External Technology Advisory Boards

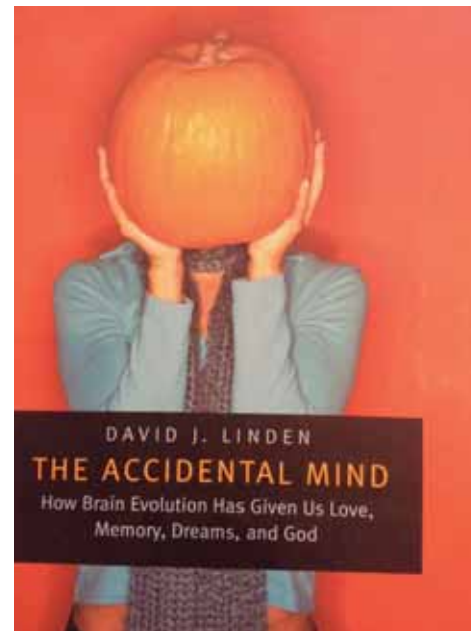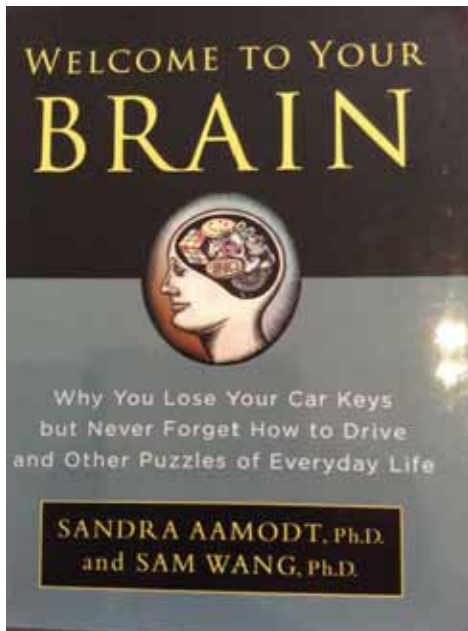PICMET 2016

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Issues Addressed

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► What is an advisory board? Why have one?

► How do they work – process & purpose?

► Membership composition – a group of experts?

► Creating an advisory board.

► Organizational support before, during and after visits

► How to increase effectiveness? Why are some boards more useful than others?

► Quality and format of the advice.

► What are the costs and benefits?

► A few reminders.

Brain

How TAB Works

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- ► Organization sets the agenda

- ► TAB meets and gives advice

- ► Organization receives advice

- ► Organization evaluates and accepts or rejects the advice

- ► Organization acts on the advice (or not)

- ► Organization gives feedback to TAB

Nature of Advice: External Viewpoints at Different Levels

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- ► Business strategies based on technologies
- ► Technology directions
- ► Challenges over the horizon & mitigation ideas
- ► New product or business opportunities
- ► See what the organization has not seen
- ► In/validate what organization "sees."
- ► May raise more questions than provide answers
- ► Address broad topics, e.g. innovation, KM
- ► Similar to design reviews but applies to processes and organizational issues,...
- ► ETAB does not address consulting problems, but *Deep Dives* are possible

A Study on Making of Major Scientific Discoveries

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A complex study of major scientific discoveries in the biomedical field that led to recognized awards, such as Nobel prize, Lasker prize and other prize-worthy recognitions.

- ► Study addressed institutions as well but focused on individuals.
- ► Common attribute was identified as **high cognitive complexity**.

J. Rogers Hollingsworth

High Cognitive Complexity

► "Those with high cognitive complexity have the capacity to understand the world in more complex ways than those with less cognitive complexity."

► "Scientists having high levels of cognitive complexity tend to internalize multiple fields of science and have greater capacity to observe and understand the connectivity among phenomena in multiple fields of science."

► "They tend to bring ideas from one field of knowledge into another field."

► "High cognitive complexity is the capacity to observe and understand in novel ways the relationships among complex phenomena, the capacity to see relationships among disparate fields of knowledge."

"And it is that capacity which greatly increases the potential for making a major discovery."

Ideal Composition of an ETAB

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Board with a High Cognitive Complexity .

► Broad and deep knowledge and experience that cover areas of interest to the organization

► In addition to technology and business expertise, experts from orthogonal fields of expertise, e.g. social scientists or artists

► A diverse set of backgrounds; business, academe, government

► International viewpoints – with an eye on possible restrictions due to ITAR etc.

► Important to avoid *COI* !

Such a composition is also fraught with difficulties.

ETAB Membership Characteristics

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- ► Members – similar stature, mutual confidence and respect
- ► International, diverse backgrounds & view points
- ► Each in a position to to complement the valued added by others
- ► Synergy – among members and with the organization
- ► Ability to listen and communicate effectively is essential

Creating an ETAB

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- ► Expectations; measures of success, costs
- ► General structure
- ► **Selection of members***
- ► Staggered memberships, some or all
- ► Board size; considerations include organization size and interests
- ► Frequency of meetings, duration of visits; level of advice
- ► Interface: An assigned coordinator from the Organization
- ► **CEO's absolute support***

* Most critical

Board Members' Responsibilities

- ▶ Avoid (even the appearance of) conflict of interest
- ▶ Avoid bringing confidential information from competitors
- ▶ Be prepared for meetings; understand the agenda
- ▶ Freely and substantially contribute at the meetings
- ▶ Maintain confidentiality about all information received and discussed

Organizational Support & Responsibilities for Visits

- ▶ Sets meeting date sufficiently in advance
- ▶ Prepares an agenda; possibly with a theme
  - • Some involvement of the Board or its chair
- ▶ Local organizations, tours (technical or social)
- ▶ Assist with travel arrangements
- ▶ Meeting facilities
- ▶ Meeting minutes (except for board-only session)
- ▶ Attendance by CEO, CTO, and Directors who should receive the recommendations and who can act on them
- ▶ Feedback before and at the next meeting

For Increased Effectiveness of an ETAB

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- ▶ Organization provides/shares sufficient and necessary information with the Board
- ▶ Organization members and Board develop a good rapport
- ▶ Board members develop a cordial working relationship;
  - Social affairs strongly recommended prior to meetings
- ▶ Multi-day meetings may be more productive, particularly with international members
  - Frequency of meetings and level of advice sought
- ▶ Agenda and expected outcomes are distributed and understood in advance of the meetings

Meetings

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- ▶ First meeting – The most important one.
  - It sets the tone, avoids being the last one
- ▶ Agenda – Enough time for information flow
- ▶ Meaningful and focused discussions on the subject matter
  - Occasional straying off topic can lead to great new ideas
- ▶ Schedule – Fairly strict time keeping to avoid shortchanging topics
- ▶ Oral or written reports – different preferences, legal requirements
- ▶ Chair – Brings out the best in individuals and the Board as a whole
  - Attention to dissenters, unusual recommendations

Quality of Advice – Unhelpful

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- ► Too many recommendations

- ► Vague, non-actionable

- ► Unrealistic

- ► Beyond the scope of the assignment to the board *(careful)*

- ► Even if done successfully, no one cares

Quality of Advice – Helpful

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- ► Very few recommendations

- ► Recommendations that are specific, actionable and measurable

- ► Timely and highly relevant to the organization

- ► Adds value to the organization upon successful execution

- ► Rationale for each recommendation

- ► Recommendations are advisory, non-binding
  - • They need to be high value

Deep Dives

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- ▶ Topics that require detailed information and deliberations
- ▶ Topics that require additional expertise
- ▶ A thorough study that may take 1-3 additional days

Cost & Benefit

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- ▶ Direct costs – Flights (BC), honoraria, hotel, W&D, misc
- ▶ Indirect costs – Coordinator time, participants' time, staff time, preparations
- ▶ Ideas that have been acted on and any benefits from these actions
- ▶ Ambassadors of the organization, part of the success

A Typical Agenda

Day 1 – Late Afternoon

- ► Welcome reception; Introductions of those present
- ► A briefing and updates about the Organization; recommendations from previous meeting & actions taken; Agenda for the meeting
- ► Dinner

Day 2 – All Day Meeting

- ► Agenda Items – each session starts with a brief introduction of the topic by the organization, followed by Q&A, discussion by the Board. Each session ends with a summary of ideas.
- ► Possible organization site visits
- ► Dinner

Day 3 – Morning

- ► Board-only meeting; recommendations discussed and reduced to no more than few actionable suggestions
- ► Report-out to CEO, CTO, Director of R&D and others; each recommendation is voiced by a member, followed by additional comments by other members and questions and answers.
- ► Social activity / Dinner

Concluding Remarks

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- ► First meeting must be a success or it may be the last
- ► Board members have sufficient expertise and gravitas to have the attention of the CEO
- ► Select members who together will form a board with high complex cognitivity
- ► Critical to have CEO involvement at the report-out session.
- ► Feedback to the Board on actions taken.
- ► Ensure that the Board does not become part of the "clothing" of the organization.