

Wednesday Morning, October 21 2009, Opening Remarks:

Good Morning, Secretary Payton, President Pachecho, Mayor Miyagishima, Speakers, Sponsors, and honored guests.

Welcome, I am Pat Hynes, Chair of the Fifth Annual International Symposium for Personal and Commercial Spaceflight.

Over the next two days we will hear from the global experts on topics related to sending humans and cargo into space. Just over five hundred people have been to space since we started going to space 50 years ago. We are lucky to have some of those space explorers in the room with us today, including our Keynote Speaker, Secretary Gary Payton.

The symposium provides a wide-angle snapshot of how our industry functions today, relative to the “right now” status of flight safety, ground systems, university research, small satellites, manned launch vehicles and a host of other functions that make up the demanding activities driving the human access to space business programs.

This year, ISPCS will devote Day 1 to examining topics related to human spaceflight, Day 2 will be devoted to exploring the science, satellites, vehicles, and facilities involved in flying and operating in sub-orbital and low earth orbit environments. The way we do space business will change. We are here for the next two days to examine what we know now, discuss critical lessons learned, and determine with each other, ways forward. One of the principle values of this year’s symposium, examine lessons learned as they will point the way to innovation that increases credibility and expands capability for the success of this industry.

What is the context for these next two days? We are anticipating the release of the full Augustine Report, and look to recommendations that will be forthcoming on the future of human spaceflight for the United States. One of the members of the Commission will report to you today. As we have many international partners in our space endeavors, some in the room with us right now, it is not too presumptions to believe, the outcomes of this report will impact our international colleagues whose experiments, astronauts and labs we have transported to the International Space Station on the Space Shuttle. It is within the context of our meeting today, the potential termination of the space shuttle program will occur within the next twelve to twenty four months, that many with us today will be impacted by this eventuality. Within the context of our meeting today we see the emergence of the market for space tourism that will create a demand for space services we can only anticipate. In a report recently released by the Tauri Group, Ms. Christensen reports, there is modest but real growth in revenues from commercial spaceflight...US commercial spaceflight is a \$261 million industry. Personal spaceflight revenues generated \$50 million in direct revenue and deposits, and increase of more than 25% over 2007”. It is within the context of our meeting that Anousheh Ansari and Michael Lopez-Alegria are speaking. Anousheh was a customer of Space Adventures, Michael was ISS station commander during Anousheh’s visit both are here today to help tell the story of this upcoming industry. It is within the context of our meeting today the construction of the 10,000 foot runway at Spaceport America continues.

The conversations and friendships you start today are part of a future you are creating.

Our symposium agenda is structured to provide deep learning and our networking is structured to help each of us share that deep learning face to face. Twittering, facebook, and other social networking tools have their place in the complex fabric of learning societies, yet they cannot replace the basic need of humans to be with each other! ISPCS has all sessions in plenary to enable all attendees to hear the same information at the same time. We then relate this knowledge to our individual knowledge, and the synergy of doing this integration together creates additional learning and creates extraordinary experiences.

I will end this part of my talk with a quote from the Yoga Sutras of Pantanjali, “When you are inspired by some great purpose, some extraordinary project, all your thoughts break their bounds. Your mind transcends limitations, your consciousness expands in every direction, and you find yourself in a new, great and wonderful world. For the next two days, we hope we will give you a brief feel of the potential the wonderful world of spaceflight for mankind might offer us.

Thursday, October 22 2009, Opening Remarks Day 2 -

Good Morning. Welcome back to the 2nd day of the International Symposium for Personal and Commercial Spaceflight.

Yesterday we focused on human spaceflight. Today our focus is the “hardware” side of the business with an end-to-end examination of the microgravity, sub-orbital and LEO side of the business. We will start with discussion of the science and engineering that can be done in sub-orbital and micro-gravity environments. This session will be led by the man who is most qualified person to do this discussion Alan Stern, former NASA Administrator for Space Science. Then Clay Mowry will moderate a discussion with the satellite developers, followed by a discussion of the launch vehicles that will launch these satellites. The one session we have devoted to local capability, will be chaired by Keith Beck with Jacobs Technology at NASA White Sands Test Facility. Keith’s panelists will discuss capabilities within New Mexico to refurbish reusable launch vehicles and process payloads. And finally we will hear from the facilities who will provide services to operators and their customers, the spaceports.

I started working in the area of commercial space in 1991 when the state of New Mexico announced it would establish a commercial spaceport. I have behind me a letter from our governor Jack Campbell, written to then President Kennedy in 1963, “We in New Mexico believe the first inland aerospace port should be based here and earnestly solicit your acceptance of our views.” Why has it taken so long? Context, many things need to come together for this industry to get to the tipping point, the point where change is unstoppable. Those of you in the room know, some of those components are coming together. For example, the vehicles.

In addition to their space tourism role, the suborbital and orbital vehicles will eventually be configured to carry research payloads to facilitate space hardware qualification, technology demonstrations and scientific investigations. Research applications include: microgravity sciences, space life sciences, atmospheric investigations, space systems development and demonstrations. Some of the platforms these vehicles will carry are described as micro sats, small sats and cube sats. Public private partnerships will enable the business case that supports the development of some of these vehicles because the developers can sell some of the

technologies to customers other than the government. Likely benefits of the developing small satellite market are that the satellites are less expensive to develop, deploy and operate. As we increase access to space and to low earth orbit, we will enable more companies to enter the market. There will come a tipping point where this increased access will enable the development of the “killer app”. And will answer the question, why do it in space? If getting to space was easy everyone would be doing it.

The space business is working at the grass roots here in this room. While this is an exciting business, it is difficult, expensive to enter and risky. Success has been and will continue to be elusive. Those entering this business must be extremely dedicated, talented, focused and well, somewhat lucky.

Remember what I said about context yesterday? Here is another short discussion paraphrased from the Tipping Point that you may find approaches the argument for the importance of context as we embark on this next phase of space commercialization. Is past prologue?

In the 1860s and 70s, the American economy went through perhaps the greatest transformation in its history. This was when the railroads were being built and when Wall Street emerged. It was when industrial manufacturing started in earnest and when all the rules by which the traditional economy has functioned were broken.

If you were born in the mid 1830s you were born at the right time to take advantage of the transformation of the early 1860s. Of the 75 richest people in human history and the list includes kings, queens including Cleopatra. 20 were born in the United States during the years 1831-1840 John D. Rockefeller was #1, Andrew Carnegie was #2. They were given extraordinary opportunity because of the context of the time within which they lived. The same analysis was done for the dawn of the personal computer age in 1975. The perfect age to be in 1975 was to be old enough to take advantage of the coming revolution but not too old so that you missed it. Ideally you want to be 20 or 21. Bill Gates and Steve Jobs were both born in 1955, Paul Allen, 1953. All the people I mentioned were hard working, extremely focused, their success was not just of their making but also a function of the world in which they grew up. I only ask you to think about the context we are living in now, as well as the extraordinary talent, perseverance and capabilities of the people we will be listening to today. It seems the change we might see happening in the near future will require both an understanding of the context of our times and the commitment of the people to this business.