

*Management Challenges & Lessons  
Learned at Gemini Observatory*

Doug Simons  
Gemini Observatory Director

## \* Gemini Observatory Overview

- \* Who, what, where, etc.

## \* Management Challenges & Opportunities at Gemini

- \* 2 Telescopes, 1 Observatory

- \* Tracking Gemini's Pulse

- \* Management Training

- \* Culture Change

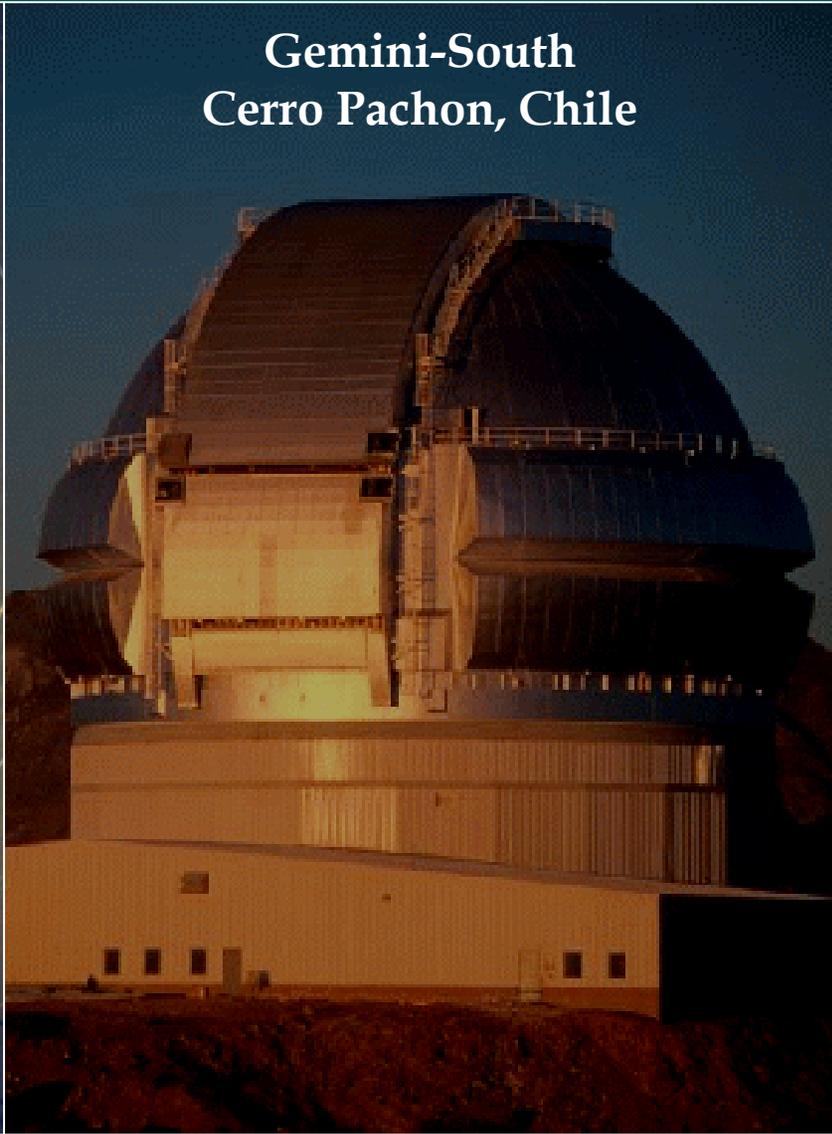
- \* Revitalizing Gemini's Safety Program

- \* The Importance of Planning

## \* Lessons Learned as an International Scientific Consortium



# *Gemini Observatory*



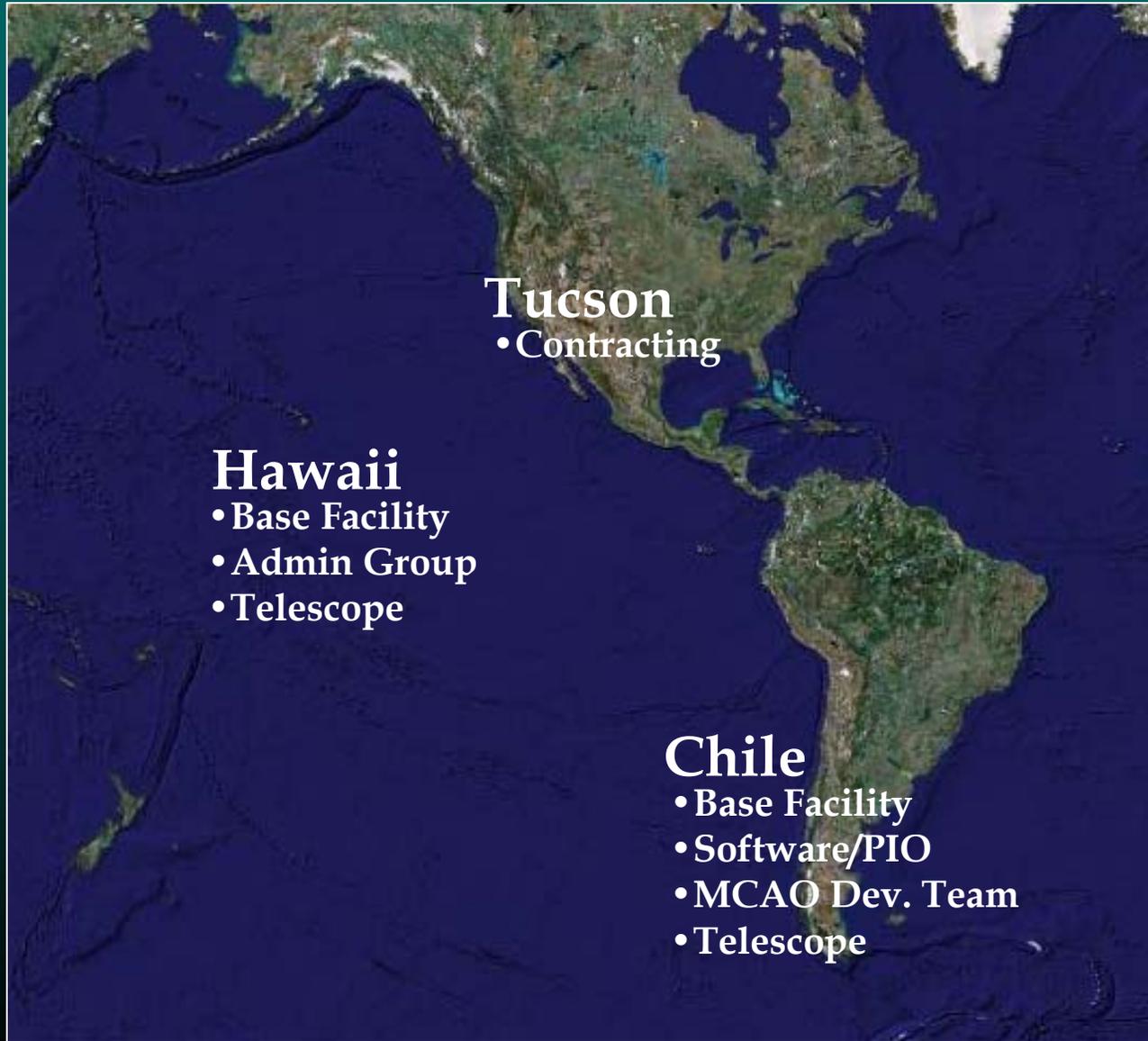


# *Gemini Observatory*

- \* **What:** Twin 8 m infrared optimized telescopes that together provide all-sky coverage and help support the research of thousands of astronomers worldwide
- \* **Who:** A scientific partnership between the US (50%), UK (25%), Canada (15%), Australia (5%), Brazil (2.5%), & Argentina (2.5%)
- \* **When:** Gemini-N operational in 2000, Gemini-S in 2002
- \* **Cost:** ~\$200M to build and ~\$30M annually to operate
- \* **Staff:** ~180 men and women from over 20 countries that are based in Hilo, Hawaii and La Serena, Chile
  - \* A world-class set of engineers, scientists, technicians, and administrators
- \* **Why:** To teach humanity about the universe...



## *Staff Located at 8 Sites...*



**Tucson**  
• Contracting

**Hawaii**  
• Base Facility  
• Admin Group  
• Telescope

**Chile**  
• Base Facility  
• Software/PIO  
• MCAO Dev. Team  
• Telescope

*2 Telescopes*



*1 Observatory*

- ★ **Many of the management challenges we have at Gemini are directly traceable to this core operations paradigm**
  - ★ **How do we instill a common sense of purpose and mission across the staff?**
  - ★ **Communications are extremely challenging**
    - ✧ **The bi-lingual nature of the observatory is the easy bit...**
  - ★ **Complicates establishing equity in pay and benefits**
  - ★ **Profound implications on Gemini's operating budget, staffing plan, development program, infrastructure, etc.**
- ★ **Gemini Observatory is truly unique in astronomy in this respect...**

# *Tracking The Observatory's Pulse*

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- \* Before starting as Gemini's Director (May 2006) I interviewed half the staff to see Gemini through their eyes...
  - \* Identified common concerns, underlying perceptions, what staff felt we are doing right/wrong, etc.
- \* Last year I had our Associate Directors report this process
- \* In the future I intend to extend this further to include all of our managers and facilitate candid dialog across the entire org-chart

- \* Basic issues persist and some will require a **cultural change** to eliminate -
  - \* Staff overload
  - \* Morale
  - \* Management/training
  - \* Safety
  - \* Priorities and Communication
- \* *Many of these challenges are traceable to our recent transition from construction to operations*

# *Management Training*

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## Corporate Cultural Change at Gemini

✳ Management training is on-going via monthly seminars

✳ *"How to Supervise People"*

✳ *"Solutions for Unacceptable Employee Behavior"*

✳ *"Leadership: Bringing Out the Best in Others"*

✳ *"Criticism & Discipline Skills for Managers"*

✳ Etc.

One-Day Seminar

### How to Supervise People

Learn effective leadership skills to maximize employee performance.

**You'll be able to:**

- Slash employee turnover costs and prevent hassles by using the best hiring and interviewing techniques.
- Unify employees into a smooth-running productive team, despite differences in personality, background, and age.
- Find the delicate balance necessary to effectively supervise friends and former peers.
- Establish supervisor-subordinate relationship boundaries that will be understood and respected.
- Identify difficult employees and handle them easily, appropriately, and swiftly.
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- Originate project plans and set goals that your team will support.
- Control absenteeism and tardiness.
- Develop a keen sense of timing for taking corrective action or firing an employee — and know the legal implications of your decisions.
- Best of all, gain confidence and win the respect of your boss, peers, and team members!

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## *Leadership & Communications Training*

- ✦ Over a 1.5 year period the entire staff will have the opportunity to attend a 3.5 day class on communications from Landmark Education Business Development
  - ✦ Applying the language of change vs. the language of transformation
  - ✦ Distinctions between committed speaking and listening
- ✦ Initially attended by essentially the entire Gemini management team plus some key personnel
  - ✦ For a highly distributed team like Gemini, just getting all of our managers together in 1 location to talk was extremely useful



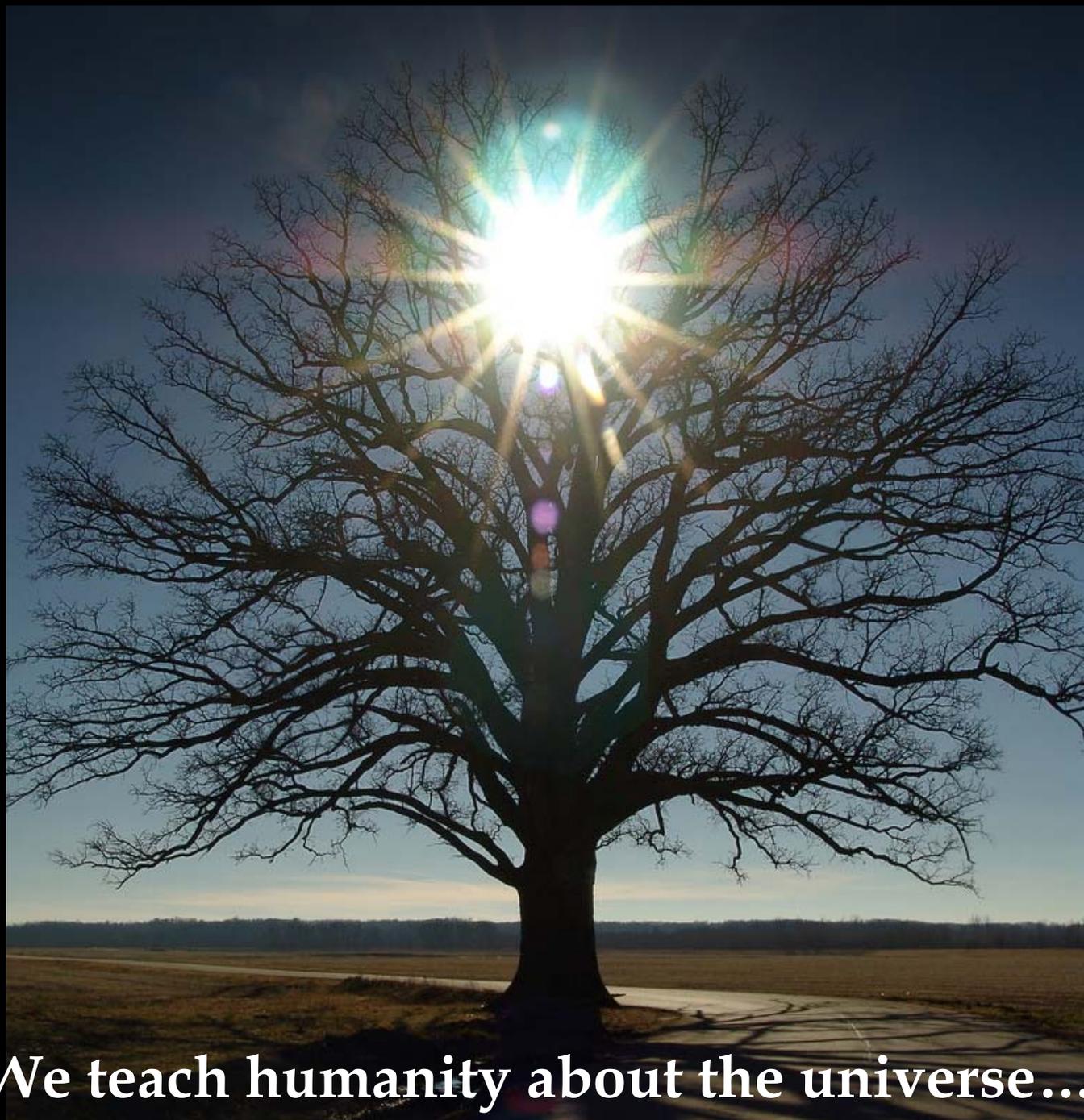
## *Practical Applications at Gemini*

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- ✦ **Maintaining organizational integrity in a sea of uncertainty**
- ✦ **The importance of accountability**
- ✦ **Defining and executing committed actions in a professional organizational setting**
- ✦ **Quickly identifying useless complaints and moving on**
- ✦ **Forward focused in our thoughts and actions**

# *Other Forms of Culture Change*

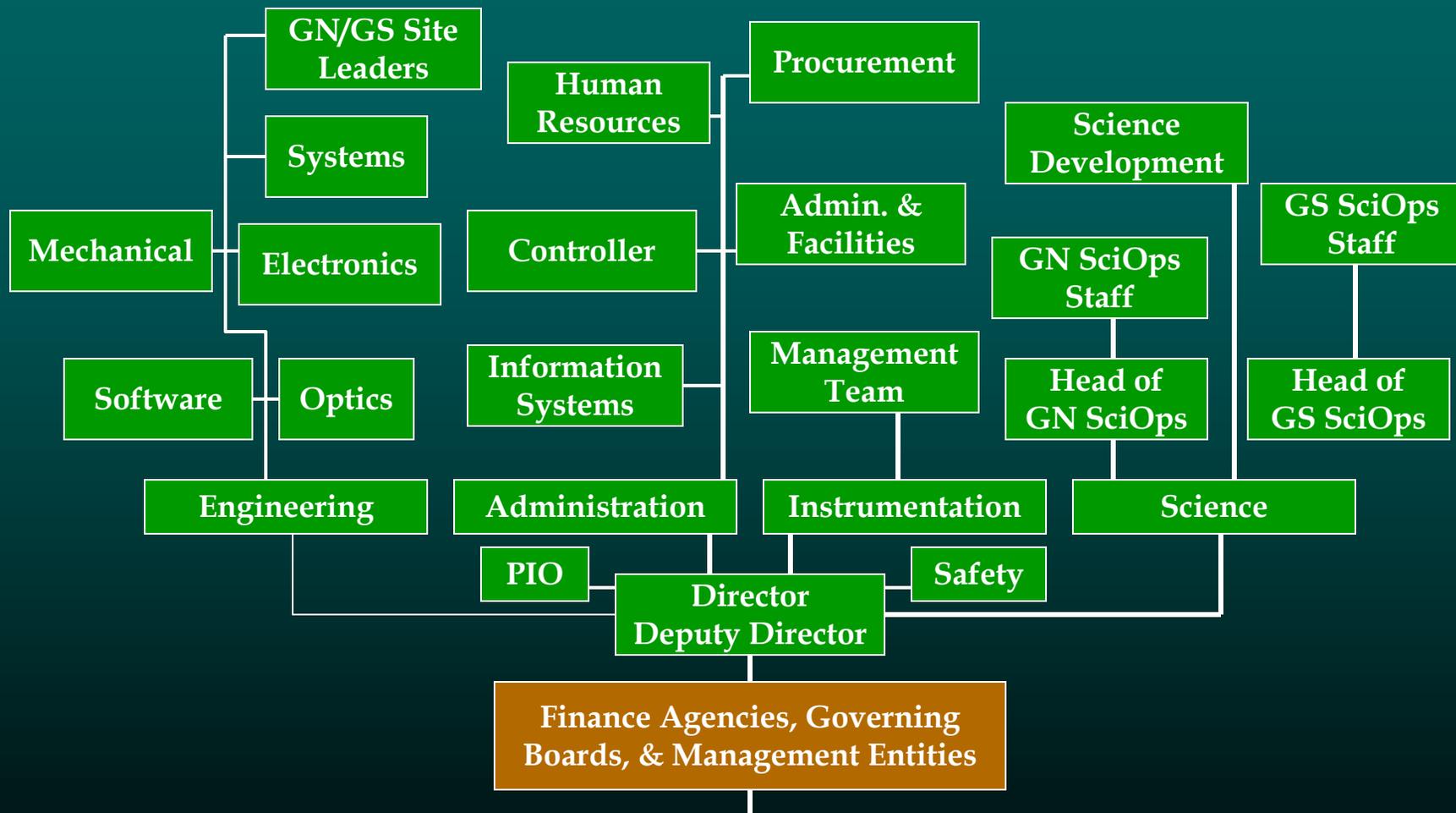
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**We teach humanity about the universe...**



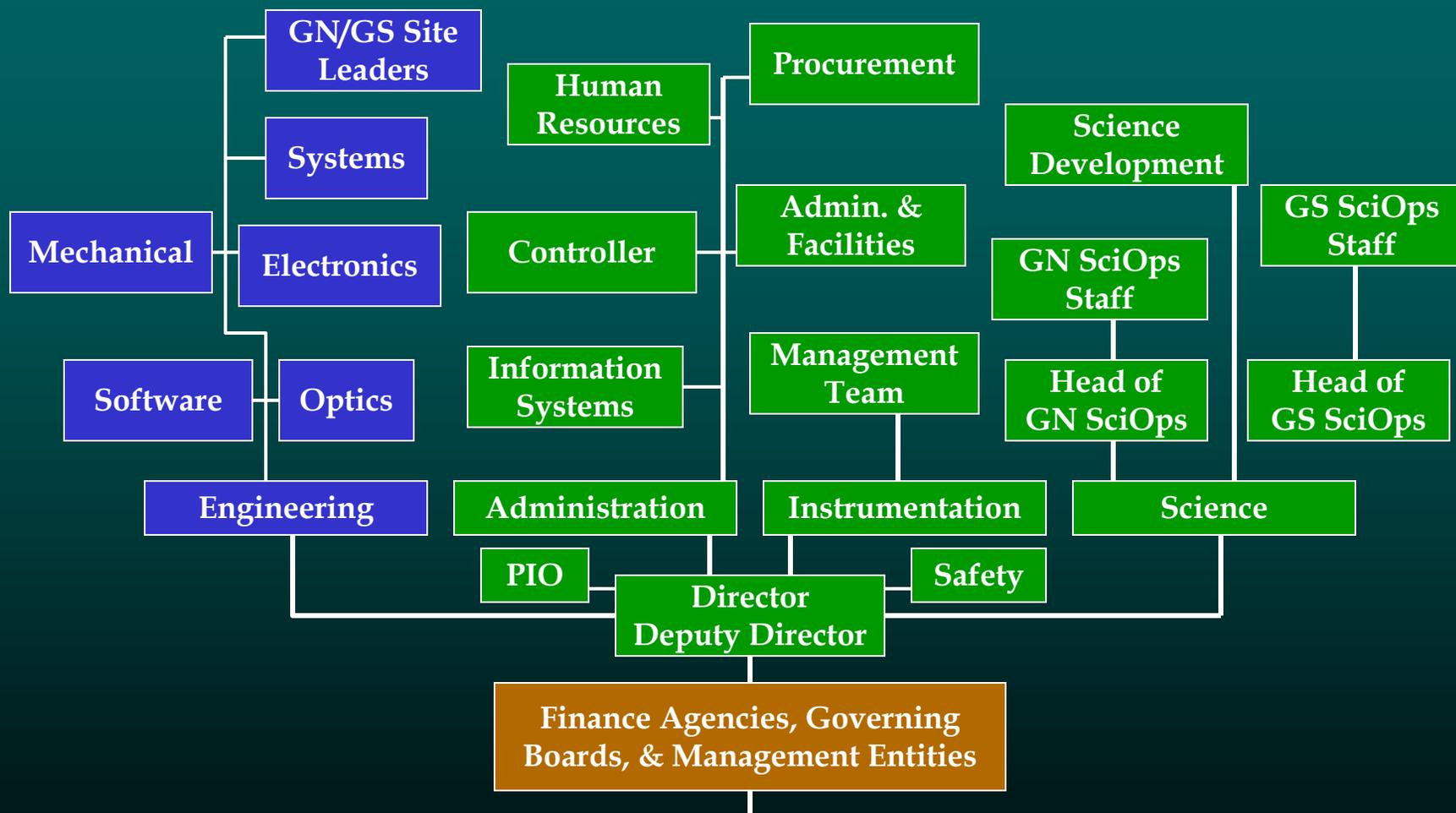
# Gemini's Functional Org-Chart



We teach humanity about the universe...



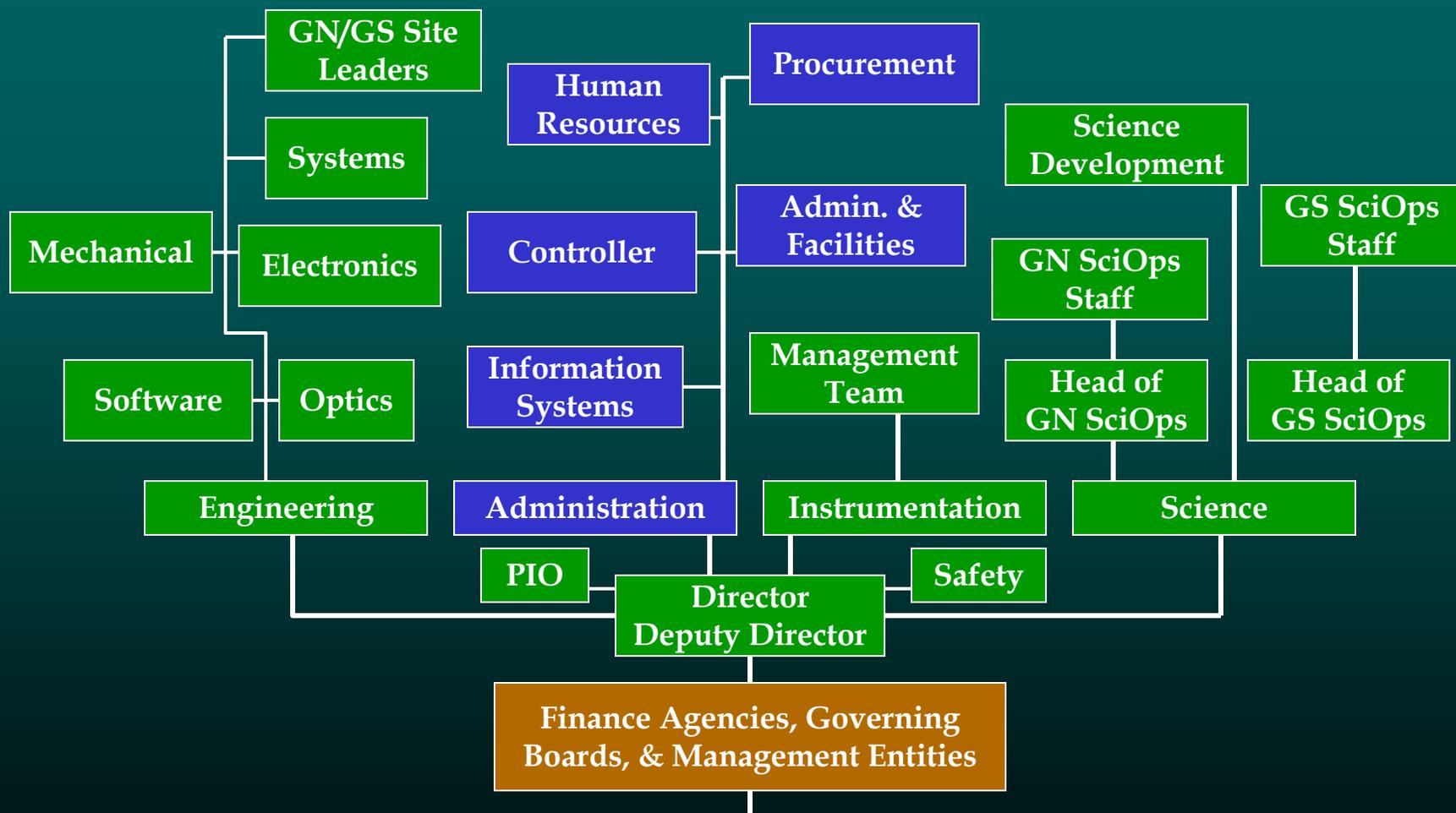
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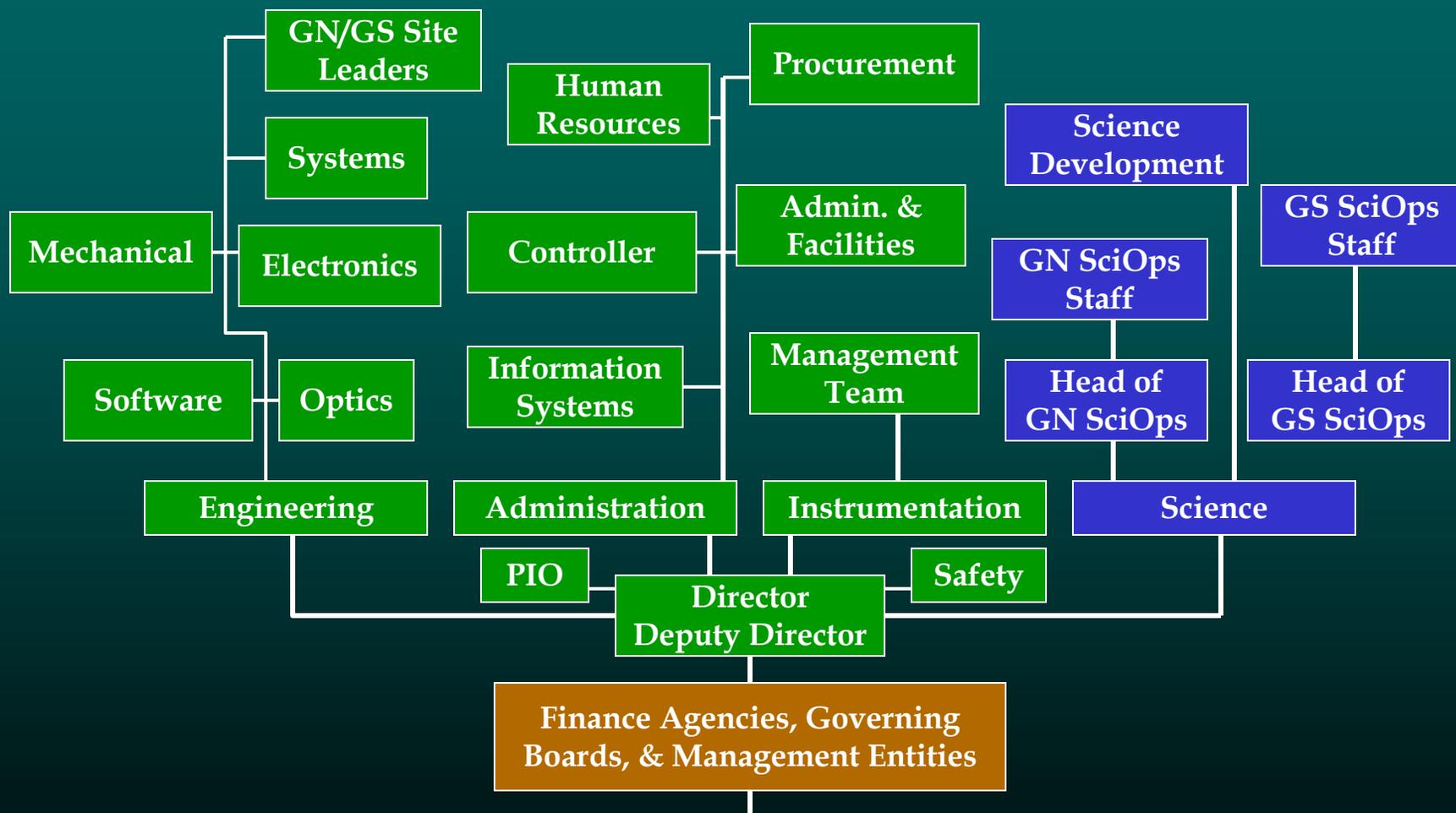


We teach humanity about the universe...





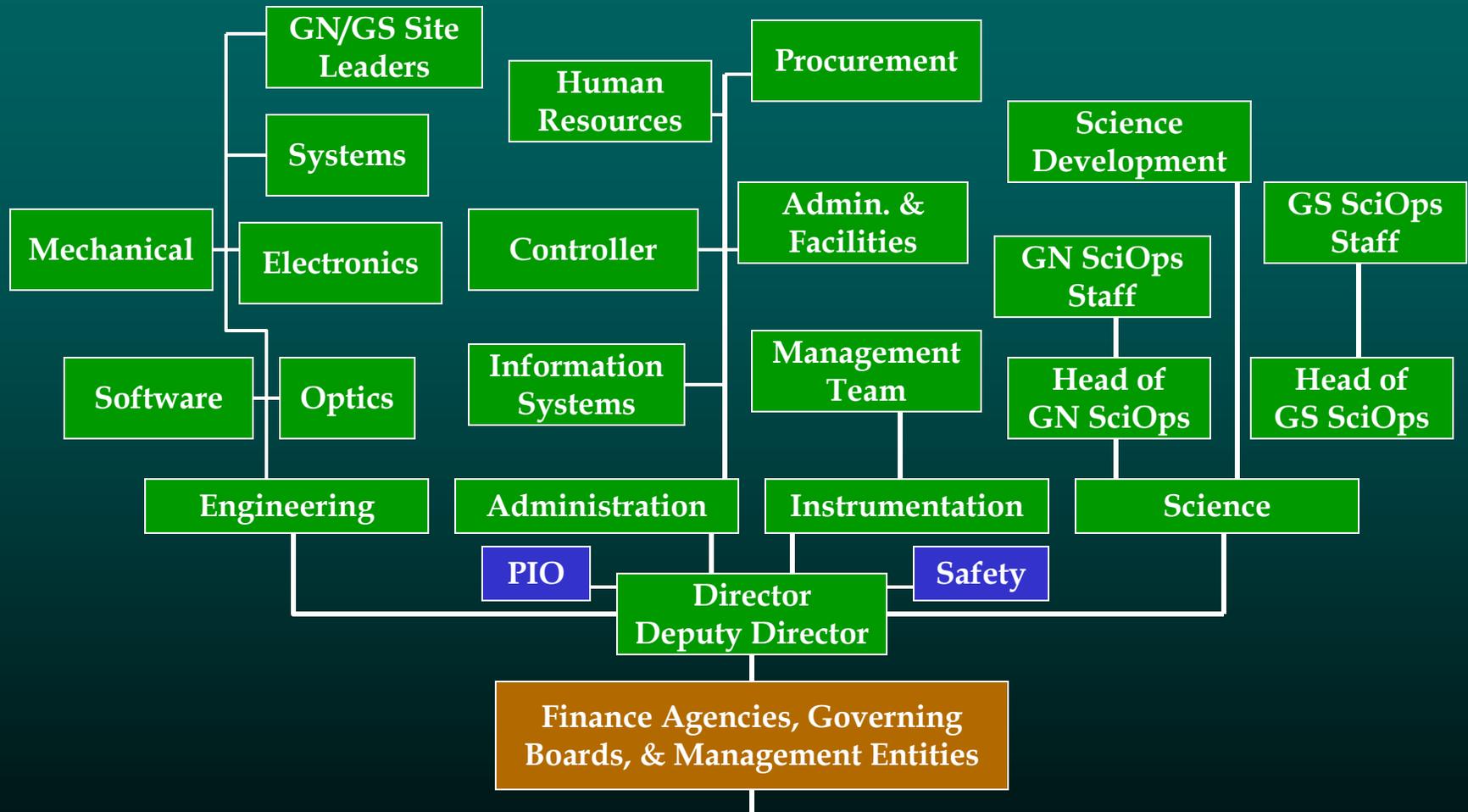
# Gemini's Functional Org-Chart



We teach humanity about the universe...



# Gemini's Functional Org-Chart



We teach humanity about the universe...

### GEMINI OBSERVATORY

Our working culture

*Nuestra cultura de trabajo*

- ◆ TREATING OTHERS AS WE WOULD LIKE TO BE TREATED
- ◆ TRATANDO A LOS DEMÁS COMO QUEREMOS SER TRATADOS
  
- ◆ STRIVING FOR PERSONAL AND INSTITUTIONAL GROWTH OVER STATUS QUO
- ◆ LUCHANDO TANTO POR EL CRECIMIENTO PERSONAL COMO POR EL CRECIMIENTO INSTITUCIONAL SOBRE EL STATUS QUO
  
- ◆ TAKING RESPONSIBILITY AND ACCOUNTABILITY FOR OUR ACTIONS
- ◆ ASUMIENDO LA RESPONSABILIDAD DE NUESTRAS ACCIONES
  
- ◆ ACTING WITH INTEGRITY IN ALL WE DO
- ◆ ACTUANDO CON INTEGRIDAD EN TODO LO QUE HACEMOS
  
- ◆ HAVING MUTUAL TRUST IN ALL RELATIONSHIPS
- ◆ CONFIANDO MUTUAMENTE EN TODAS NUESTRAS RELACIONES
  
- ◆ NURTURING SAFETY OF PEOPLE AND EQUIPMENT IN ALL OUR ACTIONS
- ◆ FOMENTANDO LA SEGURIDAD DE LAS PERSONAS Y EQUIPOS EN TODAS NUESTRAS ACCIONES

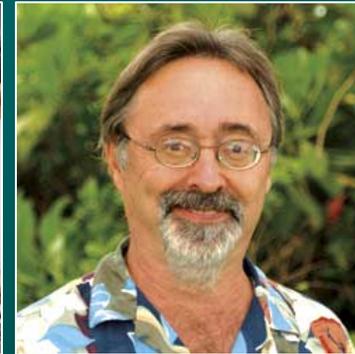
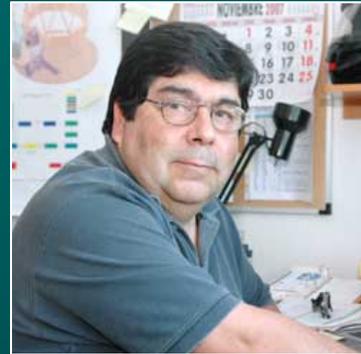
- ✳ Taken together, the changes being made at Gemini add up to a cultural change, intended to -
  - ✳ Bring Gemini into a sustainable operations era
  - ✳ Vastly improve staff morale
  - ✳ Create a lasting N/S balance and interdependence
  - ✳ Protect the lives of our staff through a new emphasis on our safety program
  - ✳ Yield a better scientific product by having a more stable, happy work force

*Safety Program  
Revitalization*

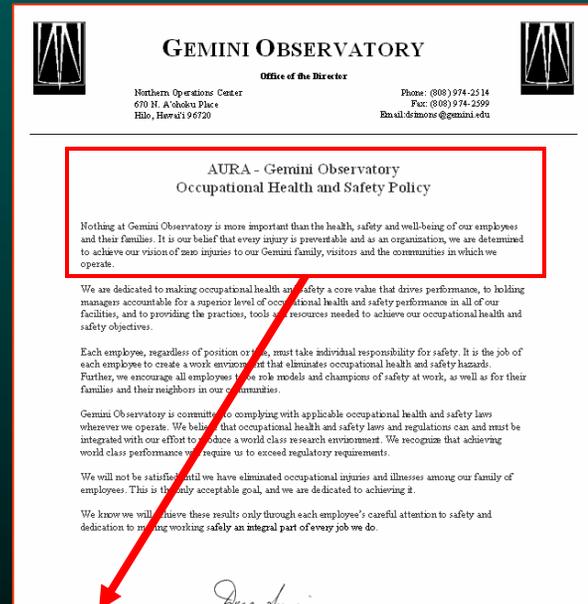
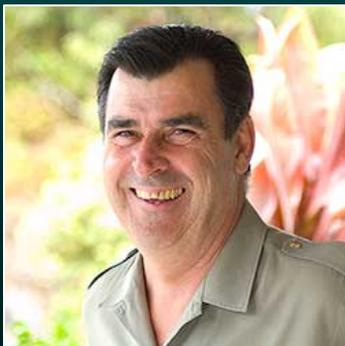
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# Gemini's Safety Leadership Team



## Gemini Safety Program Team



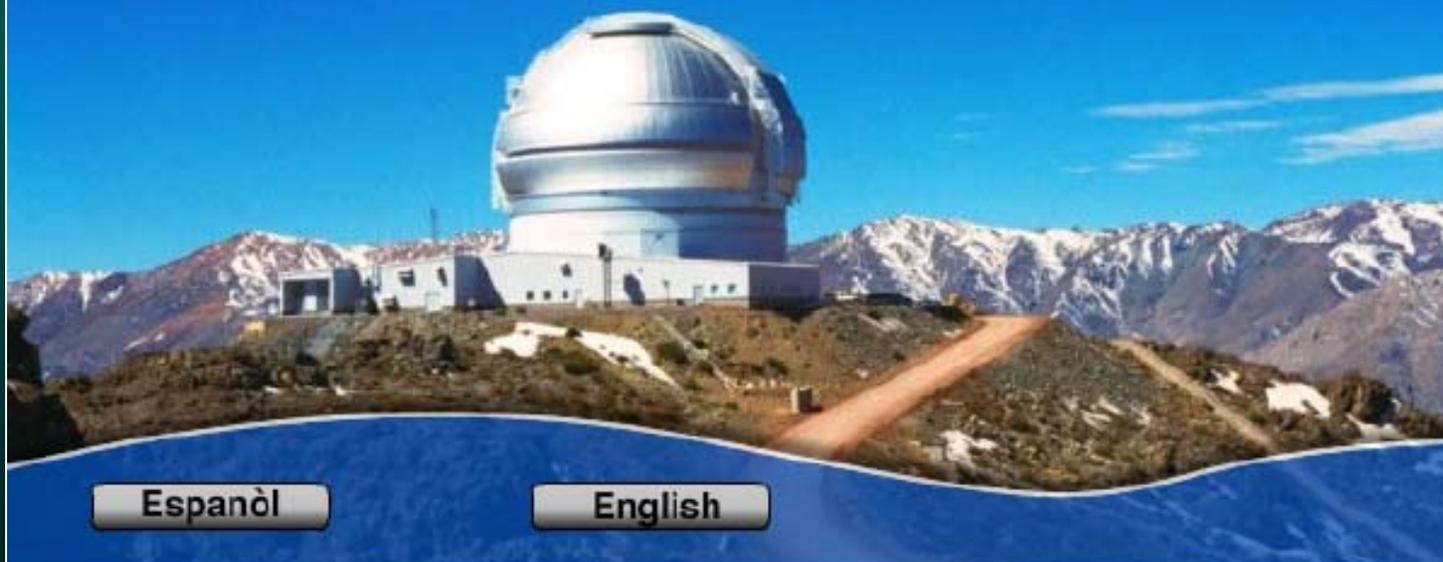
**Nothing at Gemini Observatory is more important than the health, safety and well-being of our employees and their families.**



*Expanding our Fleet of Vehicles & Improving Safety...*

# A Safe Journey

Cerro Pachòn  
Safety Driving Video



Espanòl

English

**Mountain Driver Training & GPS Vehicle Tracking**



# *GPS Vehicle Tracking & Mountain Driver Training*



*Controlling Our Future  
with Better Planning*

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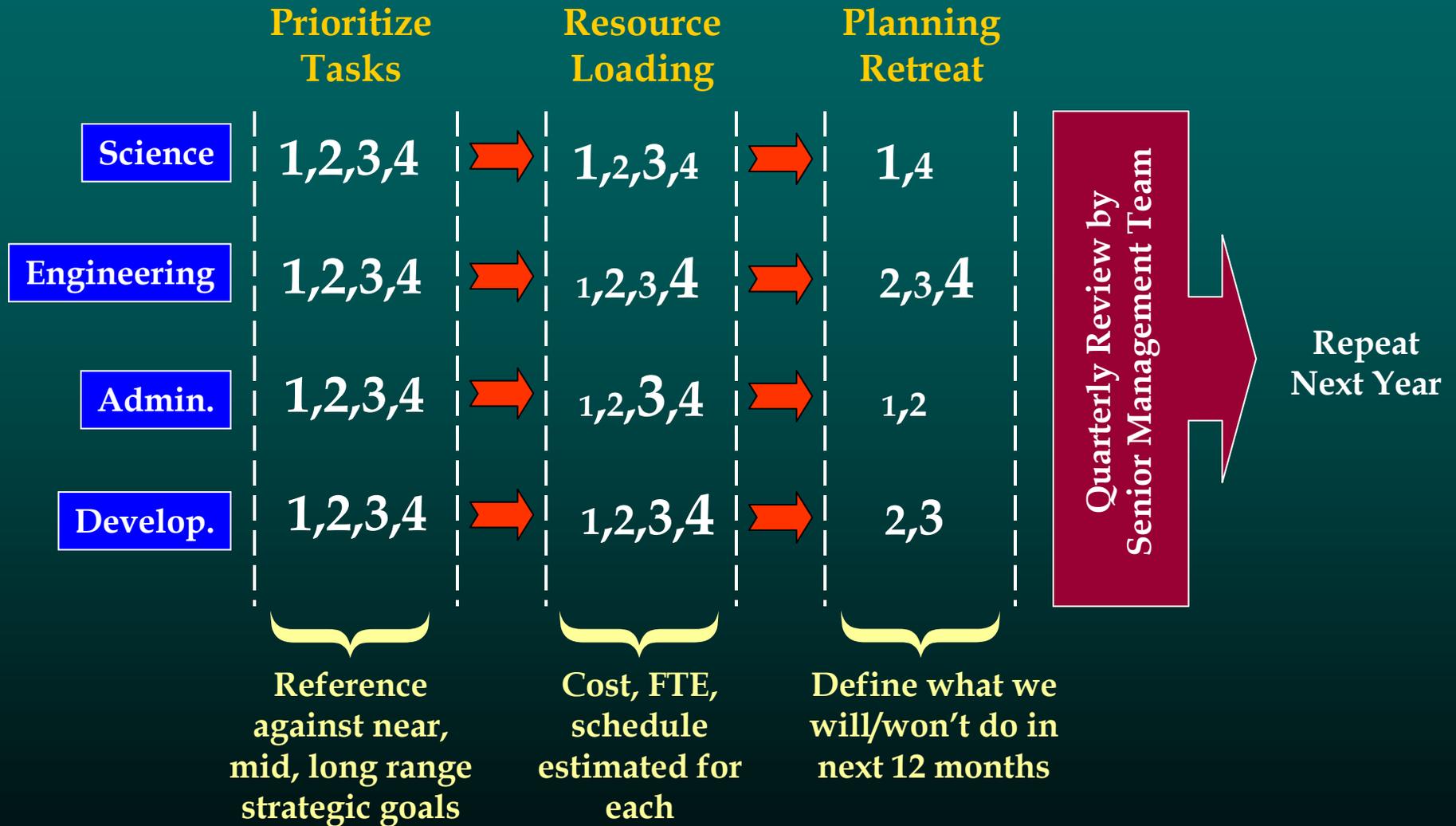
## *Coming "Full Circle" with Planning at Gemini*

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- \* Ironically during Gemini's construction phase planning was done meticulously and frequently to manage a complex project - building 2 telescopes an ocean apart**
- \* Gemini's planning systems atrophied when we entered an operations phase**
  - \* *Combined with a staff still working in a "fire fighting" construction phase mindset, failing to plan regularly was dangerous and contributed to morale problems***



# Operations Program Planning in a Snapshot...



- ✧ The need to rebuild our planning systems is a particularly hard lesson learned
- ✧ We have had 2 major planning retreats with the dominant conclusions being -
  - ✧ *We barely have enough staff to operate and maintain 2 telescopes*
  - ✧ *We have to very carefully decide what new projects will and will not take on*
  - ✧ *Planning is only part of the story - plan execution is the rest...*

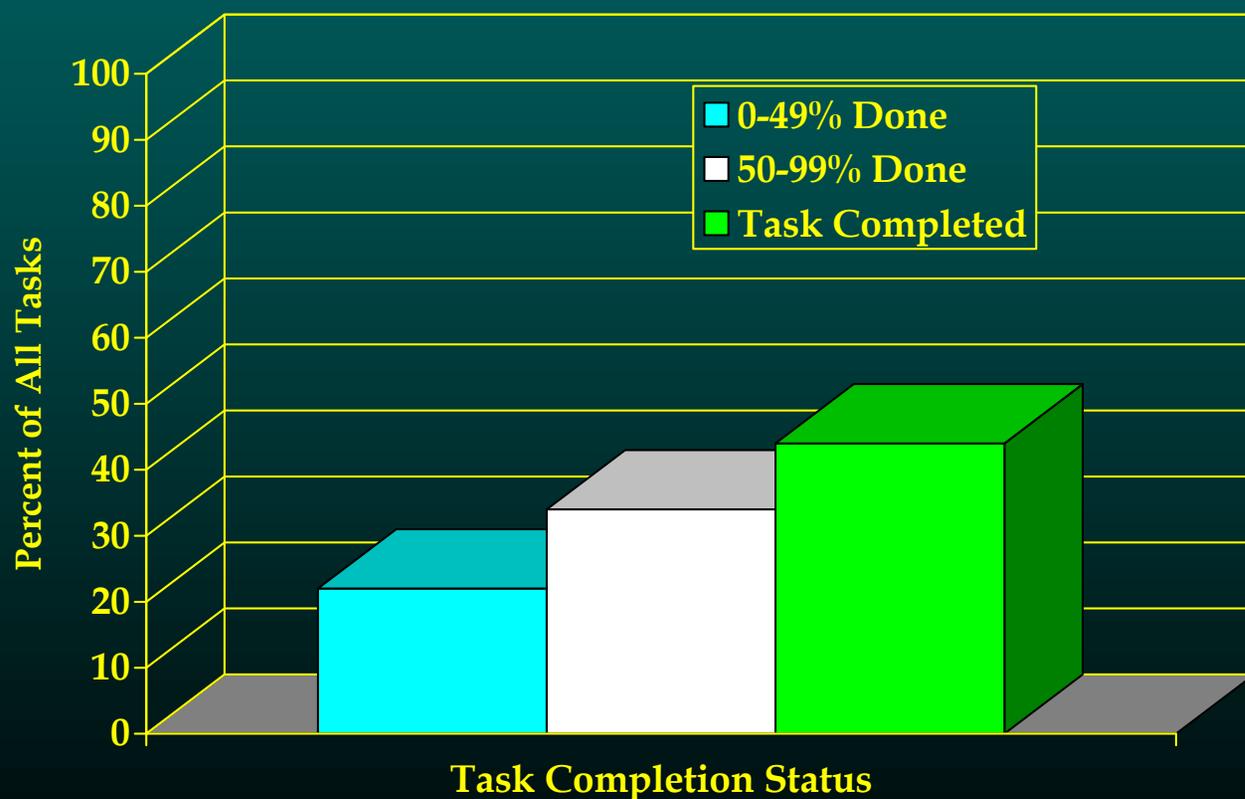


**Miami Planning Retreat**  
February 2007



**Santiago Planning Retreat**  
October 2007

\* Past performance (2007) overall a “mixed bag” in terms of task completions



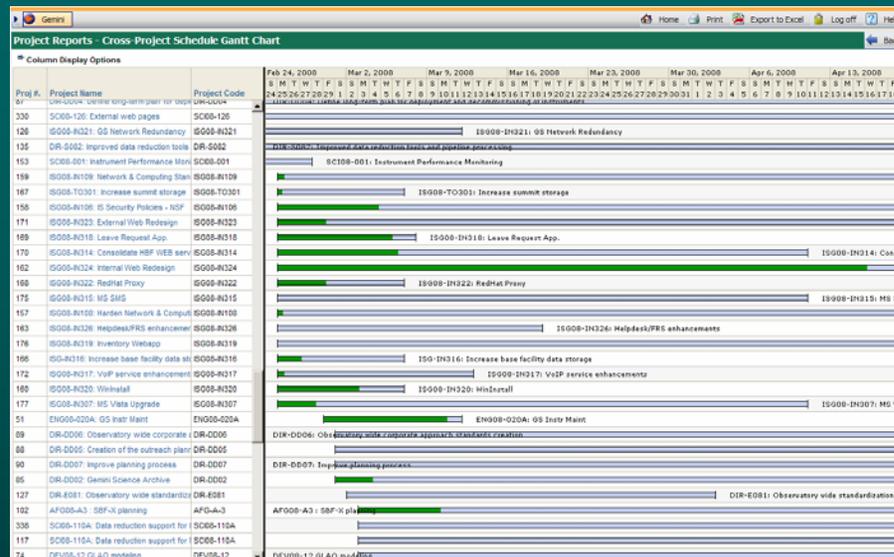
✳ **Key changes in 2008...**

- ✳ **Explicit accountability in task definitions**
  - ✧ **Linked to annual performance evaluations**
- ✳ **I am more closely tracking progress (or lack thereof) via weekly meetings with division heads - will make adjustments as needed in program plans**
  - ✧ **Management needs to “dog” the program, not use the autopilot button**
- ✳ **Major initiative to have staff use a single planning tool via *Project Insight*...**



# Project Insight

- Entire Observatory plan is being defined, stored, and tracked in a single web-accessible database
- Training of staff with commercial assistance from the makers of P.I. is underway
- Provides tremendous visibility of program status to entire staff



## DEV08-36: WFMOS Science Meeting - Task List

Development > 2008 Band-1 >

Column Display Options

Task Name	Constraint Date	Duration	Work Hours	% Compl.	comp	app	Start Date	End Date	Assigned To
Start Planning			0.00	100.00%	X		Thu 1/31/08 8:30 AM	Thu 1/31/08 8:30 AM	Scot Kleinman
▼SOC Meetings		10d 3h	0.00	100.00%			Tue 1/22/08 8:30 AM	Tue 2/5/08 11:30 AM	
First SOC Meeting	Tue 1/22/08 8:30 AM	3h	0.00	100.00%	X		Tue 1/22/08 8:30 AM	Tue 1/22/08 11:30 AM	Scot Kleinman (0.00%)
Second SOC Meeting	Tue 2/5/08 8:30 AM	3h	0.00	100.00%	X		Tue 2/5/08 8:30 AM	Tue 2/5/08 11:30 AM	Scot Kleinman (0.00%)
Agree on meeting agenda/format			0.00	100.00%	X		Tue 2/5/08 11:30 AM	Tue 2/5/08 11:30 AM	
Produce advertisement for meeting			0.00	100.00%	X		Tue 2/5/08 11:30 AM	Tue 2/5/08 11:30 AM	
▼Publish web page		1d	8.00	100.00%			Tue 2/5/08 11:30 AM	Wed 2/6/08 11:30 AM	
Agree on hosting site			0.00	100.00%	X		Tue 2/5/08 11:30 AM	Tue 2/5/08 11:30 AM	
Incorporate new graphics			0.00	100.00%	X		Tue 2/5/08 11:30 AM	Tue 2/5/08 11:30 AM	
Make registration form		1d	8.00	100.00%	X		Tue 2/5/08 11:30 AM	Wed 2/6/08 11:30 AM	Scot Kleinman
Go live			0.00	0.00%			Wed 2/6/08 11:30 AM	Wed 2/6/08 11:30 AM	
Send advertisements			0.00	0.00%			Tue 2/5/08 11:30 AM	Tue 2/5/08 11:30 AM	
Hold Meeting	Mon 5/19/08 8:30 AM	3d	24.00	0.00%			Mon 5/19/08 8:30 AM	Wed 5/21/08 5:30 PM	
<b>Project Total:</b>		<b>87d</b>	<b>32.00</b>	<b>25.00%</b>			<b>Tue 1/22/08 8:30 AM</b>	<b>Wed 5/21/08 5:30 PM</b>	



Instantly "drill down" to assess project details

*Some Lessons Learned as a Major  
International Scientific Collaboration*

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## *Gemini as a "Test Particle" for International Science*

### Benefits of being an international program

- \* The globalization of astronomy is inevitable and for an international organization like Gemini, it is "natural" that we engage this transformation
  - ✧ Example - engaging Subaru in a major collaboration is, to first order, just like having another international partner at Gemini (not a big deal).
- \* Cross-leveraging of funds between the various Gemini funding agencies yields stable operations funding on reasonably long (5 year) timescales



## *Gemini as a "Test Particle" for International Science*

### Benefits of being an international program

- ★ When one partner cannot keep up with payments (e.g. Argentina), other Partners can step in to buy their time and maintain cash flow into Gemini
- ★ Tends to promote scientific synergies among thousands of astronomers worldwide compared to private observatories



## *Gemini as a "Test Particle" for International Science*

### Benefits of being an international program

- ★ Leads to a vibrant international mix in Gemini's staff, which is a reflection of our community
  - ✧ For example, Gemini's senior management team is composed of 2 Canadians, 2 Americans, and 1 Chilean
- ★ Access to a wide range of instrumentation development programs world-wide helps keep Gemini's instrumentation world-class
  - ✧ *For a field of science that is technology driven, like astronomy, this is crucial*



## *Gemini as a "Test Particle" for International Science*

### Drawbacks of being an international program

- ★ Enormous oversight burden - "life in a fishbowl"
  - ★ More people are on Gemini's various advisory/oversight committees than we have on the staff
  - ★ With so many stakeholders, everyone wants to have an oversight role of some sort
  - ★ *This impacts management's ability to focus on strategic issues designed to best support our community*



## *Gemini as a "Test Particle" for International Science*

### Drawbacks of being an international program

- \* The on-going threat of a partnership predicated on mutual trust turning into a confederation of loosely aligned interests
  - ✧ This can pull future development programs in odd directions, as some partners may only provide funding for instruments deemed interesting by their specific community, leading to sub-critical funding overall
- \* Challenge of maintaining critical communications across so many time zones
  - ✧ Impossible to define a single convenient time with the UK and Australia defining the "boundary conditions"



## *Gemini as a "Test Particle" for International Science*

### Drawbacks of being an international program

- \* The Director has many bosses, some real, others virtual, all important...
  - \* A complex dynamic compared to more "linear" management models used elsewhere
  - \* Requires careful attention, clear communication, and regular interaction with many key stakeholders





## *Gemini as a "Test Particle" for International Science*

### Drawbacks of being an international program

#### ✧ Partner Shares in the Development Program

- ✧ Gemini's International Agreement mandates that development program funds be allocated back to the Gemini Partners in proportion to their share of the Observatory
  - ✧ So 50% of Gemini's development program is spent in the US, 25% in the UK, etc.
- ✧ In practice we have been able to accommodate this policy but it no doubt *reduces the quality of Gemini's instrumentation by constraining competition*
- ✧ Examples -
  - ✧ Australia National University, the builder of 2 of Gemini's finest instruments, is no longer able to compete for more for many years
  - ✧ Investments made by Gemini in lab's, shops, etc. (we pay full costs, including overhead) is then not utilized with follow-up contracts due to Partner share restrictions



## *Lots of Other Areas I Would Be Happy To Discuss...*

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- \* Risk management
- \* Dealing with expanding facilities as our staff grows
- \* Strategic importance of a strong public outreach and education program
- \* Fixed price contracting major new instrumentation with universities
- \* Establishing new collaboration paradigms across observatories
- \* Astronomical research being conducted and discoveries made at Gemini
- \* And more...



