



ASKAIC

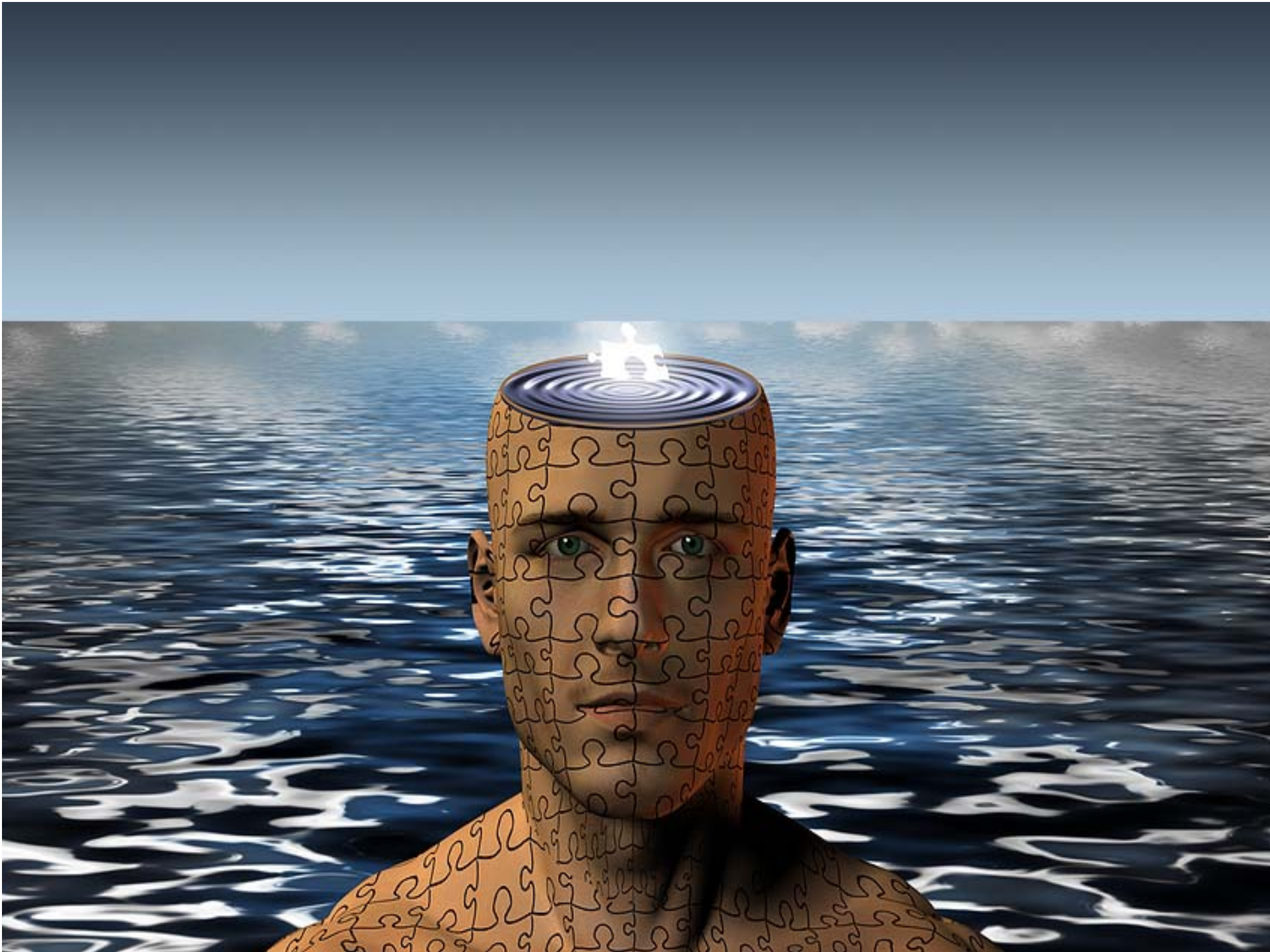
Connecting Australasian Industries with Next Generation Space Technologies

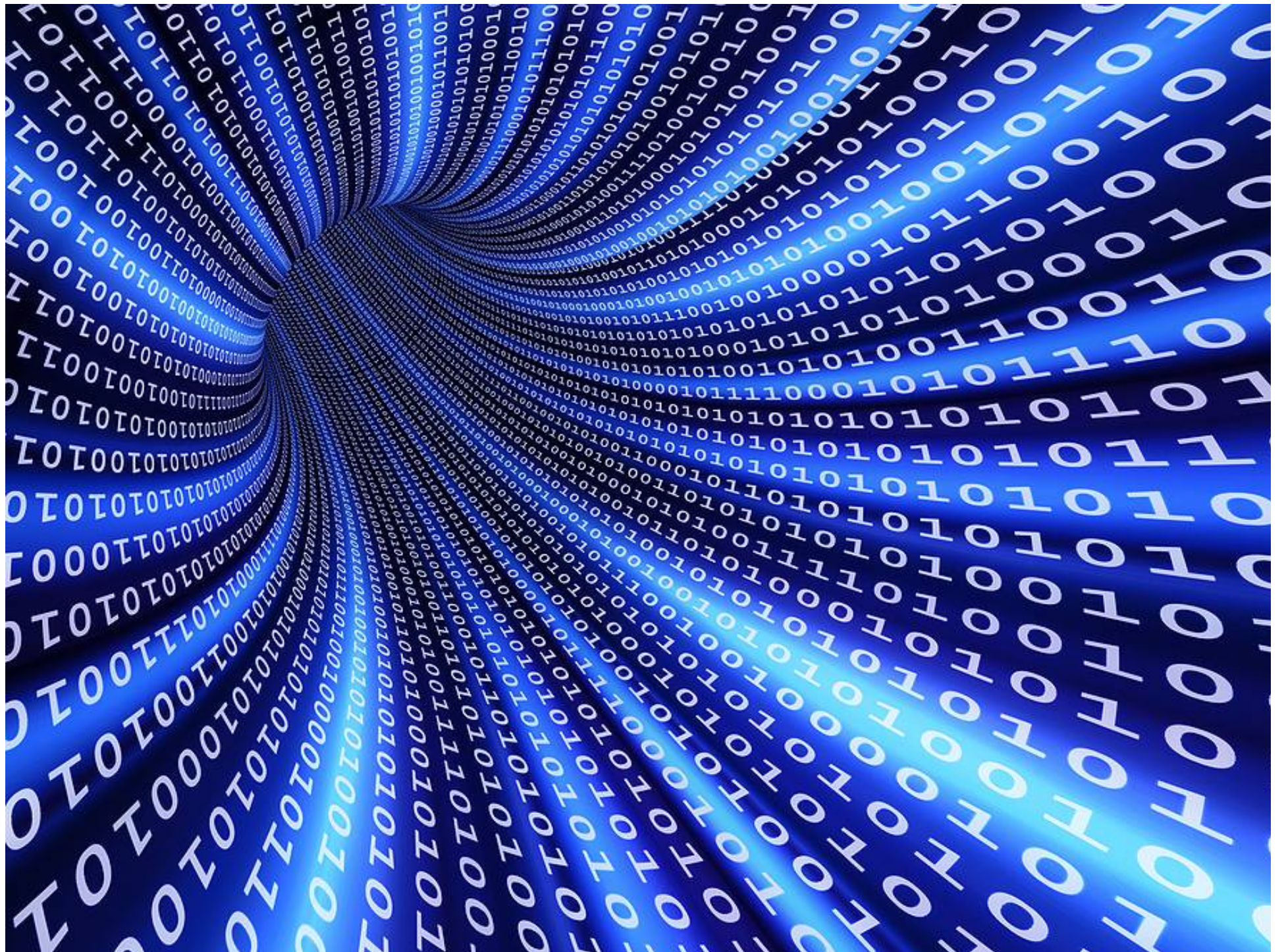
4th November 2010

2010 Mid West Science Summit

John Humphreys, Chair, Australasian SKA Industry Consortium







**One channel for this collaboration
is.....**



Photo courtesy NASA

THALES
AUSTRALIA

BOEING

IBM

aurecon



Department of
Commerce

BAE SYSTEMS



Australian Government
Department of Innovation
Industry, Science and Research

Telstra

NEW
ZEALAND

visionstream



LEONARD MARTIN

Sun
microsystems

iVEC

CISCO

ICRAR
International
Centre for
Radio
Astronomy
Research

CRAY
THE SUPERCOMPUTER COMPANY

CSIRO

aska*ii*

Australasian SKA Industry Consortium

HORIZON
POWER

WorleyParsons
resources & energy

Geraldton-Greenough
Climate of Opportunity

MID WEST
CHAMBER OF
COMMERCE
AND INDUSTRY

global INNOVATION
CENTRE

hp

invent

Australian Industry
GROUP







- 
- Formed in Late 2005 as the *“Australian SKA Industry Cluster”* Project
 - 50/50 govt/industry funding for first 18 months
 - Has evolved to a Consortium fully funded by its Consortium partners
 - Now has 24 organisations as members



Regional/Community Engagement with ASKAIC?

Participation of Geraldton-Greenough City Council & Mid-West Chamber of Commerce & Industry via a nominated representative (CEO of G-G CC)

A vibrant, multi-colored star field with a bright purple and white star in the lower center.

What are the Spin-off Benefits
from SKA?

Limited by the imagination!

Photo courtesy NASA



Socio-Economic Benefits

Photo courtesy NASA

- **CERN** – 160 transferable technologies listed on 2005 database
- **Hubble Space Telescope** – led to more efficient digital images for breast biopsies (accessed by 500, 000 women in the US per year)
- **NASA** – Every \$1 spent on space flight, it receives \$7 back in corporation & personal income tax via increased jobs & economic growth

Renewable Energy

Photo courtesy NASA

Renewable Energy

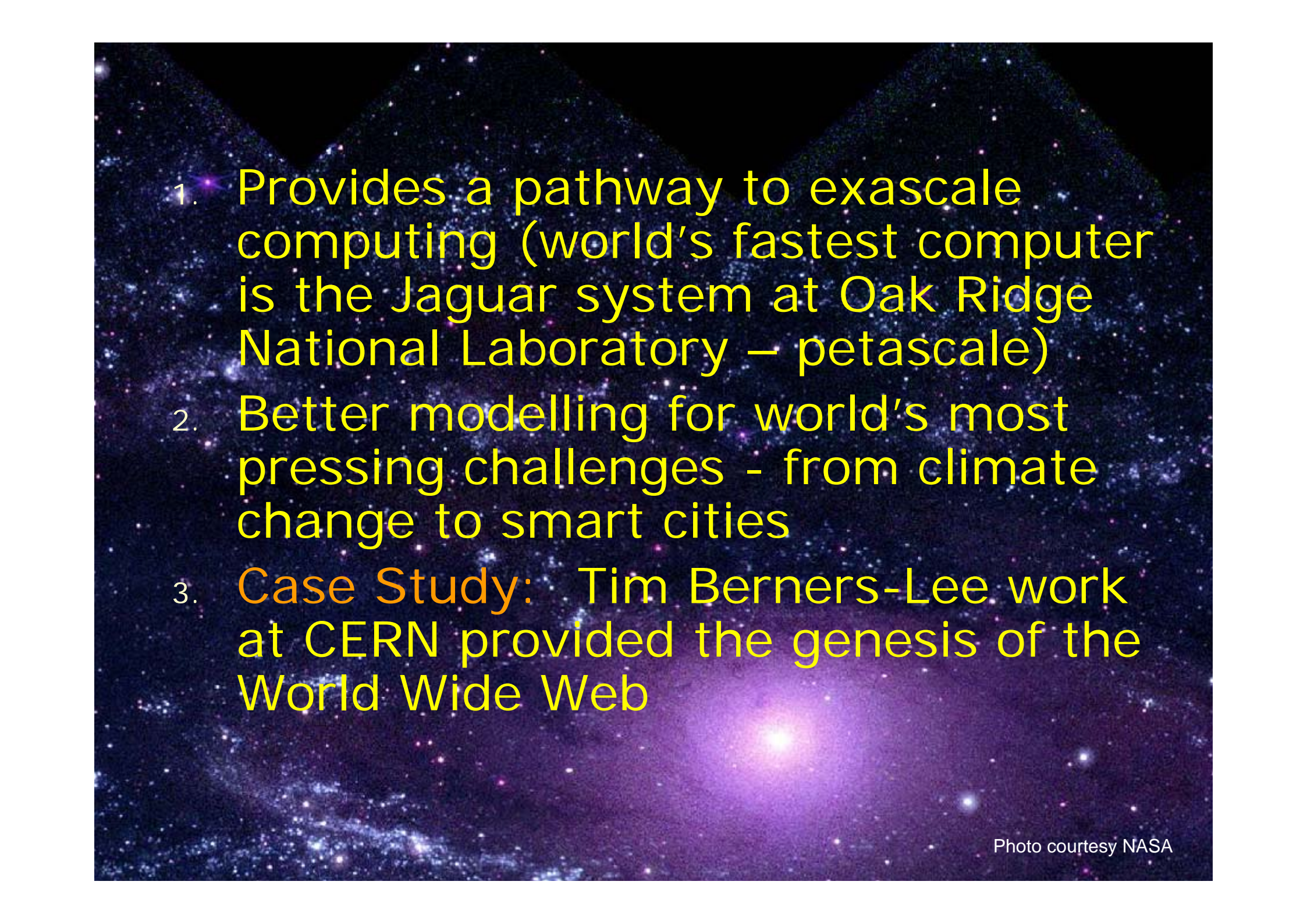
- Aim to achieve 24/7, 100%, low cost, high quality renewable energy to remote communities
- Opportunity to develop new energy systems ie. optimised solar, photovoltaic, and solar thermal solutions, supported by remotely generated wind, wave, geothermal exchange or biomass energy production

Renewable Energy (Cont)

- Learning opportunity & source of employment for local indigenous communities
- Opportunities for disadvantaged communities throughout the world

Information Technology

Photo courtesy NASA

- 
1. Provides a pathway to exascale computing (world's fastest computer is the Jaguar system at Oak Ridge National Laboratory – petascale)
 2. Better modelling for world's most pressing challenges - from climate change to smart cities
 3. **Case Study:** Tim Berners-Lee work at CERN provided the genesis of the World Wide Web

SKA – Model for the future of global ICT?

- The data rate of the SKA will be larger than that circulating around the globe by the rest of humanity
- By 2025, the SKA will need exa-scale computing capacity – comparable to the fastest computer in the world at that stage
- The necessary data transfer rates will redefine communications technology

Communications

Photo courtesy NASA

Communications

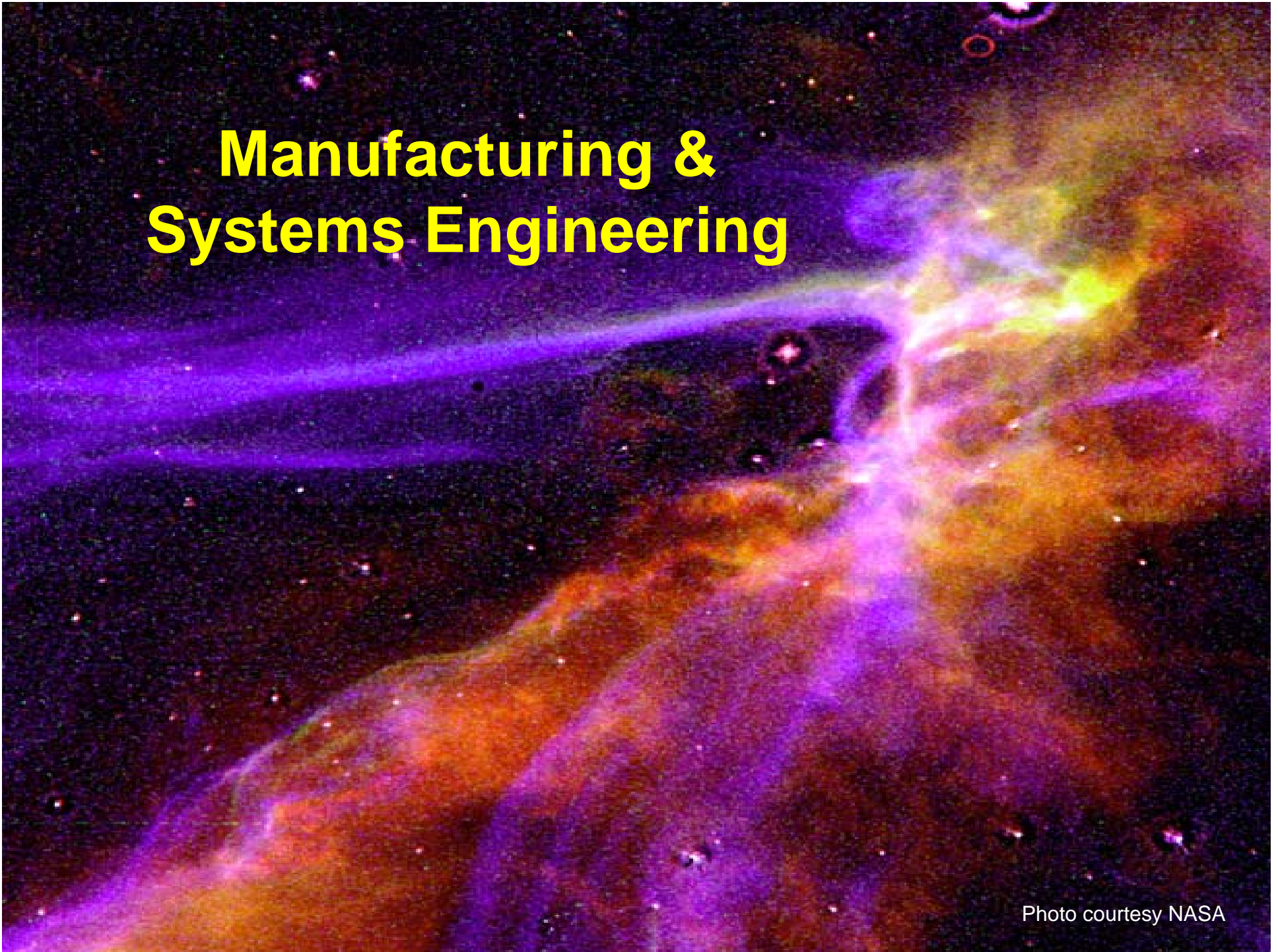
- **Communications infrastructure for SKA will be the largest terrestrial system link in the world - will transmit data to the world's most powerful computing facilities**
- **Need to solve the challenge of long, fast data transmission – from antennas remote from the core – will lead to innovation**

Case Study

- Radio-Astronomy & Wi-Fi - Dr John O'Sullivan of CSIRO – winner of Australia's 2009 PM's Prize for Science. WiFi technology is now in use in over 800 million wireless devices around the world

Manufacturing & Systems Engineering

Photo courtesy NASA



Manufacturing & Systems Engineering

- SKA will provide an opportunity to deploy, experiment, & offer 'real life' testing of both SKA and world market application devices & systems, through full life-cycle evaluation (expected 50 year life-span)
- Development of new technologies & techniques relevant to a wide range of sensor applications eg. radar, medical & other imaging systems
- Provides a lead for future mega-science projects – fosters collaboration

Other Opportunities

- **Development of sensor networks for early disaster warnings**
- **Enhancement of land-based networks**
- **Education & training**
- **Human Genome studies**
- **Test-bed for the trial of new products/systems**
- **New approaches to procurement & global cooperation**

In Conclusion

Let's "open the blinds on the Universe", to enable us all to take advantage of this major opportunity! We are all Ambassadors for SKA!



Thank you

John Humphreys

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Photo courtesy NASA