

## **DISO: how millions will build a global brain.**

**Transcript of a Podcast Submitted to the 2009 SXSW Interactive Festival  
for Posting on the Extended Content Section of their Website.**

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### **PART 1**

**D.S.:** *Hi, I'm David Swedlow.*

**D.G.:** And I'm David Gallagher.

**D.S.:** *This video, "DISO: how millions will create a global brain," is created as part of the Extended Content section of the 2009 South By Southwest Interactive Festival website, and will be put into two parts for bandwidth considerations. This will be Part 1.*

*For most of this interview, I, David Swedlow, will be interviewing David Gallagher, the originator of DISO. David starting working on DISO in 1987, and I began working with David on this in 2004.*

**D.G.:** I am now going to read the information we gave South By Southwest about what we would cover in this presentation. There is a brief description and then ten questions that we said we would try to answer.

[Reads – see the proposal, attached at the end of this transcript. D.G. did not read here the bio – only the initial description and the ten questions. The bio is provided in the video's final credits.]

**D.S.:** *OK, "DISO: how millions will build a global brain." It's a provocative title. Obviously could mean a lot of things. Could you give us an overview of what this is?*

**D.G.:** OK. Well, "DISO": it's the acronym for the Defined-Interdependency System of Orientation. And I conceive of this as a general category of conceptual systems, many permutations of which could potentially be the basis for a global brain – for building a global brain.

And I've been working for 21 years [laughs] on what I'm calling DISO-1.0, which is obviously the version of DISO that I feel is on track and would work well for a global brain. But ultimately the building of a global brain is going to require the collaboration of millions of people; so there has to be agreement on the DISO version. And I expect that there will be refinement. I don't pretend to have the last word on this. And I'm looking forward to bringing other minds into it.

**D.S.:** *Very good. Very good. So let's start with the idea of a global brain. Because that's a concept that I've heard several times. And probably people have a different conception of what that means. Could you say a little bit more about what you mean by a global brain?*

**D.G.:** Yeah. Yeah. Because it's... It... My usage is certainly different than anyone else's. And you're right: there is a lot out there – it's even been spoken of as some sort of cyber-organism that would take over and supersede humanity on the planet, or something – along the lines of Ray Kurzweil's idea of the computers taking over.

**D.S.:** *Right.*

**D.G.:** That's not what I'm talking about. A lot of people out there probably think of the internet already as a kind of a global brain, and this is more along those lines.

What I would say is that we pretty much have the *neurons* in place – with the hardware that we have for the internet; but what we are missing is the *synaptic connections*. And what I would mean by that is *conceptual associations*. And that's what the DISO supplies.

So, the project of building a global brain – to have an internet with vastly better synaptic connections, aka conceptual associations – would be *intelligent, conscious, collaborative human involvement*.

**D.S.:** *Hmmm. So human beings are going to continue to be more involved. This is what you are saying. It's not so much like the superseded idea.*

**D.G.:** Yeah. Right, right. Versus the present situation, which is *automated searching*. Now, that's always going to play a part... You know, right now, with a Google search, you have all this noise. All of that is going to be silent with the global brain, and you're going to be able to very easily find all the relevant information about whatever you are seeking.

**D.S.:** *Certainly something that I could use.*

**D.G.:** Yeah, yeah. And also it will be very easy to find the stuff that you didn't *know* you were looking for...

**D.S.:** *Very good.*

**D.G.:** Yeah, yeah. ...but is very relevant to what you are seeking.

**D.S.:** *Good. Good. OK, clearly you are making a pretty bold claim for DISO. But a lot of people still aren't going to have a good idea of what that is, or even really what a global brain is. Could you say a little more about it? Is it a conceptual system – is it an ontology?*

**D.G.:** Well, first of all, I know what *you* mean by that. Let me make it clear to everyone that you mean more of the computer science type of ontology.

**D.S.:** *Right, right.*

**D.G.:** Yeah. And that's opposed to the schools of thought in philosophy, each of which has their ontology.

So, first of all, let me say: I'm not an ontologist – in either sense. But I have done some reading – because I realized that there was this thing out there, ontologies, that in some ways is similar to what I've been working on – long before I realized that computer scientists were doing this.

I think that a DISO is in some ways similar to what the computer scientists call an “upper ontology.” But there are important differences. I think it's *compatible* – a DISO would be *compatible* with ontologies, and used in some applications *along with* ontologies.

But the way I understand ontologies, in the computer science sense, is that they're about representing knowledge as a set of *belief claims*. And they're organized in terms of *logical relationships* – just like both language and mathematics are. And my understanding is that the primary *practical* purpose that computer scientists perceive ontologies as providing is to give *machines* the same intelligence that *humans* already have.

DISO is different in that it provides an over-arching set of concepts about *phenomena*. And everyone who would work on the global brain would have to agree upon this set of concepts – as I have already implied. And the DISO is, in that sense, intended firstly to *increase* human intelligence – with this knitted-together set of concepts.

So, you know, rather than with a lot of what's been talked about for Web 3.0, 4.0 – the computers and the artificial intelligence experts are going to have the main workload in knitting together that web (3.0 or 4.0).

**D.S.:** *Right.*

**D.G.:** In my vision, really the main responsibility is going to be with *human contributors*. Not that the computers and artificial intelligence won't have a part to play. I think they will. I think they always will.

**D.S.:** *Right. It sounds a little bit like what DISO does is provide infrastructure or framework for people to make those more formal connections between ontologies.*

**D.G.:** Absolutely, absolutely.

**D.S.:** *Sometimes people argue that the Semantic Web kind of goes too much in the direction of doing one top-down ontology. And it sounds like you don't think that that's necessary.*

**D.G.:** And I think that the DISO concepts will be a lot easier to agree upon than some top-level ontology or general classification scheme that anybody could come up with.

**D.S.:** *That sounds promising.*

**D.G.:** I like to think so.

**D.S.:** *Well, still, still, that's a pretty tall order for the level of massive collaboration. A global brain isn't just a few people. I mean that's obviously a massive connection between people. You think that that's...?*

**D.G.:** It's not a bunch of... not one person coming up with a classification scheme and then everybody else signing onto it. That's not what it is. There is some ideas to sign onto, but they are just *very simple* – and *uncontroversial*, and *flexible* – very, very flexible. And then it becomes a huge project. With lot's of levels.

**D.S.:** *Even so with that simplicity: do you think that, given that it seems people rarely agree upon much of anything, the level of agreement seems like it would have to be pretty broad. Do you think that that's feasible?*

**D.G.:** Well, um, hmmm.

D.S.: [Laughs.]

D.G.: Yeah. I agree that there are lots of things that not everybody can agree about. I think *that's* maybe the one thing that maybe *everybody* can agree about.

D.S.: [Laughs.] True.

D.G.: But really there are a lot of things that people can agree about. And it really just depends on what subject you pick.

And many of the ideas that we all agree upon are about *phenomena* – the things that are out there. So: the Sun. We all expect it to come up in the morning. We can agree on that. Morning may be different between here and Tokyo – but we all know what morning means too. And we all know that if we drop something it falls to the ground.

So there's lots that we all agree upon. And the concepts that make up a DISO are primarily concerned with *phenomena* – the things that are out there; the things that we can *observe*, and we can share observations about, and so forth – and we can say: “No, you're wrong. Look.”

Really, none of the core concepts of a DISO – and certainly not DISO-1.0 – are provocative. They're very *abstract* concepts – along the lines of: *situation, individual, activity, cooperation, organization*. So these are not the kinds of concepts that are going to be controversial.

And what the *value added* with a DISO is, is *defining* these rigorously so that they are consistent with one another and they fit together in a rigorous way, and it becomes clear *how* they fit together and how they yield these benefits that a DISO has – among which is the building of a global brain.

So really you wouldn't have to agree on really anything else in order to be collaborating on building this global brain – not any of the claims embodied in any of the information that you would be organizing through the modality of this DISO set of concepts.

And, in fact, one of the really important applications of a DISO is to set, side by side, the opposing arguments of any debate about anything – any issue – in a completely neutral fashion – balanced, and so forth. So, there's not going to be... People are not going to look at *the DISO* and say, “oh, that's favoring one side or another.”

The concepts that are the basis of this DISO are very abstract; not very objectionable – not objectionable at all. Everyone uses the term, “situation.” OK? All the time. They may not think about situations – they may not *think* at that level of abstraction; but people use abstract... everybody uses abstract concepts. You can't, you know, learn a language without it.

So this is that sort of concept, just knitted together more tightly than we have with those concepts right now. And helping people to see the full usefulness of these concepts.

And the analogy that I often make is with *geographical mapping* – and especially GIS, geographical information systems. So, in a sense, a DISO would provide the same information-organizing function as a GIS does for geographical information – but potentially about *all* phenomena.

So the DISO – to just pursue that analogy a little bit – the *DISO itself* would be analogous to the *basic symbols and concepts* that everybody who would be contributing to a map project would understand.

[D.G. takes pen and paper and draws as he says the following, and then holds up the crude drawing for D.S. and the camera to see – but the camera’s resolution cannot capture it.]

And, for example, as simple as – this is a concept, but we may not think of it – if you have a map that has two points on it, and then another point farther off – and you look at that – then everybody knows that whatever these things are representing that are out in the real world, this map is saying that these two things are closer together than they are to whatever this thing is representing.

That’s the kind of thing, really, that the concepts of DISO provide and allow us to organize our information along the lines of.

And then the information that would accumulate, *using* the DISO, as the *content* of the global brain would be like the specific marks that make up a specific geographical map.

*D.S.: OK. So it comes to mind now that DISO – this “SO,” system of orientation – is the framework similar to the GIS - if I take that analogy. And then the scope is beyond geographical mapping to really conceptual mapping of any phenomena that you can...*

**D.G.:** Yeah – except that it’s not the same thing as *concept mapping*, or *topic mapping*, or stuff like that. That is more along the lines of ontologies. We were talking about, before, the difference between DISO and ontologies: with concept mapping, topic mapping – all of that – it’s *logical relationships*.

*D.S.: OK.*

**D.G.:** These are... A DISO is, in some sense, not as broad as that. It’s only as broad as it needs to be – as we can maybe talk more about.

*D.S.: OK, I think that this is actually a good place to break for Part 1. Obviously, we’ve covered a lot of material. We have some more to cover in Part 2 – I imagine there is some more abstraction.*

**D.G.:** [Laughs]

*D.S.: If you are feeling a bit overloaded, now is probably a good time to take a break. We promise we will pick up right where we’ve left off here, so you won’t miss anything. And we look forward to picking up with you in Part 2.*

## **PART 2**

*D.S.: OK, welcome back to Part 2 of “DISO: how millions will create the global brain.” And we could go in a lot of different directions. We’ve covered a lot of material already – some pretty abstract stuff. And, where we left off, we were talking about geographical mapping, and that as an analogy. Obviously, to put something like that together will require quite a bit of collaboration – and coordination. Could you say little bit more about that?*

**D.G.:** I don't think that basically the amount of organization will be much more than what is already out there on the typical social networking site.

Clearly, this would be something more along the lines of Wikipedia than like Google – Wikipedia, Open Directory Project. There is conscious collaboration that needs to be done. With Google, and other tools like that that are out there, in a sense we have already a kind of *unconscious* collaboration going – through cookies, and so forth – and the artificial intelligence that processes all that stuff. But that isn't... That is a very massive *unconscious* collaboration. This would in a sense be almost as massive *conscious* collaboration.

You know, I really believe that the *promise* of this is what is going to attract people into it, and that there will be the support for that.

But there is one thing to say about that: although the ideas are simple and uncontroversial in some respect, there also is a bit of a *hurdle* for new adopters of this. So there is... I'm not going to say that there isn't a challenge for getting this off the ground.

And the hurdle is that really there is a kind of a trajectory of thinking that we're all familiar with and that we all tend to favor – that people will find that it, this trajectory, is kind of under-represented in the DISO core concepts.

And, in a word, that trajectory of thinking that I'm talking about is: *explanation*. In DISO-1.0, certainly there are *hooks* in there for explanation, but the concepts themselves do not include – certainly not as many concepts as your typical upper ontology would include that have to do with explanation. And I think there are very good reasons for this, which I will try to explain.

By the way, I would say that this *trajectory of explanation* is what tends to get us in disputes. It's not the reason why it's not included in DISO – that it gets us in disputes. The reason it is not included in DISO is that it just is not necessary in order for DISO to do what it... to serve the purpose that it is intended to serve.

But much of our thinking is structured as explanation. You know: “Why did this happen the way it did?” “Why are we thinking of doing what we're planning to do.”

A DISO consists of concepts that pertain to the *existence* of phenomena, rather than to *explanations* for phenomena. If I was going to be really rigorous about this, I would use the word, “manifestation,” instead of “existence,” because “existence” kind of gets you into all kinds of dicey interpretations that you're maybe talking about absolute truth claims or something. So what I'm going to ask you to do is just – because “existence” is a much more familiar and shorter word – I'm just going to use the word “existence,” and you're going to know that I really mean *manifestation*. OK?

**D.S.:** OK.

**D.G.:** So we were talking about disputes. Most of the abiding disputes that arise regarding phenomena are about the *explanations* of phenomena. Because phenomena are things that are out there that we can *observe*. So in terms of *existence* of phenomena, disputes about that tend to be resolved, fairly quickly, through *observation*. “No, you're wrong. That isn't there.” Or whatever.

I know it's not quite that simple – because there's concepts of what is this and what is that. But, anyway, DISO can help you very much get clearer on your concepts about what things are, as well.

Disputes about explanations for things tend to be harder to resolve because explanations are harder to prove, most of the time – at least in terms of existence. As a result, the disputes just drag on. And... Yeah, go ahead.

*D.S.: It seems that a good example here – the example that comes to mind – is something like evolution versus intelligent design – where we both recognize that, you know, in both sides it's trying to explain origins and how we got here. The dispute isn't that we're here – we know that. The dispute is how we got here – or the explanation of what's the meaning of our being here. And that's where it seems like we get all bent into knots about that.*

**D.G.:** And even *that* argument: DISO doesn't take a side on it. There... Because it just... It can be used... Really *any* dispute can be kind of neutrally mapped – all the sides of it – with a DISO.

*D.S.: So, kind of a distinction: if I think about Wikipedia, Wikipedia – while multiple people edit it, and it may change over time – at any given point in time, there's one view of what the area of the topic is.*

**D.G.:** Right, right.

*D.S.: Whereas this really sounds like DISO allows you to map the various pieces.*

**D.G.:** Right. Any topic you have...

*D.S.: It doesn't have to claim that one of them is the correct version.*

**D.G.:** That's right. Right. Any topic you have, DISO gives you a way to navigate there, and then immediately a way of seeing that there *are* a number of different sides, and being able to map out each of those sides – in its way.

So... And all explanations *depend upon claims about* existence. So that's why, you know, really *existence* – and getting that straight – *has to* come first.

And that's where DISO operates. And, really, if all you're concerned about is *organizing* the information, you don't have to go any farther than that. Because the organizing it in terms of existence statements organizes the explanations too. Because they include – either include or imply – existence statements.

So really to understand this a little more deeply, we can go back to the map analogy – and to this global brain application – and we can ask the question: how would you turn the internet into a global brain? And the way you would do that is to learn how to *map* all the information, so that you can *navigate* to where you want to go. So you can set a course through it, and encounter – in some order – the items of information that you would *expect* to encounter in that order, that you would *want* to encounter in that order – that there's some *logical sense* to that. DISO provides the logical sense, the *set of criteria* to determine, like what... that really just... that makes... that organizes information so that it's navigable – let's put it that way.

So then the question is: “well, what are those criteria then?” And DISO’s answer is: concepts about how phenomena are related in an *existence* sense – how they are related simply in the fact of their *mutual existence*, or manifestation – rather than in terms of how they fit together in an explanation. So that’s really the key to it.

And, as I have already explained, explanation depends upon existence. So once you’ve established the “whats,” then you’ve really organized, to a significant extent, the “whys” and “hows.”

So, this notion is *unfamiliar*, as I said – to loop back to what I was saying before. It’s unfamiliar – and that’s what’s going to be a little bit of a hurdle for people. But, you know, it’s going to get easier and easier.

I want to clarify one thing: what I mean by the “whats” – existence. We’re talking about phenomena – existence of phenomena. And really what I mean here – and we have a great term for this: it’s called “situations.” It’s really a marvelously useful concept, essential to a DISO – *situation*. Because that is what allows us to zoom in and out – and pan this way and that.

And what is a “situation”? It’s... Let’s think of some examples, all right?

**D.S.:** *OK.*

**D.G.:** To just consider the range of it... You can talk about the bonds that a carbon molecule has – that’s the situation for that molecule. You can talk about hearing somebody whistling in a park – that’s your situation. You can talk about the condition of a global economy, the present condition of the economy – that’s a situation. You can talk about the position of a star in a galaxy – that’s its situation.

So that gives you some sense. All right? So, in all these cases: what is a “situation”? It’s a specific *way things are* that’s understood to obtain for a particular span of time. And, at some point, that way-things-are *changes*. And then that span of time comes to an end; and then you’ve got a different situation.

The way I define “situation” is it’s *a way things are*, given the focus that you’ve established. And so, as soon as it, the situation, changes, you’re into a *different* situation.

And so, connecting that clarification up with the “existence-versus-explanation” language that I was just using: an “existence statement” would be an assertion about the *structure* of a situation. Yeah. And an “explanatory statement,” then, would be a proposition about why such a structure is the way it is, or why it has changed.

OK, so that should give you... That should clarify a little bit...

**D.S.:** *OK, yeah, it does.*

**D.G.:** ...about why explanations are covered in the organization that a DISO does via existence statements. Because any explanation is going to have to refer to, or imply, existence statements – situations.

**D.S.:** *Yeah. It strikes me that, talking about a global brain – obviously, a practical application – there is a lot that looks like it’s a practical application. And yet, in talking about it, you orient*



towards an abstract. We talk about “whys” and “hows” and “whats”; we talk about manifestation and existence; we talk about situations. Is it necessary? Is that the only way to talk about it – is in this abstract way?

**D.G.:** Yeah... No, not really, OK? [Laughs.]

**D.S.:** [Laughs.] Thankfully.

**D.G.:** Yeah. But I certainly seem more comfortable at that level of abstraction than pretty much... most people I’ve met – let’s put it that way. You’re an exception, David.

**D.S.:** [Laughs.]

**D.G.:** But it’s been a problem. Because I know that there are all these practical applications – and they suggest concrete examples and so forth. But, whenever I try to give an overview, I really can’t think of how to do that without going into a fair amount of abstraction.

I’m still not sure that you could do that in a brief amount of time. But I’ve been working on it; and – particularly for the past four years – I’ve been... That’s been really my focus for the past four years – as you know, David.

**D.S.:** Right.

**D.G.:** You’ve sort of watched that process. And the aim has been to find that language that would allow me to explain this to as wide a public as possible. And I think you will agree... I think we’ve got there.

**D.S.:** Absolutely.

**D.G.:** Yeah. And it’s kind of a big relief.

You know, for most of that twenty, almost 22 years, I’ve been working on it, I had in my mind an audience that was intellectual types – of one or another type. I started out speaking to academic social scientists. But lately I’ve had in mind some very good friends who seem kind of allergic to that level of abstraction.

And I’m really confident that we’ve got a formula for that – I’ve been working on these workshop notes that I think is going to allow that to come out very quickly that way.

**D.S.:** Very nice.

**D.G.:** Yeah. Yeah.

**D.S.:** Well, I’m curious what your plans are – what’s your next steps? What... Where do you take this, and what’s your vision for carrying it forward?

**D.G.:** Well, I never thought it would take me this long [laughs] to get to this point. And I think once I finally get out there – which I think is coming up very soon now – I finally get out there teaching it to people: people are going to be incredulous as to why it took so long. Because ultimately it’s very simple.

But we don't very often shift our thinking *at this level of abstraction* as much as DISO is inviting us to shift it. And in working this all out, that really is, I think – if you want to [laughs] make excuses for myself, or whatever – is why it's taken so long: there's just been *so many dots to connect*.

And it was really years before anyone could understand it – that I could be comprehensible to anyone. Because *I* had to understand it better than – certainly than I did with that initial insight that I had back in 1987. And actually it was like 17 years before I could communicate it really effectively to anyone. And that first person was you – about five years ago.

**D.S.:** *Right.*

**D.G.:** And because David... And even in that time since then, David's witnessed these later stages of that whole process, so he understands how it's been like finding a needle in a haystack to find that one way that will allow anyone to learn it fairly easily.

**D.S.:** *Right.*

**D.G.:** But, OK, to get back to your question [laughs]: Now that we're at this point, there are a lot of avenues to pursue. You know, there's *books* to write. I mentioned these *workshops*. I also anticipate a growing demand for *consulting* on DISO, as the word gets out about it.

And most importantly – particularly for this video – is the *software*. We need to begin to develop some software that can support DISO-based systems for storing, searching, and presenting information. And these would be the prototypes for the global brain.

So... And all these avenues will require the help of others. We hope that this video strikes a chord with some people out there, and moves them to contact us – to express interest in getting involved somehow.

Finally, David, before we close, I just want to thank you, for all your help. And also the others that, since this started getting out a little in... really in 2001. And a series of people have come along to help since then – seemingly, to me, just at the right time and just the right ways. And we'll roll some names in the credits on that.

**D.S.:** *All right.*

**D.G.:** Yeah. And finally I want to thank you, the viewers of this, for persevering here and hearing everything that I want to say. I really appreciate that.

**D.S.:** *It's been a pleasure. Very good. Thank you.*

**D.G.:** Thank you.

*Attachment:*

**DISO: how millions will build a global brain.\***

*(Category: New Technology / Next Generation)*

*(Advanced / Philosophical)*

A Defined-Interdependency System of Orientation (DISO) allows us to organize nearly all information in a manner analogous to how a GIS organizes spatial information – using relational concepts to record what is somehow “next to” what. The key is understanding what situations are and what they comprise. The global brain ensues.

1. Why will proprietary search algorithms never be able to tame the information explosion adequately by themselves?
2. Why would a universally-accepted subject classification scheme (if such could ever emerge) never be able to tame the information explosion adequately by itself – much less a hodgepodge of “folksonomy tags”?
3. What is situation mapping, and why is it the key to taming the information explosion?
4. How can we organize information so that we can explore the global contentscape in a manner similar to how Google Earth allows us to navigate the global landscape – zooming in and out and panning this way and that?
5. Why will the most significant transformative potential of social networking remain unrealized until we learn how to map our situations?
6. Why will the idea of a DISO – a Defined-Interdependency System of Orientation – save us from the mediascape splintering envisioned in the “Googlezon” film, “EPIC 2014”?
7. How will a system of a few highly abstract but familiar concepts become the thread used by amateurs and experts together in a massive, fun, decentralized effort to weave the Semantic Web, integrating ontologies and speeding progress in both AI and IA?
8. What constitutes a “global brain”?
9. How can some of the energy, attention, and enthusiasm that consumers currently pour into gaming, chatter, and leisure research be attracted into a collaborative effort toward building a “global brain”?
10. How could a “global brain” catalyze and facilitate a decentralized, peaceful transformation of our global civilization into a more vibrant, creative, sustainable, and compassionate society?

David is the person whom happenstance guided to begin asking the questions that summoned the idea of a DISO. Seed insights began arriving in 1986. Since then, David has devoted himself as best he could to bringing forth the DISO idea. He has been working on it full-time since 2003.

*\*Proposal for a presentation to the 2009 South-by-Southwest Interactive Festival in Austin, TX.*

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