Industry Advisory Board (IAB) Growth Management Model
"A Framework for Understanding IAB Output and IAB Management"
Charles McIntyre, North Dakota State University

Abstract

The IAB Growth Management Model (GMM) is based on the Leadership/Management Growth Model[3] which roots itself in basic management theory which is applicable to any business or organization. For all IAB's, large and small, the question of growth in either service or deliverables always should be an important part of the IAB's strategic planning process. The IAB GMM provides a framework for understanding the process of organic growth (i.e., internal, evolutionary growth) that occurs within an IAB. Proper understanding of the implications of that growth stage requires the adoption of suitable managerial practices that are consistent with standards of the American Council for Construction Education (ACCE).

Introduction

ACCE is a leading global advocate for construction education. The mission of ACCE is to promote, support, and accredit quality construction education programs. The involvement of industry in support of academic programs and accreditation efforts is a cornerstone of ACCE. As outlined in Document 101 of the ACCE Accreditation Manual, Section VII - Relations with Industry, an accredited program is to have:

1. *An industrial advisory committee, consisting of representatives from the construction industry, which is actively involved in an advisory role for the construction program.*

2. *The committee meets on a regular basis for the purpose of advising and assisting the development and enhancement of the program.*

To support the efforts of developing and maintaining high quality industrial advisory committees, ACCE has authorized the creation of the Industry Advisory Board (IAB) Task Force. The term Industry Advisory Board is generic and refers to all industry advisory boards, committees, and councils. Through a spirit of cooperation grounded in mutual interests, the goal of the IAB Task Force is to provide the informational resources and hands-on workshops that can assist IAB's and their associated academic programs in providing quality educational instruction combined with practical work experience that will ensure the future success of the construction industry.

Construction is a dynamic industry consisting of a series of inputs and outputs. In a similar way, an IAB is a dynamic organization that uses the collective leadership and management skills of its members to achieve valued outputs in the form of "best practices." As is the case in the business world, when an IAB makes a conscious effort to expand or improve output, the managerial requirements of the IAB must change to support and facilitate that expansion.

In order to understand these managerial requirements as related to IAB output, a framework for modeling the overall growth process is needed. The "IAB Growth Management Model" presented in this document provides the initial framework for that model.

Hypothesis

The IAB GMM is based on several premises that have evolved from both the Leadership/Management Growth Model and information collected from the participants of the ACCE IAB Events over the past five (5) years. The basic hypotheses of the IAB GMM states that:

- IAB Output is a function of IAB Managerial Proficiency.
- IAB Output is defined as the number and quality of "best practices"[1] conducted by an IAB as a function of clearly defined and agreed upon program goals.
- IAB Managerial Proficiency represents the Planning Systems, the Quality Systems, and the Organizational Structure of an IAB.
- An increase in IAB Output or quality of IAB Output necessitates an increase in IAB Managerial Proficiency.

The following sections, describe the components of IAB Output and IAB Managerial Proficiency.

Components of IAB Output

As previously stated, IAB Output is defined as the number and the quality of "best practices" conducted by an IAB. Based on the information collected from the IAB Event participants, "best practices" can be categorized into the following four IAB Output classifications:

IAB Operating Procedures
IAB Department and Curricula Involvement
IAB Industry Awareness and Recognition
IAB Funding Mechanisms and Deliverables

IAB Operating Procedures
- Operate under a written set of periodically updated bylaws
- Develop an IAB strategic plan
- Conduct regularly scheduled meetings with recorded minutes
- Recruit "active" IAB members
- Organize and deliver "high impact" IAB meetings
- Post activities on the website of the academic program (bylaws, officers, activities, etc.)
- Attend ACCE IAB "Best Practices" Events
- Serve on the IAB "Best Practices" Events task force
- Become a member of ACCE
- Participate in ACCE Visiting Team Training
- Participate as a member of ACCE visiting teams

IAB Department and Curricula Involvement
- Serve on program curriculum review committees
- Serve as class/course reviewers (review syllabus, observe class instruction, and provide an assessment & evaluation)
- Active participation in the academic program's capstone course
- Serve as classroom guest lecturers
- Provide "real-world" projects (for use in courses)
- Provide opportunities for "site visits" and "field trips" to construction operations
- Serve as a reviewer of the program's ACCE Self-Study accreditation report
- Serve on the search committees for academic program chairs and faculty

- Serve as adjunct faculty (course instructors)
- Meet with the ACCE Visiting Team (during the accreditation site visit)
- Support student organizations (AGC, ASC, NAHB, CMA, etc.)
- Serve as coaches and reviewers for student competition events

IAB Industry Awareness and Recognition
- Provide opportunities for student internships (and job shadowing)
- Sponsor or conduct leadership development seminars or workshops (for faculty and students)
- Participate in career fairs and employment expositions
- Coordinate involvement with industry associations (ACE Mentor Program, AGC, ABC, etc.) and programs to create awareness among incoming construction management students
- Meet regularly (i.e., lunch) with the program chairs, deans, provost, and president
- Sponsor awards (for outstanding students, faculty, and industry members)
- Provide opportunities for faculty internships
- Employ graduates of the academic program
- Sponsor social events (for students and/or faculty)
- Create an electronic (web-based) IAB newsletter

IAB Funding Mechanisms and Deliverables
- Establish an IAB dues structure (if possible - in some states this is not allowed)
- Create internal development programs (internal fund raising)
- Sponsor student scholarships (non-endowed)
- Sponsor student/department activities (award luncheons, banquets, etc.)
- Spearhead and support efforts to establish endowments (for scholarships and faculty positions)
- Actively support the research activities of the program (financially and administratively)

Components of Managerial Proficiency

IAB Managerial Proficiency is dictated by the M*anagement Systems* used by an IAB. Some of these elements can be incorporated into the IAB bylaws or be specified in a separate "IAB Guidelines" document. The term "system" is used because it defines a specified way of doing things which lends itself to consistency and continuity. As outlined below, the Management Systems consist of the Planning Systems, the Quality Systems, and the Organizational Structure of an IAB.

IAB Management Systems

Planning Systems
- IAB Profile: name, date (established), academic department & college/university, offices and members, mission and vision statements, core values, etc.
- Procedural Planning: defining the policies and procedures of the IAB functions, programs, and activities.
- Strategic Plan: developing a long-term vision and time-lime for the programs and activities sponsored by the IAB.
- Strategic Planning: developing an action plan to administer the strategic plan.

Quality Systems
- Assessment: the tools and techniques used to collect assessment data concerning the programs and activities administered by the IAB.
- Evaluation: the methods used to analyze the assessment data for the programs and activities administered by the IAB.

- Corrective Actions: identification and administration of the required actions dictated by the evaluation of the programs and activities administered by the IAB.

Organizational Structure
- Well-defined lines of responsibility and authority (task allocation, coordination and supervision), as well as composition of the IAB (i.e., members).
- A formal Organizational Chart indicating committees, sub committees, and task forces with identified persons in authority and lines of communication.

Based on the original hypothesis, IAB Output ("best practices") is a function the above IAB Management Systems. This relationship provides the foundation for the development of the IAB Growth Management Model (GMM), as described in the following section.

The IAB Growth Management Model

The IAB GMM (as shown in Figure 1) represents a macro-level graphical representation of IAB Output versus IAB Managerial Proficiency. It does not address the dynamic issue of how IAB response is influenced by the particular stage of growth of the IAB. In order to deal with that dynamic issue, it is necessary to have a framework for understanding the process of growth that occurs in an IAB when their vision and mission statements place a high priority on change, i.e., either through growth or retrenchment. This is dynamic issue will be addressed within the IAB Benchmarking process, described later in this document.

Within the model, the vertical axis represents IAB Managerial Proficiency. The primary components of Managerial Proficiency are considered to be the Planning Systems, the Quality Systems, and the Organizational Structure of an IAB. Managerial Proficiency represents completing the work more efficiently with moderate increases in the energy expended. An increase in Managerial Proficiency is assumed to be limited only by the training, expertise, and innovation of the membership of the IAB. The horizontal axis identifies IAB Output. IAB Output is represented by the number and quality of their "best practices." The model is based upon the premise that the IAB Managerial Proficiency required is a function of the IAB Output desired.
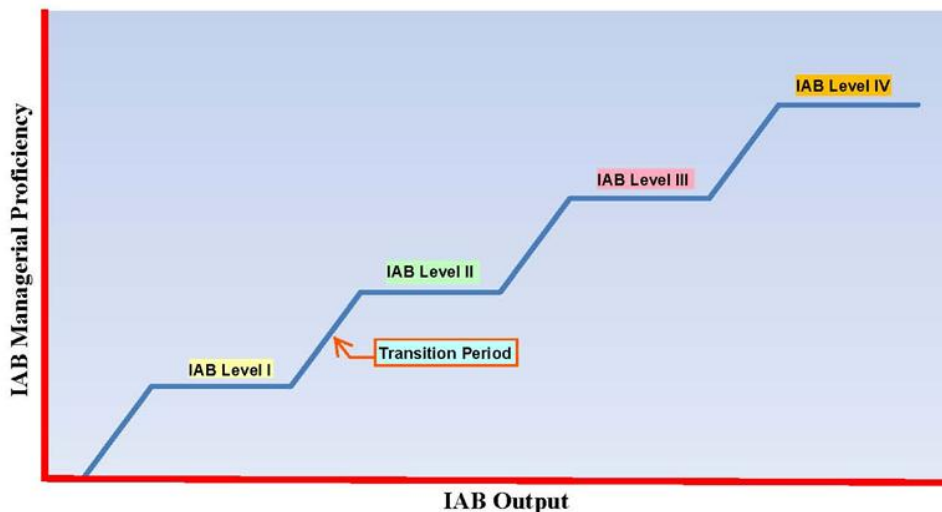

Figure 1. IAB Growth Management Model

The IAB Managerial Proficiency/IAB Output relationship is represented by a series of management plateau levels linked by transition periods. The four management plateaus (IAB Level I to IAB Level IV)

are associated with the IAB Output that can be achieved at each level of IAB Managerial Proficiency. These levels or plateaus are "stability zones" where the IAB Output matches the IAB Managerial Proficiency. Between each level are transition periods where an IAB makes a conscious effort to move to a higher level. In order to minimize disturbance and turmoil with the IAB and the associated academic program, planning is the key element. Modifications to the current form of IAB Managerial Proficiency must be identified and administered when considering increasing IAB Output (i.e., moving to a higher level).

The transition periods occur when an IAB makes a conscious decision to increase IAB Output which necessitates an increase in IAB Managerial Proficiency. This increase is the result of an iterative process of learning through personal experience and also the adoption of the next level of management systems practices. The transition period often results in an uncomfortable experience for the individuals within the IAB and sometimes within the academic program. It generally causes interpersonal conflicts because of new expectations and higher anticipated efficiencies. During the transition periods, IAB members are typically being asked to step out of their personal "comfort zones" and meet new challenges. It is important to note that a transition period is probably the most critical time for an IAB. These transition periods can cause interpersonal conflicts because of raised expectations related to an increase in IAB Output.

The practical applications of the IAB GMM are presented in the following section dedicated to Benchmarking your IAB.

Benchmarking Your IAB

"If you don't where you are, then it doesn't matter which way you go." Not exactly a direct quote from the Cheshire Cat, but it illustrates the key element of benchmarking. Within the context of this paper, benchmarking is the process of identifying IAB Output, i.e., "best practices." In addition, aspects of both IAB Managerial Proficiency and quality of IAB Output can be evaluated which allows an IAB to develop management improvement plans to adopt additional "best practices" and/or improve the quality of exiting "best practices" with the aim of increasing overall IAB performance.

Benchmarking Assessment

The benchmarking process[2] begins by determining the IAB Output ("best practices") with their associated measure of quality. Within the Benchmarking process, "best practices" are associated with a corresponding level of managerial expertise and effort (IAB Level I through IAB Level IV).

In order to benchmark an individual IAB, each of the "best practices" needs to be assessed within each of the four (4) levels of IAB Output as indicated in Figure 1 (IAB Level I through IAB Level IV). IAB Level I "best practices" are generally considered to be the minimum standards required by an IAB, while IAB Level IV "best practices" require a higher level of effort and managerial proficiency. Benchmarking requires that a measure of quality needs to be assessed for each identified "best practice" using the following scale:

    A – our IAB really excels at this "best practice."
    B – our IAB does pretty well for this "best practice," but could use some improvement.
    C – our IAB does OK with this "best practice," but we need to do a much better job.
    D – our IAB pays lip service to this "best practice" and we need to vastly improve in this area.

Table 1 provides a means of assessing the number and the quality of your IAB Output ("best practices"). For the "best practices" that your IAB administers, place an "x" in the corresponding quality box (A though D). Following this assessment an evaluation of the benchmarking is conducted.

TABLE 1. BENCHMARKING ASSESSMENT				
IAB Level I	**A**	**B**	**C**	**D**
Operate under a written set of periodically updated bylaws				
Conduct regularly scheduled meetings with recorded minutes				
Recruit "active" IAB members				
Organize and deliver "high impact" IAB meetings				
Meet with the ACCE Visiting Team (during the accreditation site visit)				
Establish an IAB dues structure (if possible - in some states this is not allowed)				
IAB Level II	**A**	**B**	**C**	**D**
Develop an IAB strategic plan				
Attend ACCE IAB "Best Practices" Events				
Participate in ACCE Visiting Team Training				
Active participation in the academic program's capstone course				
Serve as classroom guest lecturers				
Provide "real-world" projects (for use in courses)				
Provide opportunities for "site visits" and "field trips" to construction operations				
Support student organizations (AGC, ASC, NAHB, CMA, etc.)				
Serve as coaches and reviewers for student competition events				
Provide opportunities for student internships (and job shadowing)				
Participate in career fairs and employment expositions				
Employ graduates of the academic program				
Create internal development programs (internal fund raising)				
IAB Level III	**A**	**B**	**C**	**D**
Post activities on the website of the academic program (bylaws, officers, activities, etc.)				
Serve as class/course reviewers (review syllabus, observe class instruction, and provide an assessment & evaluation)				
Participate as a member of ACCE visiting teams				
Serve as a reviewer of the program's ACCE Self-Study accreditation report				
Serve on the search committees for academic program chairs and faculty				
Meet regularly (i.e., lunch) with the program chairs, deans, provost, and president				
Sponsor awards (for outstanding students, faculty, and industry members)				
Provide opportunities for faculty internships				
Sponsor social events (for students and/or faculty)				
Sponsor student scholarships (non-endowed)				
Sponsor student/department activities (award luncheons, banquets, etc.)				
IAB Level IV	**A**	**B**	**C**	**D**
Serve on the IAB "Best Practices" Events task force				
Become a member of ACCE				
Serve on program curriculum review committees				
Serve as adjunct faculty (course instructors)				
Coordinate involvement with industry associations (ACE Mentors, AGC, ABC, etc.)				
Sponsor or conduct leadership development seminars or workshops (faculty and students)				
Create an electronic (web-based) IAB newsletter				
Spearhead and support efforts to establish endowments for scholarships and faculty positions				
Actively support the research activities of the program (financially and administratively)				

Benchmarking Evaluation

Once the Benchmarking Assessment has been completed (Table 1), a plateau level (IAB Level I – IAB Level IV) has to be determined. This is not a clear cut process, since most IAB's perform "best practices" that encompass several of the four (4) levels. The ultimate goal is to determine the plateau (level) at which your IAB is associated with a consideration of quality for each of the "best practices."

Technically, mathematical formulas followed by a statistical analysis should be used which will be the topics for a subsequent paper on IAB benchmarking. However for this initial evaluation of the benchmarking assessment, a simplified approach is used. The simplest approach to determining the level of an IAB would be to just count the number of "best practices" at each level. The level with the most "best practices" defines that level for an IAB.

A more rigorous evaluation involves a weighting scheme which assigns a number to the quality measures within each of the four (4) IAB levels. For example, A=4, B=3, C=2, and D=1. In a similar way, a numerical ranking could be assigned to each level, such as, Level I=1, Level II=2, Level III=3, and Level IV=4, since an increase in level means a corresponding higher level of managerial proficiency and associated effort are required.

There are six (6) "best practices" listed at IAB Level I and correspondingly, thirteen (13) at IAB Level II, eleven (11) at IAB Level III, and nine (9) at IAB Level IV. If an IAB were to perform all the "best practices" at IAB Level I with each receiving a quality rating of "A," then the maximum possible score would be twenty-four (24). This is calculated by multiplying the number of "best practices (6) by the quality of those best "practices" (A=4) by the IAB Level (Level I=1). The calculation is 6x4x1=24.

In a similar fashion, the maximum score for IAB Level II would be fifty-two (52) [13x4x2=104]. For IAB Level III the maximum score is one-hundred and thirty-two (132) [11x4x3=132] and for IAB Level IV the maximum score is one-hundred and forty-four (144) [9x4x4=144]. The maximum weighted score would be four-hundred and four (404) [24+104+132+144=404].

Since there are four (4) levels in the IAB GMM, an IAB designated as Level I would be defined as equal to, or less than, twenty-fifth percentile (25%). An IAB Level II would be defined as between the twenty-fifth percentile (25%) and the fiftieth percentile (50%). An IAB Level III would be defined as between the fiftieth percentile (50%) and the seventy-fifth percentile (75%). An IAB Level IV would be defined as equal too of greater than the seventy-fifth percentile (75%). Each percentile is associated with a percentage of the maximum score (404), thus 25%=101, 50%=202, and 75%=303.

Example Scenario

Let's say that a given IAB conducts five (5) "best practices" at Level I, six (6) "best practices" at Level II, five (5) "best practices" at Level III, and three (3) "best practices" at Level IV.

At Level I, five (5) of the "best practices" are rated as "A" and one (1) of the "best practices" is rated "B." For Level II, two (2) of the best practices" are rated as "A," three (3) are rated as "B," and one (1) is rated as "C." For Level III, three (3) of the best practices" are rated as "B" and two (2) are rated as "C." For Level IV, one (1) of the best practices" is rated as "B" and two (2) are rated as "D."

The composite score for this IAB would be 126 which places this IAB between the twenty-fifth percentile (25%=101) and the fiftieth percentile (50%=202). This IAB would be considered an IAB Level II. The calculations for this scenario are illustrated in Table 2, on the following page.

TABLE 2. EXAMPLE SCENARIO						
BENCHMARKING ASSESSMENT					**Mathematics**	**Summation**
IAB Level I=1	A=4	B=3	C=2	D=1		
"Best Practice" 1	X				4x1=4	The total score for Level I is 19. [4x1+3x1+4x1+4x1+4x1=19]
"Best Practice" 2		X			3x1=3	
"Best Practice" 3	X				4x1=4	
"Best Practice" 4	X				4x1=4	
"Best Practice" 5	X				4x1=4	
IAB Level II=2	A=4	B=3	C=2	D=1		
"Best Practice" 1	X				4x2=8	The total score for Level II is 38. [4x2+4x2+2x2+3x2+3x2+3x2=38]
"Best Practice" 2	X				4x2=8	
"Best Practice" 3			X		2x2=4	
"Best Practice" 4		X			3x2=6	
"Best Practice" 5		X			3x2=6	
"Best Practice" 6		X			3x2=6	
IAB Level III=3	A=4	B=3	C=2	D=1		
"Best Practice" 1		X			3x3=9	The total score for Level III is 39. [3x3+2x3+3x3+2x3+3x3=39]
"Best Practice" 2			X		2x3=6	
"Best Practice" 3		X			3x3=9	
"Best Practice" 4			X		2x3=6	
"Best Practice" 5		X			3x3=9	
IAB Level IV=4	A=4	B=3	C=2	D=1		
"Best Practice" 1		X			3x4=12	The total score for Level IV is 20. [3x4+1x4+1x4=20]
"Best Practice" 2				X	1x4=4	
"Best Practice" 3				X	1x4=4	
The overall score for this IAB is 126 [19+38+39+20=126] Levels (based on percentiles): Level I (≤101), Level II (101-202), Level III (202-303), Level IV (≥303) **This IAB would be considered an IAB Level II**						

Baseline Determination

A word of caution - the benchmarking evaluation is not intended to be a *"we are better than you contest."* A Level IV IAB is not necessarily any better than a Level I or a Level II IAB. Let's look at a hypothetical example from the homebuilding industry.

Homebuilder X builds two (2) homes per year (Level I), homebuilder Y builds ten (10) homes per year (Level II), and homebuilder Z builds forty (40) homes per year (Level III) based on the number of homes constructed. Which is the "better" homebuilder? A measure of quality needs to be ascertained. For this simplistic example, assume that the only quality measure is gross income. Homebuilder X builds high-end custom homes that sell in the two million dollar range ($2,000,000). Homebuilder Y builds move-up housing in the four hundred thousand dollar range ($400,000). Homebuilder Z builds entry-level homes in the one hundred thousand dollar range ($100,000). The gross income for homebuilder X is four million dollars (2x$2,000,000). The gross income for homebuilder Y is four million dollars (10x$400,000). The gross income for homebuilder Z is four million dollars (40x$100,000). So, which is now the better homebuilder? Granted, there are many other factors that need to be considers in order to properly assess (i.e., benchmark) a homebuilder.

The point of this scenario is that the benchmarking process is designed to set a ***baseline*** for an individual entity, be it a homebuilder or and IAB. This concept is further addressed in the following section.

The Purpose of Benchmarking

The ultimate goal of the benchmarking process is to determine the "comfort level" of an IAB once the baseline of an IAB has been established. The "comfort level" is defined as the level at which an IAB is able to perform their "best practices" in a quality manner with the available resources. Available resources for an IAB include the constituent make-up of an IAB, the mission statement (and goals), and the managerial proficiency and level of effort provided by the members of that IAB, as well as any financial considerations attributed to a given "best practice."

Let's use the example problem provided earlier. This particular IAB was calculated at Level II which sets the baseline for future decision making and action. This IAB wants to make some improvements in the quality of some of the programs it offers (i.e., "best practices"). It also wants to add a few more "best practices" to its repertoire. This IAB has made a conscious effort to "move to the next level." Basically, that IAB has to proceed through a transition period, as indicated in Figure 1. So what has to happen? In order to "move up" the managerial proficiency of that IAB needs to increase.

As outlined earlier in this paper, the managerial proficiency is dictated by the IAB Management Systems used by that IAB, which include the Planning Systems, the Quality Systems, and the Organizational Structure of the IAB. In order to make a change in the services and programs ("best practices") offered by an IAB either in number or quality (or both), the managerial proficiency of that IAB must increase. Prior to enacting new programs, i.e., "best practices" or making an effort to improve the quality of existing programs, several questions should be considered.

Are the Planning Systems for your IAB adequate to address the anticipated changes that are being considered? In other words, do the current policies and procedures, the strategic plan, and the plan of action for your IAB need to be modified or updated to allow for the anticipated changes?

Are the Quality Systems for your IAB (assessment, evaluation, and corrective actions) adequate to address the anticipated changes? Note: benchmarking is an effective assessment and evaluation tool. How does your IAB assess and evaluate each of your "best practices?"

Does the Organizational Structure of your IAB support the changes that are being considered? Are lines of responsibility and authority clearly defined and outlined in an organization chart? Do you have the personnel (IAB membership) that can successful accomplish the anticipated changes? In other words, is your barn filled with thoroughbreds that can run a winning race or do you have a number of plow horses who are content with just plodding along?

These are difficult questions and the corrective actions needed to address these issues are even more difficult. Once again, the primary purpose of the benchmarking process is to determine the "comfort level" of your IAB and if you want to increase your IAB Output (number and quality of "best practices") then the Managerial Proficiency of your IAB needs to increase in order to successfully implement any proposed changes to the services and programs offered by your IAB.

Summary

The IAB Growth Management Model (GMM), as presented in this paper, provides a framework for assessing and evaluating the deliverables of an IAB which are defined as the number and the quality of "best practices" conducted by an IAB. The basic tenants of the IAG GMM are rooted in the assumptions that IAB Output is a function of IAB Managerial Proficiency. IAB Output is defined as the number and quality of "best practices" employed by an IAB. IAB Managerial Proficiency represents the Planning

Systems, the Quality Systems, and the Organizational Structure of an IAB. An increase in IAB Output necessitates an increase in IAB Managerial Proficiency.

The key component of the IAB GMM is the benchmarking process which attempts to assess IAB Output, i.e., the number and quality of "best practices" performed by an IAB to determine the "comfort level" for a particular IAB. The "comfort level" is defined as the level at which an IAB is able to perform their "best practices" in a quality manner with the available resources. An evaluation of that assessment is required in order to provide a baseline for decisions concerning a future course of action for an IAB. Proper understanding of the implications of the benchmarking process requires the adoption of managerial practices that are appropriate for the level of existing or proposed IAB deliverables ("best practices").

References

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