9];
- To assist with internships and job placement [9]; and
- To mentor students [9].

The important role of IABs is highlighted by a study by Metkover and Murphy [17]. According to this study 46% of the Departments of CS/IS/IT (out of the 23 higher education institutions in South Africa) used industry advisory boards at that time.

3.2 Different Requirements: Members, Size and Meetings

The selection of members for an IAB is important. The Institute for IT professionals in New Zealand indicate that IAB members can assist with developing the body of knowledge in an academic programme as they are potential employers of the programme graduates [16]. According to Summers [2], members should be selected from business, industry, government and should reflect variety. El Refae et al. [7] additionally specify Alumni, students, 'leaders of the profession', different genders and minorities.

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Sources differ on factors such as size, members, number of meetings per year, etc. of IABs. If a board is too small, it lacks critical mass, but if it is too large it is difficult to take everyone's opinion into account when dealing with complex issues. Smaller boards are more efficient in decision making, but larger boards mean more resources [13]. According to Schuyler et al. [6], the board should be made up of 20 – 25 individuals. Mandviwalla et al. [13] refer to four separate cases where the boards consisted of 17 members (44% alumni), 35 members (10% alumni), 60 members (15% alumni) and 11 members (50% alumni).

In another reported case the advisory board consisted of 17 members (6 faculty members, 1 student representative and 10 outside advisers) [18]. In a study by Zahra et al. [8], 31 advisory boards were studied and they had between 7 and 16 members. In another study by Söderlund et al. [9], the authors reporting on 10 cases, the number of members varied from 4 to over 20. Literature studies generally specify a minimum of 10 members with an average of 20 members [10; 19]. Types of members varied from industry, to industry and faculty and industry, faculty and students.

Leadership of the IAB differs from, for example, using an externally appointed chair to an internally appointed chair [13]. Members can be chosen from companies who hire graduates from the specific institutions [6] and/or focus on senior executives [13].

The scheduling of meetings also differs, for example two times a year [6] or three 2.5-hour evening meetings per year, two 1,5 day meetings plus annual meeting with director and sub-committee meetings and two half day meetings [13]. In the study by Zahra et al. [8], the average for the 31 advisory boards studied was 4 – 6 meetings a year, each meeting lasting about 2 hours. Söderlund et al. [9], reporting on 10 cases, indicated the frequency of meetings varied from one per year to 6-12 a year.

The purpose of IAB meetings can be to discuss pending issues (for example the content and breadth of the curriculum) and brainstorm, or to network and report changes [6]. In addition, it should ideally have significant input to establishing strategies for monitoring the development of technical competence and personal and professional skills for each particular programme [16].

3.3 Benefits and Challenges of IABs

The use of an IAB can be to the benefit of industry, academic institutions and students. In this sub-section, more detail on the benefits of IABs are discussed, followed by some of the challenges.

The benefits for industry:

- Interacting with faculty during meetings, sustaining strategic relationships [2; 13];
- Influencing academic curriculum, programmes and research [2; 13; 18];
- Interaction with other industry representatives [2; 13; 18];
- Access to faculty for short courses [2];
- Developing talent [13; 18];
- Employment of graduates [14];
- Developing insights [13]; and

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- Giving back to higher learning in general and fulfil social responsibility requirements [9; 13; 18].

The benefits for Academic departments:

- Latest industry best practices can inform research and curriculum, which in turn means that the programmes can remain at the front of technological innovation [8; 13; 15; 18];
- Improved curriculum [8; 13; 15; 18];
- Improved programme quality assurance [7];
- Validation of direction and plans, recommending initiatives [2; 13; 15];
- Greater visibility and public relations; donations of equipment or funding [2; 8; 13; 15; 18];
- Increased enrolment [2];
- Contact networks, resources and data to perform research [8; 13];
- Increased reputation [13];
- Increased influence [13]; and
- Helping departments connect to diverse and influential stakeholders [8].

The benefits for students:

- A timely curriculum that prepares them to function effectively [18];
- Board members serving as mentors [13; 18];
- Job placement and recruitment opportunities [18; 20];
- Guest speakers from industry [20]; and
- Industry visits and internships [11].

Challenges faced

A study by Söderlund et al. [9] reports on challenges experienced by different institutions with the use of advisory boards. The challenges mentioned are the logistics of setting up the advisory boards; scheduling and conducting meetings; the intensity of meetings being trying on stakeholders; facilitating meetings; being overwhelmed with advice that must be acted on and differences of personality and/or opinions.

3.4 Accreditation Board Requirements for Industry Advisory Boards

According to the Technology Accreditation Commission (TAC) of the US Accreditation Board for Engineering and Technology [21] accredited programmes must have an industrial advisory committee, including, amongst its members, industry representatives. This accreditation is proof that a programme meets the essential standards to produce graduates to enter the critical fields of STEM education. Accreditation bodies such as the British Computer Society (BCS) [22], the Accreditation Board of the Australian Computer Society [23] and the IT Professionals New Zealand [16] operates the IT industry's degree accreditation process, endorsing degree programmes and supporting international portability of qualifications. The use of IABs are supported by these organisations.

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The newly established South African Computing Accreditation Board (SACAB) is made up of senior academic and industry representatives in S.A. and evaluates and endorses CS/IS/IT degree programmes and diploma programmes at HEIs in S.A. that meets international standards, support international portability of degree programmes and provides graduates with career paths and skills required by the IT industry [24]. The SACAB is in the process of establishing best practices and guidelines for the functioning of IABs for CS/IS/IT departments seeking accreditation of programmes. From the above it is clear that accreditation authorities worldwide require departments to have an Industry Advisory Board in place.

3.5 IAB Guidelines from Literature

It is important that advisory boards make the best use of the valuable time industry and faculty members spend at meetings. This is perhaps best said in the following quote from a study by Söderlund et al. [9]: "If you want it to be valuable, you've got to put in the effort".

The following guidelines can be found in an article written by Mandviwalla et al. [13]:

- Mission and objective statements are essential for forming the direction and structuring conversations for the board. Keep the mission statement simple. This can include educational goals (curriculum design), research goals, funding and reputational activities). This aspect is also emphasised by Söderlund et al. [9];
- Schedule regular meetings to maintain continuity;
- Establish dates a year in advance;
- Keep to the agenda;
- Give feedback on action items from previous meetings;
- Distribute the minutes soon after the meeting;
- Establish policies on attendance by conference calls, number of missed meetings and substitutes;
- Provide opportunities to socialise. This aspect is also emphasised by Söderlund et al. [9]; and
- Engage students as interaction with students is an incentive for active participation in an advisory board. This aspect is also emphasised by Söderlund et al. [9].

Guidelines from other literature sources that can be added to this list, include:

- Exercise care in the selection of companies from which members are taken. The business relevance to the programme objectives must be considered [15];
- Choose members from companies that understand higher education [15];
- Find members from a diverse representation of the relevant profession [9];
- Start with a small board, which is more manageable and expand as necessary or advised [9];
- Efficient planning of the agenda of meetings is very important. This also shows respect for members' time. Meetings should be focused on specific issues, decided on in advance [9];
- Supplement regular meetings with occasional e-mails and reports [9]; and

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- Make certain that members understand exactly what is expected from them [9].

3.6 Conclusion: Literature Review

From the above literature study, it is clear that there are differences in opinions on issues surrounding IABs, such as the objectives, membership, benefits, size, leadership, meetings and guidelines. In the following section the results from the IAB survey in Southern Africa are reported.

4 Advisory Board Survey Results

The *IAB* survey was completed by representatives from universities in South Africa, Namibia and Zambia (Fig. 1). A total of 32 universities were listed in the survey and 18 HOD's and 5 HOD representatives from 23 departments at 17 universities completed the survey (Fig. 2). The respondents included departments / schools of Computer Science (n=6), Information Systems / Informatics (n=9), CS&IS (n=3), Schools of ICT (n=2) and 2 other related departments. A total of 44 viewed the survey, 32 started the survey and 23 completed the survey. The survey was emailed to 70 people on the SACLA HOD list, a 33% response rate.

Fig. 1. Response distribution.

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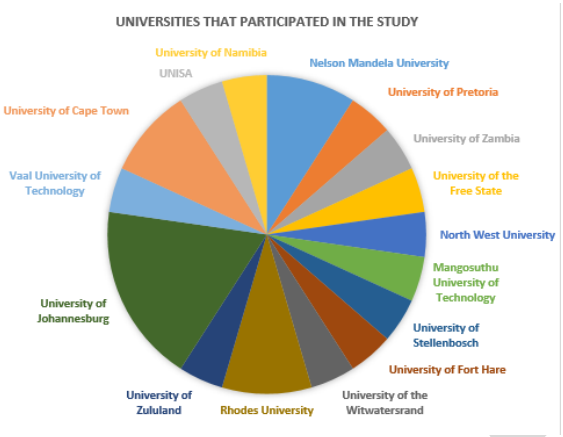

Fig. 2. Southern African universities.

Seventeen departments (74%) indicated that they had an IAB and 6 departments indicated that they did not have an IAB. The departments that did not have an IAB indicated that 1) they were establishing a board; 2) had informal arrangements with companies or 3) the IAB was not serving departmental needs. No school/department compensates IAB members for serving on the board.

The analysis of the responses (Table 1) indicate that the average size of an IAB is approximately 20 members. This includes academics and industry members. Nine departments indicated that they have on average 12 academics from their school / department serving on the IAB. The difference in the number of members (from 1 to 50) correlates to what was reported in the literature review, where the number of members also differed from one institution to another. More research may be necessary on what is actually best concerning the number of members on the IAB. Six departments indicated that they have 2-3 students represented on their IAB and six departments indicated they do not include any student representatives.

Table 1. IAB membership.

Question	Mean	Median	Min	Max
How many members are on your IAB?	19	17	1	50
How many departmental members serve on your IAB?	11	8	0	30
How many students serve on your IAB?	2	3	0	4
How many Alumni serve on your IAB?	4	3	0	19
How many years has your School/Department had a IAB?	11	9	5	20
How often does your IAB meet per annum?	1	1	1	2
What is the average duration (in hours) of an IAB meeting?	3	3	1	5

Four departments indicated they have no Alumni serving on their IAB and 6 departments indicated they have an average of 6 Alumni serving on their IAB. Only 4

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school/departments include academics from other Higher Education Institutions on their IAB. Twelve departments indicated that they have had an IAB for an average of 12 years. Eight schools/departments's IAB meet once a year and four twice a year. The average IAB meeting duration indicated by 11 departments was 3 hours. Most of the studies reported on in existing literature also referred to 1 – 2 meetings a year, even though, in the study by Zahra et al. [8], the average for 31 boards studied was 4-6 meetings a year.

The organisations the IAB members represent include senior IT managers, IT consultants, senior managers and IT managers from the manufacturing organisations and one department indicated managers from government entities (Fig. 3). Four IS departments indicated that they include senior managers from auditing firms on their IAB.

The criteria (Fig. 4) used by schools/departments to select and appoint IAB members included members being senior managers in industry (n=6), IT specialist (n=5), Alumni (n=3) and knowledge and experience in the IT industry (n=3). Other criteria mentioned were *involvement with department, IT qualifications, employees of graduates* and importantly, *availability*. This correlates with what was reported in the literature study.

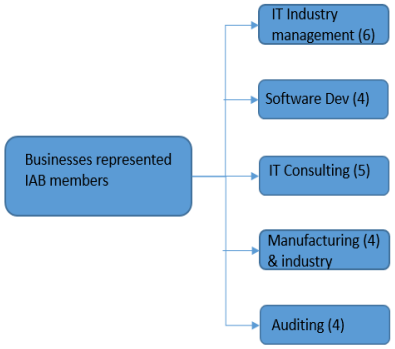

Fig. 3. Businesses represented.

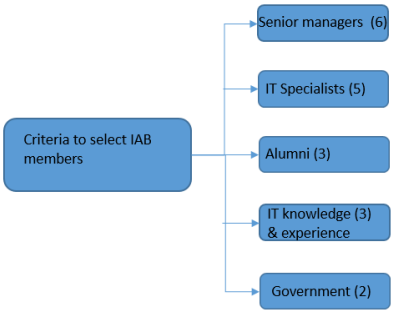

Fig. 4. IAB member selection criteria.

The topics discussed at IAB meetings mainly focus on the curriculum (n=7), departmental activities (n=6), teaching issues (n=5), industry trends (n=4) and departmental strategy, achievements and graduate employability (Fig. 5). The teaching issues discussed included (in the past years) detailed discussions on student protest and contingency planning. Additional topics include SA's changing education landscape, guest lectures, internships, projects day and joint projects benchmarking against other institutions. Respondents indicated that the advantages of having an IAB were to remain up-to-date with industry requirements (n=7) and IT trends (n=3), secure employment of graduates (n=6), receive industry advice regarding the curriculum (n=5) and for quality control purposes (n=4) (Fig. 6). Respondents emphasised the importance of maintaining partnerships with industry and receiving industry feedback on the skills required by students.

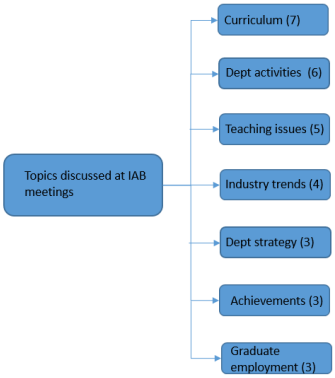

Fig. 5. Topics discussed on IABs.

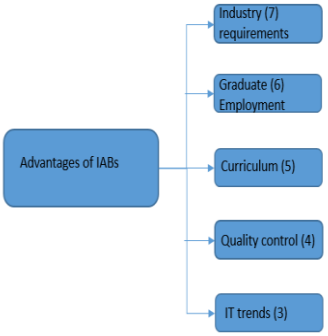

Fig. 6. Advantages of IABs.

The challenges faced by having an IAB included Attendance (n=5); Recruiting members (n=4); "To make sure they feel it is worth their time to attend the meeting"; "Getting the same people from industry to consistently attend"; "Distance to the meeting venue and conflicting dates with members' calendars"; and "We initially focused on national organisations, but found that it was challenging to get the member to regularly attend meetings and decided to shift our focus to local members".

The studies reported on in the literature review also reported setting up of the board (recruitment etc.) and attendance as challenges.

The main purpose of having an IAB was explained as follows by respondents:

- "Provide industry links and collaboration";
- "To keep up to date with the needs from industry and to have ambassadors for your department in industry";
- "Partnerships with industry";
- "Understanding industry requirements and trends";
- "Check/maintain quality";
- "Industry graduate requirements";
- "Provide working experience for students and student-corporate engagements";
- "Advising and coherence on curriculum issues"; and
- "Funding and advice on current IS/CS trends".

The advice given by respondents to institutions wanting to establish an IAB included "Choose members with correct qualifications; choose senior managers; choose alumni in senior positions"; "Choose your industry members carefully. They must be executives who can make decisions"; "Having an IAB is not negotiable"; "Select senior IT people that have the time"; and "Set clear expectations and do proper planning".

Sixty-seven percent (n=12) of the respondents were familiar with the IAB requirements as specified by accreditation bodies, such as BCS, ABET and the SACAB. The universities outside South Africa were not familiar with the IAB requirements as specified by international accreditation bodies. One respondent indicated that the purpose of having an IAB was that "We have an IAB because of accreditation requirements".

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The 18 responses received on the Likert scale statements regarding IAB membership, meetings and documentation, roles and responsibilities and successful IAB are presented below. The Likert scale categories Strongly Disagree/Disagree and Strongly Agree/Agree were combined in this section for reporting purposes.

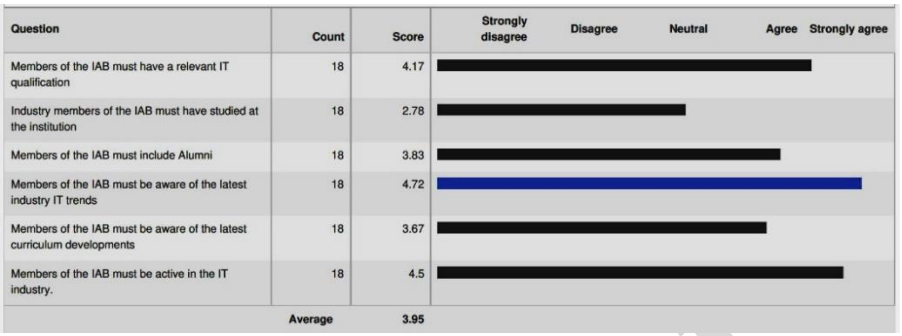

Fig. 7. IAB membership.

The majority of the respondents (83%, n=15) indicated that members of the IAB must have a relevant IT qualification (Fig. 7). Half of the respondents (n=9) disagreed that members of the IAB must have studied at the institution and only six departments/schools agreed. Seventy-eight percent (n=14) agreed that the IAB must include Alumni and all participants agreed that the IAB must be aware of the latest IT trends. The majority of respondents (n=12) agreed that members of the IAB must be aware of the latest curriculum trends and all agreed that members of the IAB must be active in the IT industry.

Fig. 8. IAB meetings and documentation.

Seven departments/schools indicated that the IAB must meet once a semester. Only four departments/schools indicated that the IAB minutes must be available on the departmental website (Fig. 8). Seven departments indicated that the IAB member's names and documentation must be available on the departmental website. All respondents agreed that the IAB members must be made aware of their roles and responsibilities.

The majority (n=16) of the respondents agreed that the IAB agenda must include a discussion of new IT trends and 13 departments indicated that the agenda must include an item on new curriculum developments. Reporting on graduate employment figures is a requirement of accreditation bodies and twelve departments agreed to include an item on the employment figures of graduates.

The majority of the respondents from universities in South Africa agreed that IAB members must be familiar with the programmes offered in the school/department. Sixty one percent (n=11) agreed that IAB members must be informed where graduates are employed after completion of their studies and 67% (n=12) indicated that IAB members must be informed of the job opportunities available for graduates (Fig. 9). The majority (79%, n=14) indicated that the IAB members must be informed of the departmental staffing situation and requirements. All agreed that the IAB members must be aware of the departmental strategy, mission and vision. Only seven departments indicated that the IAB must monitor the annual Alumni survey conducted by the school/department.

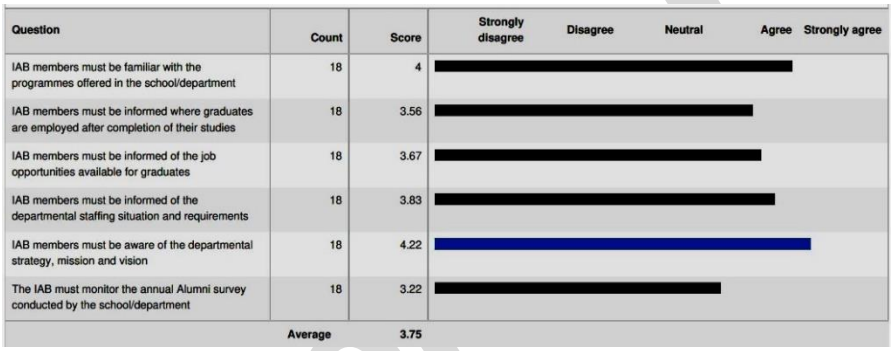

Fig. 9. IAB roles and responsibilities.

Sixty-one percent (n=11) of the respondents indicated that the IAB assist in maintaining academic standards (Fig. 10). All participants agreed that the IAB provides a link to industry and 72% (n=13) agreed that IABs assist with quality assurance for a department/school. A mixed response was indicated, where 44% (n=8) agreed and 33% (n=6) disagreed that IABs can highlight issues faced by a department/school with university management. The majority agreed (89%, n=16) and no one disagreed that IABs can specify industry requirements as well as 89% (n=16) that IABs can assist with curriculum and programme requirements. Finally, all respondents agreed that IABs can assist with the employability of graduates.

Question	Count	Score	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
IABs assist in maintaining academic standards	18	3.72					
IABs provide a link to industry	18	4.56					
IABs assist with quality assurance for a department/school	18	3.72					
IABs can highlight issues faced by a department with university management	18	3.17					
IABs can specify industry requirements	18	4.11					
IABs can assist with curriculum and programme improvements	18	4.11					
IABs can assist with the employability of graduates	18	4.39					
	Average	3.97					

Fig. 10. Successful IABs.

5 Conclusions

The literature study indicated that there are differences in opinions on issues surrounding IABs, such as the objectives, membership, benefits, size, leadership, meetings and guidelines. IABs perform an important role for academic departments in maintaining academic standards and links to industry. Academics departments are required by accreditation bodies to have IABs.

The Metkover and Murphy [17] study reported that 46% of the departments of CS/IS/IT used IABs compared to 74% in this study. Only 6 out of 23 participating departments indicated that they did not have an IAB. The reasons mentioned were that they were establishing a board; had informal arrangements with companies or that the IAB was not serving departmental needs.

The analysis of the responses indicates that the average size of an IAB is 20 members, this usually includes school/departmental members, alumni and other industry members and one under-graduate and one post-graduate student representative. These findings are similar to other reported studies that indicate a minimum of 10 members with an average of 20 members [10; 19]. The IABs include senior management members in the IT industry (e.g. managers, consultants and specialists). Meetings are held 1-2 times a year and the duration of the average meeting is 3 hours. Topics discussed include the curriculum, activities, strategies, industry trends, graduate employability and contingency planning.

Several advantages of having and maintaining an IAB were mentioned. These advantages included that IABs assist departments in keeping up to date with industry requirements and IT trends, secure employment of graduates, give advice on curriculum and provide quality control. The challenges mentioned by respondents were attendance (e.g. conflicting dates on members' calendars and the distance to the venue), recruitment of members and making sure that it is worthwhile for members to attend.

This first study on the use of IABs in Southern Africa, has provided a foundation for continuous functioning of IABs, as well as stakeholder management and engagement. Valuable opinions and information regarding IAB operations, procedures and composition were obtained from various CS/IS/IT schools and departments in Southern Africa. A list of guidelines for the use of IABs can now be formulated by combining the

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guidelines from exiting literature studies on the use of IABs with guidelines from the responses received during this study. A list is presently being compiled. Future research will include the development of a model and guidelines for IABs effectiveness at Higher Education Institutions in South Africa for the SACAB.

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