

**John Carroll** – Thank you. I don't have ah, I don't have any slides really, but I have an inspirational image. Thank you, in my opening remarks I want to amplify the three points I made in the panel abstract which is on the chair down here and I applaud Chris's recommendation that we talk integratively about the whole field but I've, I'm not sure I can really do that so instead I'll talk about things that I think are important and are bearing importantly on what I do and then maybe you can tell me how ah, how significant they are more generally and let me also say that, thank Chris for inviting me to serve on this panel and say what an honor it is to be up here with three people who have inspired me through my whole career. Um, so the three points I'd like to talk about ubiquity, communities and creativity, and ubiquity is true in a new sense of information technology that we use and everybody, everybody currently doing their email know what I'm talking about, um, but I'm talking beyond that of embedded devices in our close and other devices and things in the not to distant future, um, and I want to observe that ubiquity challenges the foundations of usability engineering that I've worked on all of my life, all my life. By further dissolving the notion of task and just walking around this conference you can see how important task is and I'm not saying it is unimportant now or will be soon, but it is changing and it's role is changing in human factors and ubiquity's one of the reasons for that. Ubiquity also challenges the work designer roaming the work, not at work distinction which used to be clear, isn't clear now and in the future won't even be a distinction. Um, it raises new privacy and security issues, now a far more complex than ah, doors or computing in fixed locations and finally it provides new resources for public safety and emergency response and other kinds of complex operations, such as dynamic sensor networks with very smart sensors namely you and me.

The second theme I wanted to call attention to is communities, and communities are more organic ah, ah, self regulating and emergent model for human organization and in this kind of an audience I would contrast them with teams which are well researched and also an important organization for humans. Communities are based however on shared emotional connection and shared identity which are extremely powerful, robust forces as opposed to tasked oriented interdependence which is also very important but quite different and, and ultimately I think weaker. Communities are based on motivational dynamics of reciprocity and trust and social capital formation as opposed to lines of authority and responsibility, again it's not to say that the second kind of structure is flimsy or unimportant, but I think that communities are much more robust and much more adaptive and it will be a challenge to learn how to work in a world of communities and we have to learn how to study a world in which people work in communities. So just to continue this with some of these oppositions, my notes, communities depend on norms and consensus, not procedures, not codified procedures. Communities depend on an integration of needs, um, not as a lot of organizations do a, really a separation of needs and an emphasis on mission. Communities usually involve multifaceted roles; depend on self initiative and intrinsic rewards versus individual specialization, fixed roles, career paths and promotion as the sort of trajectory dynamics for individuals. Communities are training and learning in communities is continual, informal and embedded. It always has to go on or the communities die and that's different than training to perform in a sort of a phased way which is the way it's often been thought of in the past. And then finally communities are evolving practices, evolving organizations as I said they either change

or they die and that's different than organizations that have a set doctrine or policy or a fixed raison d'être.

Last theme creativity. Creativity I think has already become much more important in work than it was in the past and I think we need to think more, more often and with more focus about the potential value of being off task and off topic, I said value of being off task and off topic, or of holding and promoting a minority opinion, a view other people, most other people don't agree with. Or of critical evaluation of assumptions and approaches even after they're tried and proven. Or of preserving and tracking novel ideas that were tabled and started in the past possibly for good reasons. Or of continual external testing of all ideas prototypes and products. That's a different kind of a context of work and I think it's more like the future