Dr. Jane McGonigal

Thank you very much. So the theme of this fourth session is "Beyond 2015: Goals and Options," and what I would like to do in my short time is to open your eyes to an option that you might not know you have, and that option is a new kind of massively collaborative game: a game that uses all kinds of collaborative digital platforms to bring global communities together to solve highly complex problems.

So I am here today to talk to you about some of the games I've designed to solve real-world problems and also to announce a new project that I am hoping many of you will want to become involved with. We are here to celebrate the 35th anniversary of IIASA and I thought you might be interested to know that this year is also the 35th anniversary of computer games. This is "Pong" which was released in 1972. So it seems like a fortunate convergence of histories, that I should be here today, perhaps the first game designer to speak at an IIASA event.

But we can go back before the birth of computer games; think about games generally. This is one of the quotations that is often at the front of my mind when I design a game. Albert Einstein was an avid chess player, and he once wrote that "Games are the most elevated form of investigation." If you think about a game like chess, it's an opportunity to investigate a particular problem. It's a visual-spatial problem, it's a logic problem, it's a strategy problem. Sometimes it's a psychological problem. And every time you sit down to play the game of chess, you are investigating that problem, and you are investigating it collaboratively because someone else is sitting down at the table with you to think about precisely the same parameters, to explore exactly the same system, but to do so from another perspective and deploying different strategies. And thinking about games as systems that are investigated again and again with different groups of actors, different people who come together to play the game is a really useful way to think about the power of games today.

I'm interested in games that use collaborative technologies to promote, develop, and harness a particular set of skills that at the Institute for the Future we're calling "amplified intelligence." And there are four characteristics for amplified intelligence that I'll be discussing throughout this presentation. They are: highly social behavior, highly collective behavior, highly improvisational behavior, and highly augmented behavior. And I'll define them and give examples as we go forward. An amplified intelligence can be applied towards solving problems that really align with the kinds of problems that IIASA members are dealing with. Amplified intelligence is perfectly poised to deal with the problem of designing complex and integrated systems, to address global-scale problems, to coordinate diverse actors, and to adopt a more collective approach to future forecasting.

I want to give you an example of one of these games designed to amplify the intelligence of the global community. This is a project called "World Without Oil" that I ran earlier this year. It was funded in the United States by our Corporation for Public Broadcasting, and the goal was to engage the public in thinking about how the US might deal with a

dramatic shortage of affordable oil. So we set up a website where we created a fictional scenario in which the US was faced with the dramatic, rapid lack of oil. And for thirty-two days we posted daily updates. We had what we called the "reality dashboard" where we would give availability and prices for fuel and you could sign up for real-time updates for your region of the United States and we had 30 different regions in the US. So you could be getting constant information about this fictional oil shortage. And then what we asked you to do was to contribute stories about how this data might affect your community or your discipline. So you could sign up, you would get information about your region, and you would submit blog posts, or podcasts, or videos that you posted to YouTube, or you would work on a Wiki with other people from your region. You could find other people living in the real world near you who were also participating in this experience. And we would aggregate the data and the stories that players were telling to create more statistics: feedback about levels of chaos, misery, and the economic health or quality of life of your region.

So you can see here this is one player's entries [shows slide]. This is somebody who every day for 32 days entered information about what it was like in Chicago during this crisis. And as a result of this experiment we collected information from experts and individuals across a wide variety of fields: what immigration policy might be like in the US in a world without oil, what the real estate industry might be like in a world without oil. We had soldiers in Iraq participating in this experience, thinking about what it would be like to fight a war in a world without oil. We had parents, mothers who were talking about a world without oil. We had ministers and pastors writing sermons for a world without oil. And you can go to the website today, which is worldwithoutoil.org, and you can look at this data that we were aggregating about what this crisis would be like, what kind of strategies would be adopted, how they might play out, which solutions appealed to the public, which solutions didn't appeal, and what the personal impact and the community impact and the local reality of this kind of crisis might be like. We had, by the way, you might be interested to know, about 2,000 people from 12 countries creating content for this theme over the 32 days and we had an audience of 60,000 people who were coming back every day to watch this story unfold. And the primary goal here was to provoke thought about this future so that we could create policies now and change personal behaviors now to avoid it. So the motto of the game was: "World without oil: play it before you live it."

The reason I like games for dealing with complex systems, complex global problems, there's actually four reasons why I like games as a medium for this. First, games come with better instructions than some of the other strategies you might try. Players in a game have clear goals. They have specific avenues for advancing towards those goals, and a game focuses your attention on a very particular set of parameters that allows you to concentrate on a problem in a really augmented way. Games also give you excellent feedback. Our reality dashboard for World Without Oil, which was constantly updated in real time based on what the players were doing, is an example of a system that allows you to have dynamic real-time information about your performance so you can adjust your performance. And the feedback also means that there is highly visible impacts on your environment. When you're a player of the game you can see the impacts of your actions.

When we think about real life we don't often have an opportunity to see or measure or quantify the impact of our actions on the environment or the system that we're working in. Games do an excellent job of providing that and they allow you to be more improvisational in your technique. As you get feedback, you can change your strategy, you can adopt a new course of action based on that performance data. Games also give you a much better opportunity to be a part of a collective, to be a part of something bigger and to know how you can contribute to that larger community. These games give you clearly defined ways to contribute specific knowledge and skills. What is your part of the world? What is your field or discipline or personal background? You are the only person who can speak to that experience. You are the expert for that particular area and so individual strengths are validated and engaged and developed in a way that allows for synchronized, highly diverse contributions to a larger good. And finally, games create a better community. They provide an amazing context that is shared amongst all the players: a context for action and decision-making where everybody is on the same page. They give you a sense of common heroic purpose which, although all of us in the room are truly dealing with world-saving problems, provide another layer of that feeling of a heroic purpose, the sense that you are being called to action. And they provide a foundational experience: when the game is over, people who have experienced this together have a common experience, have common values that they've established thorough the game that can be a really excellent foundation for continuing with real world action.

Now all of these principles of game design are based on what we are observing in the world of technology and what we call the "amplifying network technologies." Amplification is really about this increasing gap between what we're capable of doing alone and what we're capable of doing as a result of social networks and data networks. And we're seeing that this gap is really as big as the gap between what we were able to do before computers and what we're able to do with computers. And so these four characteristics that I mentioned, I'd like to just briefly define them and to quickly move through some of the technology where we're seeing them developed and play out outside of the game context.

So "highly social" behavior means sharing, annotating and filtering massive amounts of information to create new "brain pools" where people can get the data that they need when they need it. So, there's "tagging" software that allows you to tag websites and articles and literature so other people can share what you have tagged and annotated and find it more easily. And so "delicious" for tagging websites, "flickr" for tagging photos, "digg" for tagging and ranking news sites. So these aggregating technologies, these tagging technologies, are really facilitating highly social use of information. "Highly collective" means the ability to build powerful collaboration networks, to leverage collective intelligence and differentiated skills. So whereas highly social technologies ask all participants to do the same thing separately so that we can aggregate the data, highly collective wants you to differentiate, to only do what you are best at, to only contribute your most excellent strength. So Wikis are the example of highly collective behavior par excellence. But we also see collective intelligence software in a variety of contexts such as "Competitious" which is a collective intelligence software for

competitive analysis of other organizations. And "Innocentive" which is a problem-solving marketplace where organizations and companies can pose research and development challenges to individual researchers or nonprofit organizations around the world. So they match seekers with solvers. We're also seeing people having this kind of ambient intelligence about what other people's skills and contributions are. You can see the bottom here [shows slide]—the signature for this email address has this individual's strengths listed in it. And that's something that we're seeing a lot of, where people are broadcasting their individual skills so they can be mobilized at a moment's notice into a collective. "Highly improvisational" means banding together in an ad hoc capacity to create infrastructure and community. So you're getting the resources you need when you need them and then you're sharing the resources when you don't need them. So we're seeing a lot of groups around the world doing what we call improvisational workspaces where people who don't have an office or aren't working full time for a company will come and band together to have a kind of virtual office in the real world, so that they can have ambient collaborators. They can share resources such as Internet access and pool in for health care together. We also see a lot of crowdsourcing tools developing on the web where you're tapping into the wisdom and participation of the crowds. So this is a really interesting site: Cambrian house, where entrepreneurs pitch ideas and people contribute their individual talents and they form virtual companies for profit. And finally, "highly augmented" means employing visual tools and dynamic overlays to create shorter feedback loops and dramatically heighten your coordination skills. So things like "microblogging," where you can constantly update people who want to know what you're doing at any given time with little messages about where you are and what you're doing is a way to augment other people's attention of their collaborators or towards their collaborators, and they're great visualization tools where you can follow what other people are doing in your social network, in your data network, or research network around the world. There's a great project called "Seriosity" which is a virtual currency to overlay on top of real world productivity software. So here when you send an email or you request a meeting or you give somebody a task, you have to assign a number of virtual dollars to the task or the meeting or the email. So if they reply, you have to give them these ten Serios, or to get someone higher up's attention, you might need to attach a thousand Serios and this software creates great visualizations of how money—this virtual currency—is flowing across an organization or outside of an organization so you can start to see where the collaboration opportunities are, where collaboration is happening that maybe you weren't expecting. And you can start to think about restructuring how you do your work and how you do your research to take advantage of that. So what we are seeing is that these amplifying tools, the tools that are making people highly social, highly collective, highly improvisational and highly augmented they're giving individuals a set of new skills and strengths, what we're calling "collaboration superpowers." And I'm just going to define them for you briefly.

The first superpower is mobbability, and this is the ability to do real time work in very large groups. It's a talent for coordinating with many people simultaneously. This is what we're calling scalable collaboration: collaboration basically on a global scale. Cooperation radar is the ability to sense, almost intuitively, who would make the best collaborators on a particular task. Ping quotient measures your responsiveness to other

people's requests for engagement. So if you have a high ping quotient it means you are highly responsive to somebody else who needs your particular skills or attention. So it's a propensity and ability to reach out to and respond to others in your network. Influency is the ability to be persuasive in diverse social contexts and media spaces. So a lot of this collaboration will be online, will be on different platforms, so it's an understanding that each work environment and collaboration space will require a different persuasive strategy and a different communications technique. Multi-capitalism is a fluency in working with different capitals, understanding that different collaborators will value different capital, whether it's natural, intellectual, social, financial, and sometimes even virtual. Protovation is fearless innovation in rapid, iterative cycles. It's the ability to lower the costs and increase the speed of failure so that you lose less when you fail earlier, and games are a particularly good environment for increasing protovation because the risks in games are so low. Open authorship is an ease and facility with creating content for public consumption and modification. So in these amplified collaboration networks you really have to have a high level of comfort with other people modifying what you are doing: taking a small seed and growing it for you. Longbroading is thinking in terms of higher-level systems, many iterative cycles, and a much bigger picture. Emergensight is the ability to prepare for and handle the surprising results and complexity that occur when you are dealing with these highly complex global-scale problems and global-scale networks. And finally: signal/noise management. As you're dealing with these massively greater quantities of data, as you're expanding your attention to many more people and potential collaborators, it's the ability to filter the meaningful info, the patterns, and the commonalities from massively multiple streams of data.

So with that, I'd like to announce a new project from the Institute for the Future. This is our first public discussion of the project. We thought this was the perfect venue for telling you about the X2 Project which is named after the famous "X Club" which some of you may know was a forward-looking group of 19th Century scientists in Victorian London. And this was the original social network of scientists. There were only nine of them, so it was a small network, but they gathered weekly to think about disruptions that were occurring from advances in scientific and technological progress. So the goal of our project is to identify major trends and disruptions in science, technology, and the practice of science over the next 20 years. And this is a sneak preview of the very beta version of our website for capturing expert opinion as well as public opinion about future directions of science, future opportunities for interdisciplinary scientific research. So the goals of the X2 project are to look ahead and identify future disruptions, opportunities, and competitive landscapes related to the content and dynamics of global science and technology innovation. We will be developing an open-source database and a collaborative gaming environment, and these will become an ongoing public web platform to support, sustain, and filter collective intelligence about science and technology. So for the first 6–9 months it will be restricted to the first round of experts that we invite but then we will be opening it up to the public. And the end goal here is to be presenting this information, this research, to policy experts, decision-makers, and the general public so that we can create the political will needed to take action on this research, so that we can create personal commitment and mobilization of resources to act

on the research. This is some of the process that we will be using, but I have technically run into my red time so I should wrap up.

What's important about amplifying intelligence and game play? Amplified intelligence gaming such as World Without Oil and our new X2 project which will be a collaborative simulation of science 25 years in the future, this is a low-risk, high speed and deeply immersive platform that enables new kinds of massively collaborative groups to play with complex global scale problems. So this can be a powerful platform for reimagining, preparing for, and inventing the future today. It's my belief that in the coming decade, many research, policymaking and development organizations will derive their most important breakthroughs as a result of playing games.

And I'll leave you with one of my favorite writers about games – Brian Sutton Smith, and anthropologist of play. He wrote: "The opposite of play isn't work, it's depression. To play is to act out and be willful, exultant and committed—as if one is assured of one's prospects." And we've heard a lot at this conference so far about the uncertainty that we're facing, but even in the face of that uncertainty, playing games can be a powerful tool for tackling the uncertainty, for creating confidence and commitment, to be willful, exultant about the opportunities we have to change the world. ]

My email is address is here if you're interested in becoming involved with the X2 project and I do thank you for your attention.