

IBIS: A Tool for All Reasons

If you can tell me why you say that plan A is great, and I understand your judgments, you have succeeded in objectifying your space of judgment to me. And although I might not share your judgment and might not be convinced, I understand you now.

Horst Rittel¹

In Chapter 2 we saw that Dialog Mapping is comprised of (1) a collaborative display, (2) the IBIS notation, and (3) a Dialog Mapper who is actively listening to and capturing the moves in the conversation. We are going to develop all those skills as we go along, starting here with IBIS, because the notation is easy to learn and can be very useful even if you never facilitate meetings. IBIS takes the way most of us think about problems and encodes it in an intuitive framework that exposes the practical elements of problem solving quite clearly.

IBIS stands for Issue Based Information System. It is an argumentation scheme that was developed in the 1960's and 70's as a way to support coordination and planning of political decision processes (Rittel, 1972b; Kunz & Rittel, 1970; Rittel & Noble, 1989). For more on the history of IBIS and similar "argumentation systems," see (Kirschner, Buckingham Shum, & Carr, 2003).

Because IBIS is simple and intuitive, we'll use examples as the primary teaching method. We'll start off with a brief introduction to IBIS, then use a simple example to describe the basic elements of the notation. From there, we'll intersperse more detailed observations about IBIS with examples that reveal patterns of conversation. This will deepen your understanding of IBIS, conversational patterns, and how the two relate to each other.

JUMPING IN

Let's imagine that you are a member of a school board faced with a budget crunch, and you have been presented with the map in Figure 0.1.

¹ (Rittel, 1972a, p. 394)

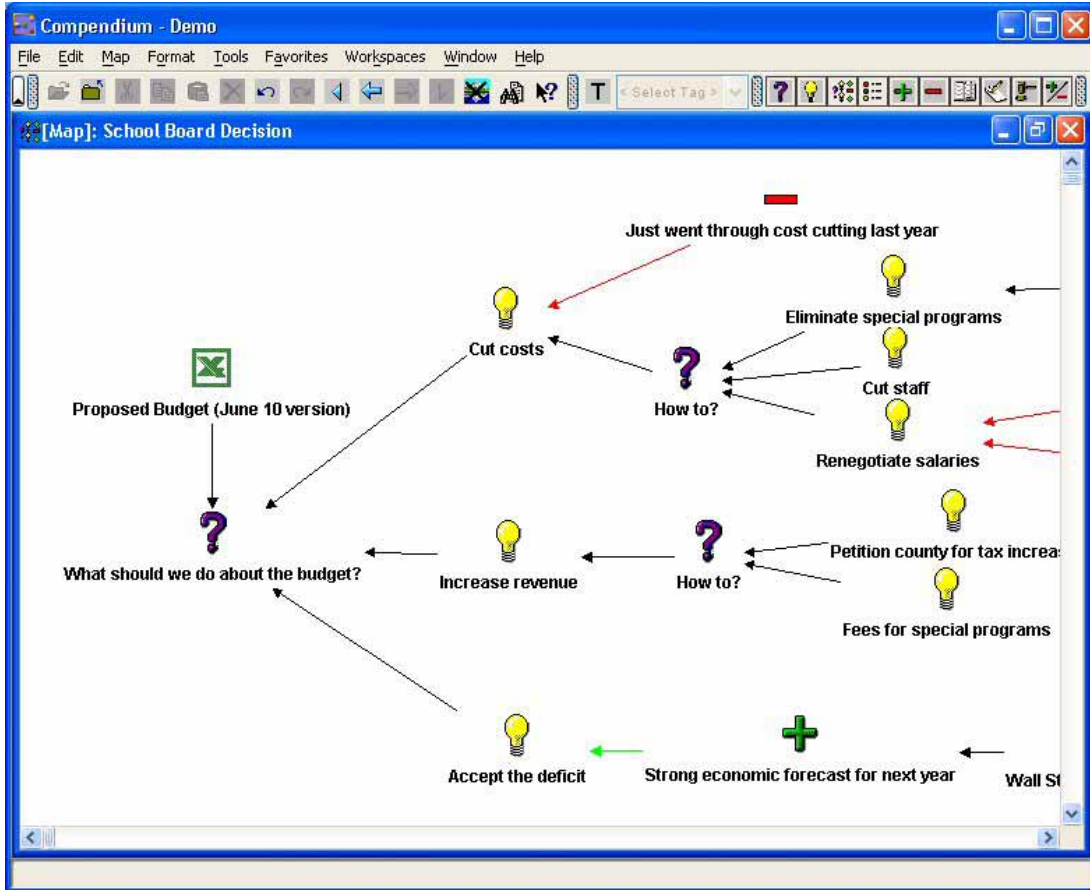


Figure 0.1: A sample Dialog Map

Note that the elements of IBIS – questions, ideas, pros and cons – are relatively familiar and intuitive. You can probably “read” the map without difficulty. Remember this when you are showing an IBIS map to a new group – they will be happy if you walk them through the *content* of the map, but they won’t need much explanation about the notation.

As a Dialog Mapper your role is to listen to someone and “translate” his or her comments into IBIS notation. Let’s examine the notation a little deeper.

? Maps generally start with Questions, like “What should we do about the budget?”

Questions state a topic or problem to be explored and answered, and end with a question mark. Note that “The budget issue” is not a Question. Neither is “We have to decide how to raise the funds.” Whether you are using software or handwriting on a whiteboard, the form of the question is often some variation of “What should we do about X?”

Dialog Mapping involves the wonderful art of powerful questions, creative and empowering questions, open questions, questions that lead to deep inquiry, and discerning hidden questions in

a conversation. We'll explore those issues later on in Part III. The basics are marvelously simple: IBIS Questions ask questions.



The response to a Question is an Idea, a possible answer or solution for the Question. Ideas respond to one and only one Question. In the budget map, the main Ideas are “Cut costs”, “Increase revenue”, and “Accept the deficit”. Ideas are neutral. “Hold a bake sale” is a valid idea as far as IBIS is concerned. The only condition that can make an Idea invalid is that it cannot logically resolve its Question; in the school board example, “Eat more fruit” is not a valid Idea on the root Question.



and



The place for rationale, opinion, facts, data, rhetoric, etc. is in the Pros and Cons of IBIS, generically known as Arguments. In the school board map “Good economic forecast for next year” is a Pro for the Idea “Accept the deficit”.



A Decision is not really a separate element in IBIS (although the Compendium software² has an Icon for it) – *a Decision is simply one of the Ideas* on a Question marked as the answer/solution/decision for that Question. On some Questions there may be several Ideas as the solution.



Questions are the heart and soul of IBIS, because *anything* in the map – a Question, an Idea, a Pro, a Con – can be questioned. Note the secondary Questions “How to?” in the school board map, and note that each new Question can lead to new Ideas and Pros and Cons. Maps tend to grow from left to right like a tree lying on its side, starting with a “root” Question, and ending when the group feels done.

IBIS is a very powerful notation³, but it's important not to let IBIS take over the map. The map is meant to be primarily a coherent display and record of *what people said* in a conversation. It's not a logic diagram or a decision tree, although it has some of the benefits of those systems. The art of Dialog Mapping is to bring just enough logic and notational consistency to the map that it

² See Resources section.

³ Strictly speaking, IBIS is a *grammar* – a set of simple rules for building IBIS diagrams – but we'll use the more comfortable term *notation* here.

can grow and evolve naturally and organically. If the Dialog Mapper is fluent in IBIS and proficient at the “Collaborative Display Dance” this balance of logic and conversation just flows.

THE MISSION STATEMENT

The President of your corporation, aware of your prowess at consensus building and your fine track record of performance, calls you into his office. “Tiger” (for some reason, he calls you ‘Tiger’), “I want you to head up a self-directed work team and develop a mission statement for the company.” You learn that four people have been assigned to the team: Joe, Sue, Tom, and Greg, each from different departments. Due to your prowess at facilitation and consensus building, you try to say as little as possible in the first team meeting, allowing the group to self-generate. The following conversation ensues:

- You: The President has tasked us with generating a mission statement for the company. It's essential that we get cross-departmental input, so I'd like to hear from everybody.
- Joe: Let's make it simple, something like, “Legendary service.”
- Sue: That's way too vague. What about “We provide the best product at the best price, and we're committed to providing outstanding service.”
- Tom: The main thing is that our computers have the best performance, so we should focus on that.
- Joe: ABC's computers have superior performance to ours.
- You: Shouldn't we say something about our concern for our employees?
- Sue: Yeah, and how about the fact that we are committed to being a green corporation, and contributing to society?
- Joe: I still like, “Legendary service.” It's simple. Why do we want it to be complex? No one will remember it.
- You: Let's get everyone's input. What about you Greg?
- Greg: Well, I guess I don't understand what the purpose of the mission statement is. We're not talking about a position statement, that's marketing. I think the mission statement should have the employees be excited about the company they are working for.
- Joe: If you want to do that, just increase everyone's salaries. Or at least give people better titles. People have been clamoring for that, and it doesn't even cost us anything.

Not normally given to perspiring, you feel a trickle slide down your forehead. This is not going well and likely to get worse. What initially seemed like a career-making opportunity is beginning

to look like political suicide. You recall reading something recently about fragmentation and social complexity, and it occurs to you that this project has fragmentation written all over it. You go back to your office and resolve to get enough Dialog Mapping under your belt to try it out at the next team meeting.

Let's use the mission statement conversation to take a deeper cut at the IBIS elements, and how to translate from the way people talk into IBIS notation.

You: The President has tasked us with generating a mission statement for the company. It's essential that we get cross-departmental input, so I'd like to hear from everybody.

What is the gist of this statement? You are asking the group to try to come up with a mission statement. In IBIS, you have asked a Question, without stating it as such, and in the map it would be captured something like this⁴:



The first response is:

Joe: Let's make it simple, something like, "Legendary service."

In IBIS, any answer to a Question is called an "Idea", and would be captured:



Joe offered some supporting rationale with his suggestion, which in IBIS is reflected in a supporting Argument to the Idea, "Simple." Thus Joe's response would be expressed in IBIS as:



The next response is:

Sue: That's way too vague. What about "We provide the best product at the best price, and we're committed to providing outstanding service."

⁴ There are a variety of notations for writing IBIS. Since Compendium is the de facto standard tool for Dialog Mapping, we will show IBIS Dialog Maps as they appear in Compendium. For a discussion of other notations, see *Dialog Mapping without a Computer* below.

The first thing Sue does is object to Joe’s Idea. In IBIS, this is an objecting Argument, or simply a “Con”:



And Sue goes on to immediately offer her own Idea (which is a very common conversational move):



We provide the best product at the best price and we are committed to outstanding service

Alternately, we might paraphrase Sue’s suggestion – with her approval – and capture it simply as:



Best product, best price, outstanding service.

At this point our Dialog Map would look like this:

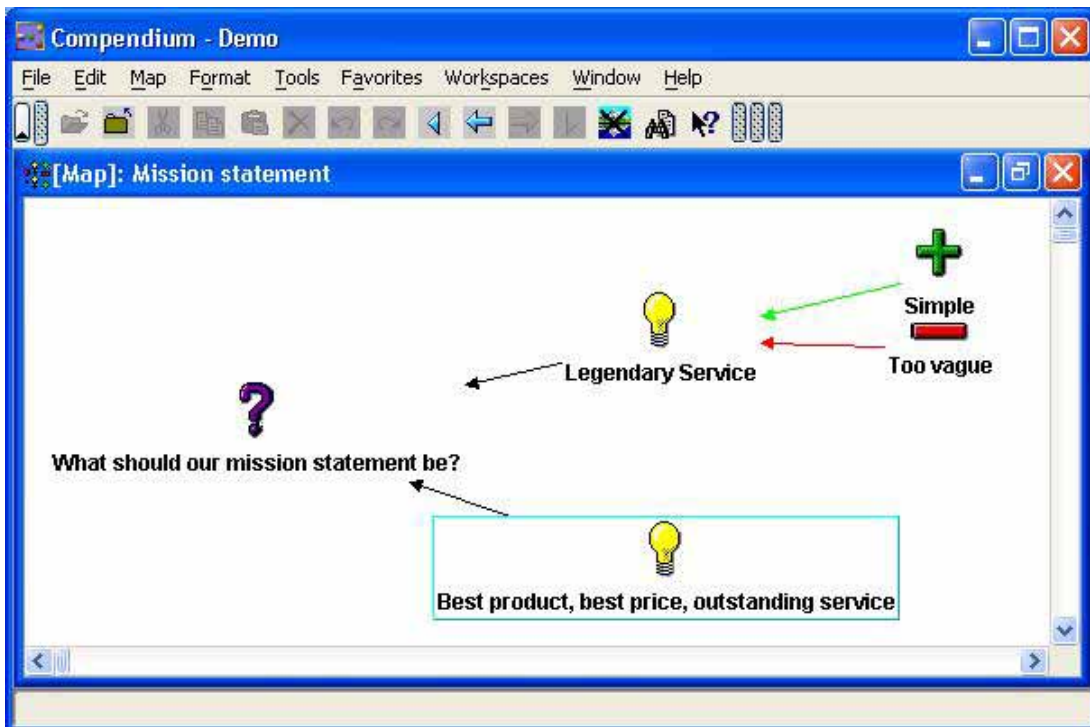


Figure 0.2: Early on in the meeting, a very simple IBIS map

Notice that the arrows point to the left. This is because by convention the maps build from left to right, usually starting with Questions, and **the arrows show the direction of the relationship**

between two nodes, not the order in which they were created. Thus, Ideas *respond to* Questions – the black arrow means “responds to.” Similarly, Pros *support* an Idea and are drawn as a green arrow from the Pro to the Idea; and Cons *object to* an Idea and are drawn as a red arrow from the Con to the Idea.

Questions, Ideas, Pros and Cons, connected with arrows. There, now you know IBIS! (We’ll return to this example.)

DIALOG MAPPING WITHOUT A COMPUTER

There are many benefits to using a computer for Dialog Mapping: there is no limit to the size of the maps, it is easy to rearrange maps, you can “chunk” a set of nodes and links into another map, and at the end of the meeting you can push a button and print copies of the maps for everyone.

However, there are times when it is inconvenient to set up a computer, projector, and screen. In those cases you can Dialog Map on any medium that you can write on, using a manual version of the IBIS notation. Called “Graph IBIS,” this notation lets any flip chart page or white board become a collaborative display. In fact, in the Dialog Mapping workshops all of the practice exercises are done using Graph IBIS, because it is always useful to have a low-tech backup medium for doing Dialog Mapping. Starting with Graph IBIS also lets workshop students jump right into creating IBIS maps without having to learn new software.

The rules of Graph IBIS notation are:

- Questions always have question mark at the end,
- Ideas link back to Questions,
- Pros and Cons are indicated by “+” and “—“ on their link lines.



Figure 0.3: Graph IBIS notation of the mission statement issue

Figure 0.3 shows the Graph IBIS version of this first part of the meeting (compare to computer map in Figure 0.5).

Note that in Graph IBIS we don't use icons, just writing and arrows – it just takes too long to sketch the light bulbs and it doesn't add to understanding. Questions always have “?” at the end, Arguments always have “+” or “—” on their links, and everything else is an Idea. Although it is not necessary, I encourage workshop students to put the arrowheads on the link lines, so that it is easier to transition to the software (which requires them). Also, I have found that using “sentence case” works best – first word capitalized, everything else lower-case. It is the easiest to read in large maps, and when transcribed into the software it makes the printouts look much more professional.

THE ELEMENTS OF CONVERSATIONAL STRUCTURE

IBIS works because it has three essential properties: it is simple, it is intuitive, and it is powerful. The simplicity of IBIS is evident: what could be simpler than questions and answers? What could be more intuitive than pros and cons? This is everyday conversational stuff. You are already a master of IBIS – you use its elements all the time, every day.

I have never run into an interaction that could not be expressed in Questions, Ideas, Pros, and Cons.

It is also intuitive enough that it needs no introduction in a facilitated session; groups comprehend what is happening in the map without an explanation of the IBIS elements.

But knowing the rules of poker doesn't make you a good poker player. The trick to using IBIS as a facilitation notation is fluency – being aware of the pattern of questions, ideas, pros and cons as they emerge in everyday speaking style. Seeing the “deep structure” of a conversation on the fly takes practice, even though the notation is simple and intuitive. This book will provide the basics, but fluency can only come with practice.

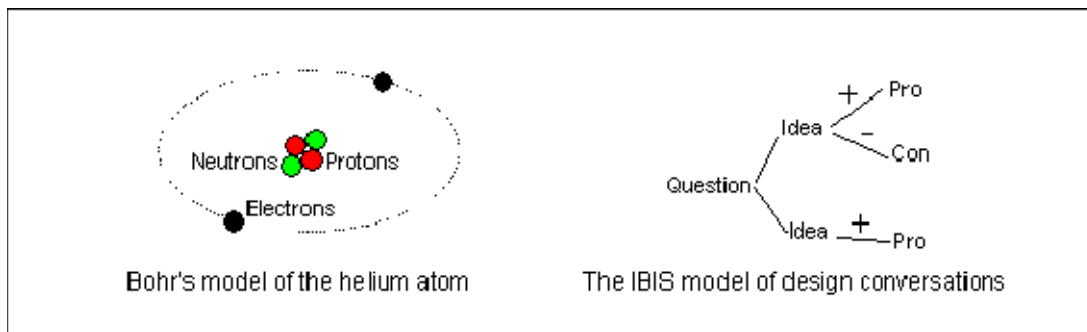


Figure 0.4: Two triad models that, though very simple, have enormous power

The power of IBIS to help create coherence and shared understanding is because it works with virtually *any* design or planning conversation. Just as Niels Bohr revolutionized the understanding of physical matter with his triad model of the atom (proton, neutron, electron), all statements can be understood as built up from the IBIS building blocks (see Figure 0.4). The great advantage of IBIS over other similar modeling notations is that any issue deliberation can be expressed in these elements. I have never run into an interaction that could not be expressed in Questions, Ideas, Pros, and Cons! (Notes, for neutral information, and References, for links to reference documents, are expedient additional elements, but are not essential.) Let's examine the IBIS elements in more detail and explore how to assemble them into the atoms and molecules of conversational structure.

Most conversations in IBIS start with a root Question. This will generally be something like "What should our marketing approach be?" or "How can we increase customer 'delight' in our products and services?"

The response to a Question is one or more Ideas that offer possible answers to the Question. You can tell an IBIS Idea just by looking at it – it is a neutral statement describing a person, place, thing, or action:

- Build a new inventory system
- Collect data from our customers

- Java
- Provide a toll-free Customer Support number
- 42 weeks

Capturing an Idea succinctly can be a challenge. Many people tend to bundle several ideas together or bundle the justification for an idea into the presentation of the idea. For example, "We should provide a toll free Customer Support number because it is more inviting for customers to use." While this is a common way of speaking, the job of the Dialog Mapper is to "unpack" this statement into the (neutral) Idea ("provide a toll free Customer Support number") and its supporting Argument ("more inviting for customers to use").

An Argument is an opinion or piece of evidence which either supports or objects to one or more Ideas. Arguments are the place – indeed, the only place – in the IBIS notation for opinion, clever rhetoric, and hand waving. Of course, it is preferable to have Arguments that provide factual assertions bearing on the advantages or disadvantages of an Idea. In the case of the toll-free number Idea, the supporting Argument would be, "More inviting for customers to use."

Examples of other Arguments:

- It's too expensive
- Will make the customer happy
- Not likely to be accepted by the marketplace
- Unreliable
- Costs 2.3 times more than the lowest cost model
- Performs beautifully
- Management won't go for it

The key to recognizing an Argument is that *Arguments give a reason for picking (or not picking) their Idea(s) as the best answer to the Question*⁵. If a statement makes you more likely to favor an Idea, then it's stating an argument for that idea: a Pro. If it makes you tend to disfavor the Idea, then it's Con.

⁵ The IBIS notation allows an Argument to support or object to more than one Idea, but it is not that common in practice, partly because it is often cleaner to restate a Pro or Con precisely for each Idea.

The IBIS method can considerably raise the quality of dialog within a group or project team simply by concentrating all opinion into Argument nodes. For example, the old trick of "truth by repetition" -- saying one's point over and over until everyone else accedes -- is disarmed, because once an Argument has been captured it becomes silly and obvious to repeat it. If someone restates an argument after it's been captured, the Dialog Mapper can point to it in the map and ask, "Do you mean this one again?" The speaker feels less need to repeat his or her point once it is recorded; he or she knows the point has been heard and captured.

The "secret skill" at the heart of Dialogue Mapping is the art of finding the best questions.

Being "Issue Based," IBIS is all about issues and questions. The main elements that tie a Dialog Map together are the Questions in the map. The "secret skill" at the heart of Dialogue Mapping is the art of finding the best questions. Any element in a map can have new Questions added to it -- asking for more information, further detail, or challenging. For example, the Idea "Build a new system" might have Questions connected to it that asked "How to build it?", "How much would it cost?", and "How long would it take?"

This "representational power" is why IBIS is such a good notation for wicked problems. IBIS cannot be overwhelmed with information that does not fit, or with too many questions or too many points of view. Dialog Maps can get very large. They can be messy or well organized -- indeed, there's an aesthetic to well formed maps. They can be nested many levels deep. There may be thousands of nodes in the maps for a project. But no one can ever say, "We can't put that piece of knowledge in the system" or "There's no good way to represent that point."

CONVERSATIONAL PATTERNS

Now we can return to the mission statement conversation and explore the process of translating from "everyday speak" to IBIS. In this section we will continue to "dissect" the mission statement discussion into IBIS. Bear in mind that in a real meeting you probably wouldn't try to or even want to capture every single comment in the map. Our dissection exercise is to show how IBIS *can* capture anything being said.

After Sue's comment (captured as "Best product, best price, outstanding service") the next statement was:

Tom: The main thing is that our computers have the best performance, so we should focus on that. This one is a little trickier. Is Tom proposing that the mission statement should read “Best performance,” or is he just suggesting that “Best performance” should be a key part of the mission? We don’t know for sure. Dialog Mapping is not about being psychic; rather it is about being willing to guess and to check the guess ... and to be wrong sometimes. So we guess. Let’s interpret his comment simply as another Idea about the mission statement⁶:


Best Performance

Then Joe responds to Tom:

Joe: ZipCo’s computers have superior performance to ours.

What is the “logic” of this comment? It is meant to weaken the suggestion Tom just made, so it is an Argument against that Idea:

 **Best Performance**   **ZipCo's computers perform better than ours**

Notice that we do not capture who said what. Once an Idea is in the map, it is just another idea, not “Tom’s idea.” Thus, in the map, *Joe is not disagreeing with Tom*. This makes it easier for the group to think critically together about all the possible options without getting into debate dynamics.

Directing the attention of the group a bit, you ask a question:

You: Shouldn’t we say something about our concern for our employees?

It would be a mistake to capture this as a new Question in the map. The point of your comment is to offer another idea about the mission statement, so the Dialog Mapper would simply capture it as an Idea, maybe:


Something about our concern for our employees

Sue picks up on your direction and takes it even further:

Sue: Yeah, and how about the fact that we are committed to being a green corporation, and contributing to society?

⁶ In a real meeting we would validate our guess with the speaker ... “Like this?” or “Is this right?”

Again, stated as a question, but really just another idea (or possibly two):



Committed to being a green corporation, contributing to society

At this point, our Dialog Map looks like this:

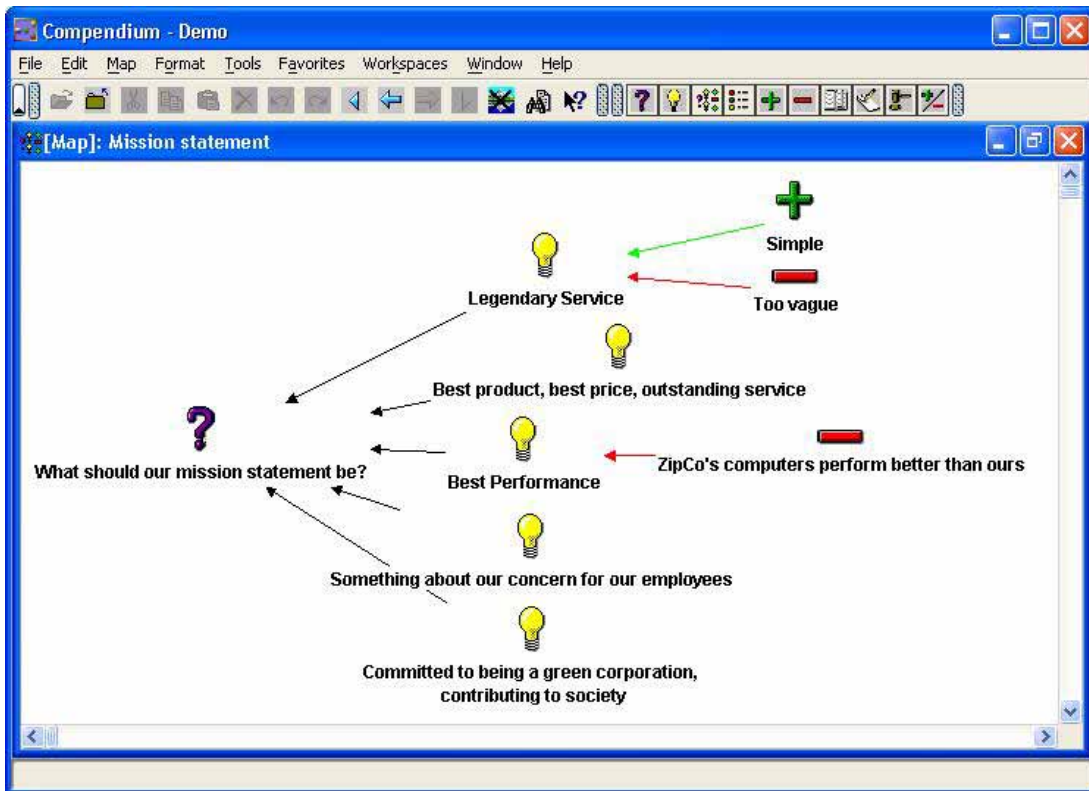


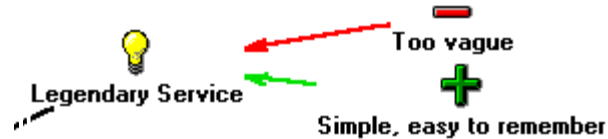
Figure 0.5: Dialog Map of the first part of the meeting

Note that some of the ideas are specific suggestions for a mission statement, while others are merely *about* the mission statement. At this point, it's OK to mix all these types of answers – we are just capturing and mapping the conversation. We are not trying to build a logic diagram or split hairs about semantics. The point here is just to get something in the map.

The next comment will help us show how IBIS helps us notice when a topic shift subtly occurs.

Joe: I still like, "Legendary service." It's simple. Why do we want it to be complex? No one will remember it.

First, Joe returns to his earlier idea, and adds new support, that it's "easy to remember". One way to capture this would simply be to tack it onto his supporting Argument that the idea was "Simple", thus:



But if we listen a bit deeper, Joe is also raising a new issue. He shifted from *ideas* about the mission statement to *criteria* for a good mission statement. He is saying that *any* mission statement should be memorable. This would be captured as a new "criterial" Question and its first Idea:



One of the conversational events that mire unmapped meetings in confusion is this kind of subtle shift of topic: one or several participants move on to a new issue while others are still back on the preceding issue. The result is literally *two conversations* going on at once, but collapsed into a confusing muddle. Thus the skill of *hearing* when a new issue emerges and capturing it as a new Question in the map is key to using IBIS as a notation, as we will discuss in more detail in Chapter 7, *Question Types*.

Opening up a new question is what IBIS is all about. Remember, IBIS stands for "*Issue-Based Information System*" – issues and questions are the basis, the nucleus around which everything else moves.

In the next statement, you make a process move to direct the flow of conversation:

You: Let's get everyone's input. What about you Greg?

Since it's pure meeting process, this statement would not be captured in the map at all.

Greg: Well, I guess I don't understand what the purpose of the mission statement is. We're not talking about a position statement, that's marketing. I think the mission statement should have the employees be excited about the company they are working for.

Note the topic shift! Greg wants to talk about the *purpose* of the mission statement. Related topic, but distinct! In order to map Greg’s comment the Dialog Mapper has to start by getting the new Question into the map:



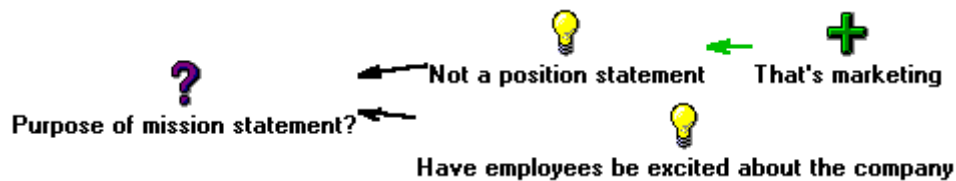
Then, in the next sentence, “We’re not talking about a position statement, that’s marketing”, Greg offers one answer to his question, and the support for his answer:



Finally, Greg tells us what *he* thinks *is* the purpose of the mission statement:



So here is what Greg’s comment looks like in IBIS:



As before, without the map Greg’s move will occur as “changing the subject” or “straying from the agenda.” By catching the new Question this potentially disruptive move loses most of its negative connotation. As we shall explore more in Chapter 8 (*Three Moves of Discourse*), Dialog Maps allow for a wide variety of conversational moves and learning styles, all of which are useful for the larger picture of the group’s collective intelligence to emerge.

If Greg’s comment seemed off the subject, Joe’s response to it is what some people call “grenade throwing”:

Joe: If you want to do that, just increase everyone’s salaries. Or at least give people better titles. People have been clamoring for that, and it doesn’t even cost us anything.

In a typical meeting setting, this comment would set off a long diversion on salaries and titles, which would be off the subject, as well as old territory for most of the people present. Or the meeting leader might simply side step the comment, turning the group back to the mission statement, but leaving Joe’s contribution completely unacknowledged. Dialog Mapping offers a

third option: hear and capture the comment, and then use the map itself to draw everyone's energy back to the "center of mass" ... the discussion of the mission statement. This is the self-organizing power of collaborative display in action – we meet each person's contribution and capture it, and the display holds the overall structure of the conversation up like a mirror for the group to see the pattern of their conversation, and self-correct if necessary.

In this case, it would be very hard to take Joe's suggestion, "just increase everyone's salaries", and put it into the map as it stands. This is a common predicament in Dialog Mapping⁷: what Joe said is very clearly an Idea ... it just doesn't happen to connect to anything in the map!

Ideally, the trick – and it is indeed a matter of skill and luck – is to *hear the hidden Question* in the comment (discussed more in Chapter 7, *Question Types*). But, if you can't tell right away what the hidden Question is, start with the Idea and work backward to the Question. In this case, the new Idea is clear:



Increase everyone's salaries

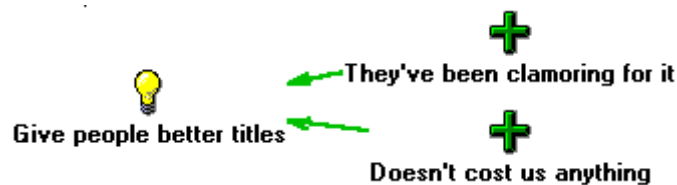
Maps don't always grow left to right – sometimes Ideas hang out for a while, waiting for their Question to become clear.

Since we're dissecting this conversation, we can take the time to figure out what Joe's hidden Question is. The clue is in the way he introduces it: "If you want to do that [have employees be excited about the company] ..." The hidden Question would be something like:



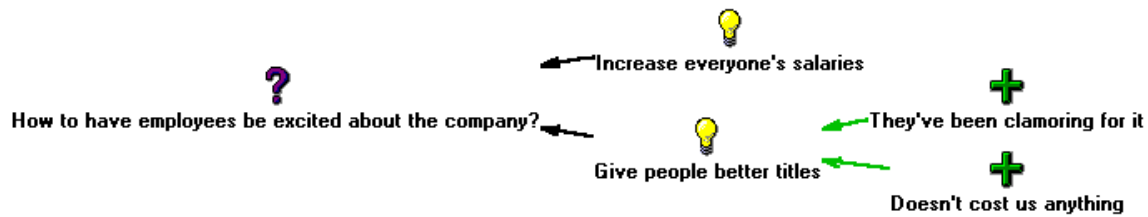
How to have employees be excited about the company?

Joe also has another Idea on this same Question, and two supporting arguments for it:



⁷ In normal conversation people often shift the topic, not by asking a new question – that would be too obvious – but by injecting an idea that doesn't fit the old question.

With the pieces pulled together, the IBIS version of Joe’s “diversion” is:



By capturing Joe’s hidden Question in the map, we have:

- Captured all of Joe’s comments in a coherent way
- Shown how they relate to the preceding discussion
- Acknowledged Joe’s contribution, and
- Opened a new issue that the group can choose to address or not, depending on their energy and time constraints.

At this point, a Dialog Mapper might interrupt the conversation to validate what’s been captured (Figure 0.6), and also to show the group that this new question about how to excite employees is a natural follow on to the discussion of the criteria for the mission statement. It’s not a problem for the map that Joe made this shift – it’s not a “grenade” in the conversation. The Dialog Mapper has several options about how to link Joe’s new Question into the rest of the map. But it’s less critical whether and how it gets linked – links can easily be changed or added after the meeting.



Figure 0.6: The Dialog Map for the whole mission statement conversation

With Figure 0.6 we have built an IBIS map that represents the “messy conversation” from the beginning of the chapter. This instructional exercise is meant to illustrate that *everything* that is spoken in a design conversation can be mapped in IBIS, and to introduce you to the “how-to” of using IBIS in meetings.

Normally, however, the Dialog Mapper would not try to capture the details of every comment – that would take too long and slow the group down without adding much value. (The art of what to capture and what to leave out of the map will be explored more in Chapter 6.) Figure 0.7

If you focus on being of service and listening to everyone without adding any of your own agenda, you will always be adding value to a conversation.

shows a much simpler and more likely map for the short segment of the meeting in our example – most of the side questions did not get captured in this version. Moreover, if this conversation really had been facilitated using Dialog Mapping, it probably would have unfolded differently,

more coherently. Conversations are always impacted by the use of a collaborative display and Dialog Mapping.

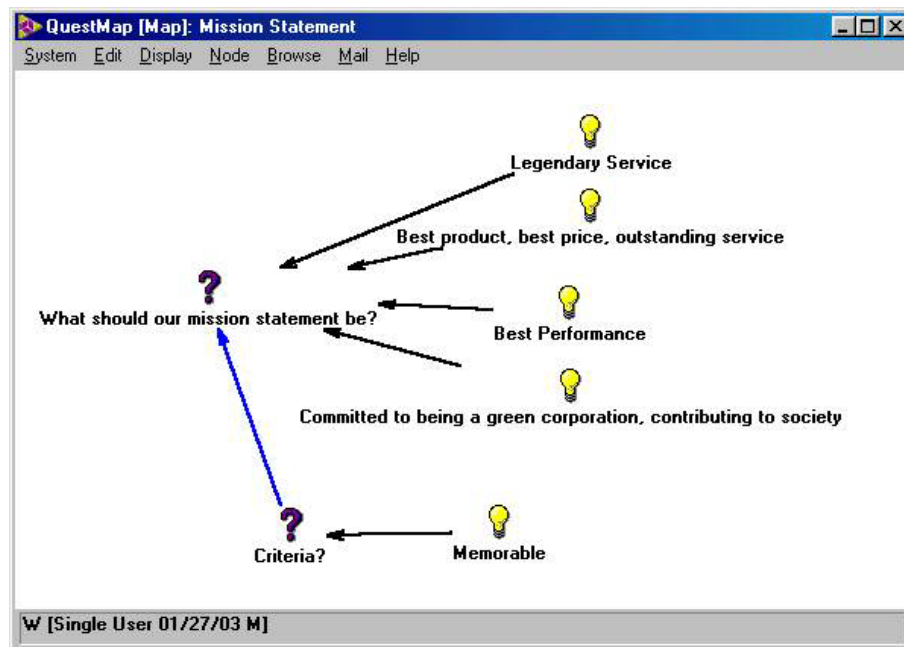


Figure 0.7: A more likely map for the brief meeting segment in the example

The trick is to make sure that the impact on the conversation is welcomed and beneficial. If you focus on being of service and listening to everyone without adding any of your own agenda, you will always be adding value to a conversation. Think of IBIS and the map as “props” to help you listen and add value.

THE BENEFITS OF IBIS

Let’s step back a moment and consider ... do we really need IBIS? Maybe all you need to create shared understanding is a shared display and a good note taker. What if you just created a diagram of people’s points as they spoke, drawing a line from each point to any related points, as in **Figure 0.8**?

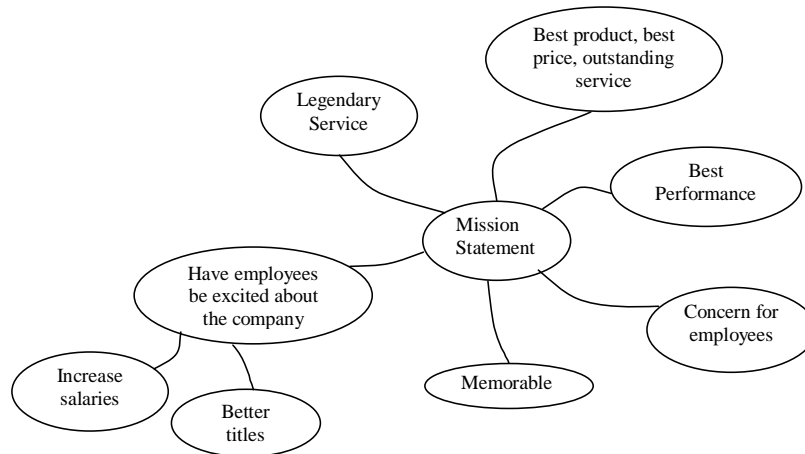


Figure 0.8: Concept map of mission statement discussion

That approach might work fine ... for a while. But if the meeting went on for a couple of hours, the diagram would eventually become a big tangle of balloons and string. It would be hard to tell what was where and what the lines meant. The cleanup process would involve many arbitrary decisions about how to “chunk” the diagram into smaller sub-diagrams. You would also have problems if there were any serious disagreements during the meeting – how would you diagram the debate? (And what project meeting lacks disagreement, or at least creative tension?)

If, instead of a free-form diagramming technique, you used the IBIS elements to diagram the conversation, that would be Dialog Mapping. IBIS provides *just enough* structure to allow the diagrams to keep growing indefinitely. Sure, in practice you need to clean maps up and reorganize them from time to time, but this is much easier with IBIS because everything is organized by Questions. The map in Figure 0.6 has 20 nodes, but they are organized into just four Questions, each with its discussion. Keeping track of what has been said and where it’s captured in the map is much easier, for the same reason.

Thus one major benefit of IBIS is that it provides a structure in which all the twisty turns of problem solving discussions can be modeled. In short, IBIS has a grammar.

Benefit 1

In English, you cannot say “John ball hit the.” English grammar forbids it. In IBIS, maps never

The benefit of asking questions in a collaborative situation is that it helps to break up the “answer reflex”.

start with an Argument node, for example, nor are Arguments allowed to object to Questions. The IBIS notation imposes a discipline on Dialog maps, with two complementary consequences: it is harder to learn to

use IBIS than to use free-form techniques, and IBIS maps are more rigorous, more robust, and more reproducible. When dealing with wicked problems, this additional structure is essential to maintaining coherence as maps grow.

Since chunking a big map into several smaller, more manageable ones is a frequent operation, the *Compendium* mapping software makes this operation easy. Often, the signal for a new chunk, a new map, is a major new question. For example, in Figure 0.6, the exploration of the purpose of the mission statement might lead to a larger and more detailed argument structure which would be better moved into its own map (Figure 0.9). This new “sub-map” would be hyperlinked to the top-level map.



Figure 0.9: Discussion of a Question has been moved into a sub-map

In addition to structural coherence, IBIS invokes a discipline of finding the right questions and making strong cases. Recall that “IBIS” stands for “*Issue Based* Information System”. Issues, stated as questions, are the heart of this method. One benefit of asking questions in a collaborative situation is that it helps to break up the “answer reflex,” in which participants exchange answers without ever agreeing on the question. By getting a group (or an individual!) to think in terms of questions, you encourage higher quality thinking and reasoning.

Benefit 2

It is also much easier to see the substance of a debate when it is mapped out in IBIS ... and to tell if there *is* any substance. If there are several Ideas, but only one has any Arguments, the map literally begs for additional Pros and Cons on the other Ideas. In fact all kinds of questionable logic and hand waving, which can slip by in spoken interaction, are revealed quite clearly when laid out in IBIS. Indeed, many people who have learned Dialog Mapping have never facilitated a single meeting – they use their understanding of IBIS to think about and map out issues such as where to move, whether to go back to school or look for a new job, or what renovations to do, and when and how, on the house.

As we’ll see in Chapter 6 there are seven *types* of questions in IBIS. These question types connect together in higher level patterns, or templates. These patterns provide additional order and reproducibility in IBIS maps. For example, there are Factual questions, such as “What is the

performance of the competitors products?” There are Deontic questions, such as “What should our mission statement be?” There are Instrumental questions, such as “How can we increase sales?” Each type of question has certain kinds of answers, and they fit together in regular patterns of reasoning.

A third benefit of the IBIS notation is that it is simple and intuitive. Several studies have shown that the potential advantages of notations like IBIS are often offset by the increased “cognitive overhead” of applying them “on the fly” ... when you are engaged in a substantive task (Buckingham Shum & Hammond, 1994). In part, this overhead imposes a constraint on the expressive power of any formalism that might be adopted in problem solving or design process: candidate notations must be simple and intuitive enough that the “cognitive cost” of using them is very low. Years of practical experience have shown that more sophisticated and expressively powerful notations than IBIS are much more difficult to apply in a transparent way. IBIS is just complex enough to be able to handle wicked problems, just simple enough to be practical for meeting capture.

Benefit 3

There is another way to meet the challenge of “cognitive overhead,” and that is to recognize that lowering the cognitive cost of use is in part a matter of *fluency*. Although English is generally recognized as one of the more difficult languages to learn in the world, fluent speakers are unaware of the “cognitive overhead” of English when they are engaged in discussion. English is transparent to both speakers and listeners who are fluent. Similarly, as with a language or a musical instrument, practice and fluency render IBIS both transparent and powerful.

As simple as IBIS is, it can be broken down even further to increase its simplicity for those in the learning phase. One part of IBIS is Questions and Ideas/Answers, the basic constituents of dialog dating back to Aristotle. Virtually anyone can listen to a debate and quickly discern what the question is (or questions are), and what the positions or possible answers are. Moreover, the majority of comments in an analytic discussion are questions and answers, so you can map much of these interactions using only these two IBIS elements.

More challenging for IBIS students is the proper use of Arguments, the pros and cons for the various Ideas. Of course, the *concept* of Arguments is simple and intuitive. Most people are quite used to thinking in terms of tradeoffs, benefits and disadvantages, strengths and weaknesses, opportunities and threats, and so on. These are the basic terms of critical analysis.

However, there are subtle pitfalls for the unpracticed. For example, some arguments clearly object to an idea, e.g. “X is too expensive.” But sometimes an argument supports an idea, but because it contains “negative words” it gets erroneously linked as an objection, e.g. “X is not unacceptable to party Y.” In applying Arguments clearly and correctly a background in logic can come in handy! In any case, it turns out that only about 10 percent of the nodes in open-ended and exploratory discussions are Argument nodes, and even less in more structured analyses (Selvin & Sierhuis, 1999), so these are the least important of the IBIS elements.

Distinguishing the three basic elements of IBIS – Questions, Ideas, and Arguments – can become, with practice, very natural. Indeed, many people report that, having learned IBIS, they find it very frustrating to listen to discussions in which the participants are not making these basic rhetorical distinctions! Moreover, participants in meetings in which IBIS mapping is done on the fly, either with markers on a white board or with software on a computer projector, find the notation quite natural and obvious. No explanation is necessary, and any sense of mystery about what is going on generally vanishes quickly -- assuming, of course, some level of fluency in the person doing the mapping!

In addition to how simple and natural this notation is, it is also important to convey the *power* of IBIS as a mapping notation for complex analyses. It is easiest to see this power simply by reflecting on what happens *without* such a notation. Different players have different ideas about what the issue is, especially in a wicked problem. Each player addresses their comments to *their version* of the issue, but it is often unclear how many versions of the issue there are, or what they are. Making the issues explicit in an IBIS map adds a tremendous clarity to the discussion, as does being clear about which of those issues a given comment is addressing. Wicked problems often have dozens of interrelated issues involved, but human short term memory is very limited, so unless one is extremely familiar with the all of the information related to all of the issues, the unaided exploration of these issues is confusing and error-prone. The power of IBIS as a notation is that it organizes all of the issues, positions, information, and assumptions so that all participants have the issue map as a point of reference, and they can refer to it instead of trying to keep it all in their head. Thus IBIS contributes to Dialog Mapping being a force for coherence because it augments human cognition at one of its weakest points: the limits of short term memory.

Benefit 4

To summarize the benefits of IBIS, then:

- It offers “structural coherence” to the record of a design or problem solving conversation, organized by Questions that are arranged from high-level (most general) issues down to any level of low-level (most specific and detailed) issues.
- IBIS reinforces a discipline of making substantive, rational cases in favor of or against the main options on any decisions, thus providing a more consistent, transparent, and democratic environment for collaborative work.
- It is simple and intuitive to learn and to use.
- It has enough representational power to capture any design or problem solving interaction.

GAINING FLUENCY IN IBIS

A young man is walking down a street in New York. “Excuse me,” he says to an older woman as they pass, “how can I get to Carnegie Hall?” The woman stops, looks at him firmly, shakes her finger and says, “There’s only one way! Practice! Practice! Practice!”

At this point, dear reader, you may be thinking that IBIS is not as “simple” and “intuitive” as you had hoped, and that your project meetings are maybe just fine the way they are.

Don’t worry ... actually, you now know enough to start Dialog Mapping today! I recommend it, in fact. Go find a friend, colleague, or family member, get a “shared display” (a piece of paper will do), and write down the main question that you want to think about together. As anyone makes a new point, find a way to put it into your Dialog Map. Make sure that your partner can see and understand your writing. That’s all there is to it!

Nearly all there is, anyway. If you picked a really hard problem it’s likely that you quickly reached a point where the point that had just been made didn’t fit in the map – it wasn’t a Question, it wasn’t an Idea, and it wasn’t an Argument. Don’t despair! Did I mention this takes practice?

Actually, we have just described the Practice Paradox: simple (“tame”) problems don’t require Dialog Mapping to get to a solution; and wicked problems require skillful Dialog Mapping just

to get to a workable statement of the problem! It's like the Loan Paradox: you can only get a loan if you don't need one. To get the confidence and skill you need to stand up in front of your colleagues and Dialog Map their discussion about whether to create and launch a new product, you need practice with problems that could be solved without the map.

Remember that speaking and listening in every day English is actually an incredibly complex and highly skilled activity, and yet you do it without giving it any thought. IBIS is a language, like English, but much, much simpler. You are fluent in English, but not IBIS. Being able to

The more situations in which you practice, the faster you become fluent.

discern coherence in a wicked problem, or being able to facilitate a diverse group through a highly charged and political discussion, is a matter of fluency in listening and writing in the IBIS language, and grace in the dance of the crafting a Dialog Map with a group.

With IBIS fluency, charged and tangled discussions become transparent: you can see the hidden questions, and you can hear that the debate is heated because the participants are trying to answer different questions. You can detect when someone 'throws a grenade' in the conversation, but it doesn't cause you any angst because you can literally see the move in the map, and show it to the group. You can support people in making clear and compelling cases for and against different ideas, because you are hearing the arguments and the case making.

Following the fluency metaphor, what Dialog Mapping provides is a tool or language for a new kind of literacy: *collaborative literacy*. Literacy means being educated, cultured, being able to read and write, having knowledge or competence. Collaborative literacy means having an education in collaboration, having a set of distinctions and skills that allow one to be powerful agent for collective intelligence and collaborative effectiveness. Collaborative literacy comes the same way any kind of literacy comes, from education and practice. The more situations in which you practice, the faster you become comfortable with it ... fluent in it.

Broadly speaking, there are three clearly discernable stages in gaining IBIS fluency. In the first stage, you are learning the basic IBIS notation. You can translate a written text into an IBIS map, but it takes a few minutes and you may stumble or get stuck a couple of times. This is probably where you are.

With practice you enter the second stage: you know the IBIS grammar, the conversational building blocks, and you are beginning to see some common patterns. You know the basic steps of the collaborative display dance, but you're not really comfortable with the dance when the discussion gets hot. You can generally listen to someone speaking and capture most of their points on the fly in IBIS, although sometimes your maps get a bit twisted and need some effort to be "repaired." You are no longer afraid of large Dialog Maps. You understand the power of collaborative display, and you are comfortable with the "listening cycle" of listening-guessing-writing-validating (covered in the next chapter).

In the third stage you are fluent in IBIS and skillful in Dialog Mapping. You "hear" Questions, Ideas, Pros, and Cons as they are spoken, and you often can anticipate what is coming next. You see how sets of questions cascade together in design conversations. Indeed, you have a sense that there is really just one "master pattern" for all design and planning conversations, and each meeting is just a matter of creating a particular Dialog Map according to this master pattern. You are a master Dialog Mapper and are comfortable guiding a group through their wicked problem using the shared display.

It's a matter of "Practice, practice, practice."

It's just a matter of "Practice, practice, practice." As you practice with other people, remember not to get hung up on getting the IBIS structure perfect. Think of learning to play the piano. Alone you struggle to get the notes exactly right. Performing for others, you try to make music.

Here are some simple ways to get more practice as you start out:

- Privately map out a problem you are working on, one that matters to you (e.g. New job? Move? New car?)
- Have a "meeting" with a friend or family member about a problem you both care about and map out the conversation
- Watch a TV sitcom and map out the "issues" in the plot (Easy!)
- Watch a TV news analysis show (e.g. Firing Line) and map out the discussion of the issues (Hard!)
- Analyze a newspaper or magazine article in IBIS
- Privately map meeting conversations when you attend meetings.

If you are using *Compendium* to create IBIS maps, you might want to try separating some of your IBIS practice from your software skills practice. These are two very distinct skills, using different parts of the brain, and practicing them both together can make the practice extra difficult. It can even slow you down in gaining IBIS fluency. Use pencil and paper for some of your IBIS practice sessions, so you can focus on the wording and the structure.

Here is another tip: read a little in this book, practice a little, then read some more, then practice some more. You might even want to reread this whole book after you get some real practice sessions under your belt.