Judy Estrin
"Sustainable Innovation"

JOYCE OSLAND: Good evening, I'm Joyce Osland from the College of Business and the Lucas Graduate School I'm also the Director of the Global Leadership Advancement Center, which is your host for the evening. I'm delighted to see so many of you here at our Global Leader Speaker Series. Our purpose is to advance and disseminate global leadership knowledge and best practices. And tonight's speaker, Judy Estrin, is a perfect example of a global leader. She is a thought leader on innovation and someone who cares passionately about something, and that something is Silicon Valley and Innovation in our country. But, before introducing Judy, let me bring you up to date on some of the activities and opportunities we have for students in the area of global leadership and innovation. Iran Corporation study said that we would have a shortage of global leaders in all three sectors: in business, in non-profit, and in and in the public sector. And they encouraged Universities to add global leadership to their curriculum, which San Jose State really quickly did. We have courses at both undergraduate and graduate school in global leadership and we also have special programs that prepare students for global work. We have one program that's for everyone on campus; it's uh it's called the Passport Program. It's a co curricular

anytime, even when we least expect it. In the post-it story we had a lab that invited curiosity, a scientist who unintentionally found a special glue and someone who needed a sticky bookmark. Estrin reveals to us how the post-it turned into the daily necessity that we cannot live without, simply through accidental innovation. As a San Jose student, MBA student last year I read that and thought, 'Wow, I can be innovative and I'm not an engineer. I can look at my mistakes differently and even find a solution.' Before I read that story however, I thought 'how can I be innovative, my job involves

give my presentation anymore. I think uh, I, I think you've got the jist of it, but um, but I will. Um, thank you all for coming tonight and um I'm going to talk about various areas about innovation. I'm going to start off talking a little bit about the framework of understanding innovation that I introduced in my book, I'm going to talk a little bit about uh opportunities for Innovation that I see a head of us and then it, the the third part of the presentation is uh a little less uh positive, i.e. some of the challenges that I see uh us facing and what I think we can can do about it. So there's uh hopefully a little something for everybody here, the idea of this presentation is really to just provoke your thinking, getting you to think differently about innovation and the reason I call it sustainable innovation is this is actually a play on words. Um one is that it is not enough to have an idea, you really need ongoing sustainable innovation and what innovation means is having the capacity for change, being able to come up with something new. So as an individual, as a company, as a country, as the planet, the world, the uh the global economy, we need sustainable ongoing innovation. You can't just have peaks, or you can have bubbles, but bubbles uh burst as we uh as we now know, but the other reason I call it sustainable innovation is like other issues having to do with sustainability, and the environment, water, food, it's at risk and so we need to think about innovation and protecting innovation and the environment for innovation the same way we need to be thinking about other resources that are so critical to uh our country and again, the planet.

Um I won't go through my bio, uh I was just introduced, but I do like to uh give people a sense of where I co

don't talk about and that's what I call orthogonal innovation and orthogonal innovation is comes from combining innovations that exists in a different way to solve a problem. And the reason I call it orthogonal is it really comes from looking at a problem differently, so those of you who remember your geometry if you turn your head at an angle, orthogonally, um then you're looking at problem differently, and probably the best example of orthogonal innovation is what Apple has done. When Apple came out with the Ipod it wasn't that it was uh sleek and uh a better MP3 player that made it such a success, it was that Apple decided to not make an MP3 player, but design a completely new music experience, and it was looking at the problem differently that made it so significant and created a new market. So, orthogonal innovation can also be very disruptive and create new markets, and in fact, only breakthrough innovation and orthogonal innovation can create new markets, incremental innovation is necessary, but not sufficient to create new markets it's about sustaining the market that you're in um and so we really need balances of all three of these. The other interesting thing is uh as a uh a overall the business community has become more and more customer driven and customer

think of a tide pool; where there are different organisms that uh sometimes get along and sometimes don't, but exchange nutrients and interact with sunlight or air or water. Well, what is an innovation ecosystem? There are three communities in the innovation ecosystem required to sustain innovation, the first is the research community and the research community is about furthering understanding, uh that's really what research is all about. It is not about products, it's about furthering understanding and, as important, it's about training young minds. It's about training people who then go out in to the rest of the ecosystem and innovate in other communities or stay within the the research community. The second is the development community innovating in new products uh new services um and last is the application community, innovating in the way you apply those new products and new uh services. So two quick examples of how these communities interact, if you think about Google, Google started out in the research community – two very smart guys who came up with an interesting algorithm, they then created a company and were in the development uh community where they developed a search engine and that was a new type of product that was very successful, but actually the real breakthrough innovation, the real success of Google, comes from their innovations in the application community because it was the application of a new business model of how to tie advertising to search and the application of computing infrastructure that allows them to scale profitably that really allowed Google to take off. So that's an interesting example of one company that went between these and how these uh communities interact. Maybe a better example is think about the problems we have with renewable energy, with energy in the environment, so we need research to on, to to come up with new alternative energies, to understand uh better uh uh how to protect the environment, we need new products that are more energy efficient that use alternative forms of energy that uh uh are lower emissions, but we also need to change our behavior in how we behave in terms of the use of energy or our impact on the environment. So if we are going to solve that those sets of problems, you need balance, you need investment and activity in all three communities of the ecosystem and they need to communicate with each other. There there's a reason why each one touches each other, it isn't a line, it is not research, development, application, it is a cycle because once you develop something and apply it you often come up with unintended consequences that you then need to study and do research on to figure out how to uh then develop uh new products to to solve.

So I mentioned in a biological ecosystem that there are environmental factors, well in a in the uh the innovation ecosystem those environmental factors are leadership, funding, policy, education, and culture. And the most important two are leadership and culture because if you have the right leadership then in the end you most likely will end up with the right policies, education and funding. And culture is important, because in the end it's a

leader's role to set a vision, to help establish a culture, to take down the barriers to innovation and get out of the way because innovation in the end is bottom up and so culture is probably the most important thing uh in driving innovation. So, how do you create a culture to innovation? Um and when I was writing the book one of the things that my publisher kept coming back to me is um she kept wanting me to come up with rules, formulas, tell them how to do it and I kept going back and said, can't there is no rules, there are no uh you know ten uh key steps to succeed in innovation, but as I was interviewing people and as I thought back on the most innovative environments that I had been part of and that I had had exposure to I did realize that there was uh a set of common, what I call, values, implemented in different ways, but that that what I came to call the five core values that together and this is important, together and in balance create that capacity for change. Um so what are they? The first is questioning, I think that's probably the most obvious, everybody knows that uh curiosity, leads most often to innovation, but questioning is not just about curiosity it's not just about asking questions, but how you frame the question is really really important. If you ask a very narrow question you will get narrow innovation. If you ask a broad question then you will get a broader set of answers, so the framing of the question will very much lead to the type of response and the type of thinking uh that is done. The other thing that is very important is questioning the status quo, self assessment, um how many companies, how many countries, how many societies have we seen fail because they have stopped self assessing; they have decided they are successful and they stop questioning themselves so really honest self assessment is absolutely critical to change cause if you're not willing to question the status quo, then nothing will ever change. And last um you how you ask the question is not just about framing it, but the tone. And again, whether you're a teacher, a parent, a friend, or talking to yourself if you ask a question judgmentally, you shut down, you become defensive. If you ask inquisitively then people open up their minds so the the tone in how you ask the question is absolutely critical uh to innovation. The second core value is risk, what is risk? Risk is being

without defects, but for that third horizon, and even sometimes that second horizon, those tight metrics will kill any hope you have of breaking out with

about education, but bio, nano, IT, social sciences, design, all of these things are coming together in phenomenal ways, which means we have to change the way we are learning, and thinking, and educating, and uh I'll come back to that in a minute.

So, uh let me shift in to the the last part and take about some of the uh the challenges that um that face us and first I want to talk a little bit about culture and education because I think in fact, both our education system and our popular culture are are working against innovation. And not against incremental innovation, but against a sustainable healthy innovation ecosystem, and why do I say that? Well, um I am going to say something, especially in a room filled with uh students that is some what contrarian, which is um that we have these unbelievably powerful uh technology advances and tools, which uh I'm I'm as passionate about as the next one as

person a day and you think you're incredibly connected, I would say that that would, is not a replacement for an hour face-to-face, or a half an hour face-to-face. So it it it, we are being lulled in to a sense of connectivity or even sometimes over connectivity, but we are losing the depth of many connections in um in the meantime and it's interesting, we uh have five senses right? But the Internet only exercises two of them, sight and sound. And so, if you spend more and more time in the online world and less and less time in the offline world, taste, touch, and smell are used less and less. And interestingly enough those are the three senses that are most connected to our emotions. And as we know from other cases that when you go gen, evolution causes your brain to evolve. So over generations if we continue to underutilize certain senses, we will underutilize certain parts of our brain and suddenly we wont even miss it. And I think for me, the touch, the human contact part here is is really really important. So I don't think we understand the consequences on um our emotional development because it's all too new. And why am I saying this? Am I suggesting that everybody to turn off their blackberries and

learn and the capacity for change cause if there's one thing we know the world is changing faster and faster and faster and faster then it ever was. So there may be interesting jobs out there that look like the interesting jobs now, they can be completely different in ten years or in fifteen years; so that ability to change that ability to learn. Learning how to frame questions and not just answering them, we are way too test driven because unless you can actually learn how to frame questions, you can't uh really lead in innovation. Um playfulness, exploration, experimentation those are critical elements that again we've taken out of many of our environments. Uh I've talked about patience, collaboration and then very important that uh as we are teaching our kids that we get interdisciplinary thinking in very early – uh interdisciplinary across science and arts, across fields of science, across social sciences. Um very often people uh as you think about interdisciplinary and you think about uh, people talk about what they should take in school um there's been a term that was coined between uh the D school at Stanford and IDEO, I'm not sure who coined it initially about "T people" and what a T person is is someone who is a deep expert in one subject, but is has uh uh a broad knowledge of a lot of other subjects so that they can connect with other disciplines and so if you have lots of "T people" they can connect well with each other. So we need a combination of deep experts, some people just want to go deep in their field, of "T people" of actually double Ts, where you have deep expertise in multiple areas, and then there are some people who just will be great connectors – so they have very broad expertise and are the people that are connecting and bringing together uh people in in other disciplines. Now, um throughout all of this some of you will end up wanting to be entrepreneurial, not everybody is entrepreneurial and sometimes in the valley we think there's something wrong with me if I don't want to be an entrepreneur and th

very strong vision and persistence, yet being flexible enough and willing to assess because most often as an entrepreneur you think you're going to go straight to success, but it's really a random walk and you have to adapt along the way. Um the other thing that entrepreneurs, if you want to be an entrepreneur you must be comfort, comfortable with ambiguity because early on in a company you have no hard data to study so very often it is a lot of instinct and it is from your gut because you're creating something brand new that you can't look to something else to copy.

So let me finish by uh broadening out a little bit and uh just uh a couple of slides about our national ecosystem because um this uh someone asked did I wrote the book as a wake up call. Um, I wrote the book for two reasons, one was to educate people about innovation more broadly, but two was as a wake up call because I really do believe that um that we're in trouble. And um uh I don't need to tell anybody that the economy is in trouble. Between um the collapse of the housing market, the financial crisis, uh the economic recession, but you know that was just really the straw that broke the camels back and the fact of the matter is the reason it is so hard to get out where of this hole that we're in is because those um phenomenon were layered on a essentially a decade of zero job growth before it happened and decades of erosion of our innovation ecosystem in this country. And we essentially have what I call an innovation deficit, um we have been harvesting, so this is the answer to the person who says 'well wait a minute, look at all the start-ups, look at all of the innovative things going on.' Well ya, we have a lot of incremental innovation, we are harvesting seeds that were planted 10, 20,

GDP growth is coming from "empty calories", you have a problem and that is what uh happening. We as a society, as a country began to value trading and flipping over building and creating and it is building and creating that creates a sustainable uh economy, it is flipping and trading that creates short-term growth and so that that short sidedness in the economy uh has stopped us, has hurt us in terms of jobs, but it has also has uh hurt us in terms of the level of problems that uh we need to solve. Um there's no quick fix and anybody; you know it's interesting how everybody is always looking to now to to uh to everybody else to solve the problem. When I came out with the book and I did about a year of almost constant presenting to all sorts of different groups and people at the end of the year a lot of people said to me 'what did you learn from the people that you talked to?' and I said well you know it was interesting and actually my book launched the week of the financial crisis in 2008, it was uh a little bit of hard timing to get uh get on the TV shows, but it was um an interesting time to then be going around the country and talking to different groups. And there was one thing that was consistent with every group I talked to, academics, venture capitalists, entrepreneurs, big companies, little companies – everybody acknowledged that we had a problem and everybody wanted to blame somebody else. So everybody looked you know, uh CEO says it's Wall Street, VC says its the entrepreneurs, the limited partners, entrepreneurs say it's the VCs, it's the government, it's not the government, you know so everybody wants to point to somebody else and the fact of the matter is we all got ourselves into this and it's going to take all of us to uh to get ourselves out. So there is no quick fix, uh we have to start planting more seeds for the future um so that over the long-term, and what's happening now is people don't want to focus on planting seeds because they say we can't focus on planting seeds until we get the unemployment problem solved, well you know what, the unemployment problem is only going to slowly correct itself based on consumer demand and large companies. What's going to wenly going to

new models of collaboration um between the public and private sector and again as I said the significant growth surges are going to come from innovation, they are not going to come from our existing markets. Um and one of the things that we need to do is to break out of our silos, right now there are so many silos I talked about interdisciplinary uh across fields, but it's not just across fields, we have silos when it comes to our communities of the ecosystem between research, development and application, you need to break those silos. Um we have silos between generations, very often you hear about companies saying okay I need to change my culture to adapt to all of the young people coming in, well really what companies should do is get the best of the baby boomers and the millennials and I don't just say that because I'm a baby boomer, but really what you want is to break down those silos because you have something to learn when the two work together and most importantly is breakdown the silos that are uh uh of ideologies because those uh those the the level of uh partisanship and uh extremism uh in various ideologies really uh makes it so that we can't solve any of the problems that face us. Interestingly enough, if you think about the web there's a trend towards increase personalization and that actually is a good thing, it it helps you navigate system, it it is a good thing for advertisers because it helps them know you and know how to sell to you, but over personalization can actually reinforce these silos because suddenly you're only exposed to the things that you know you want to be exposed to and where are the surprises? Where do you learn about something that you didn't know that you might be interested in? So again, this is just one of those unintended consequences to kind of be aware of over personalization or only going to those websites that reinforce your view and your interests and every once and a while look at some new things and open up to some to some new ideas.

And the last thing I just want to say is