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WHY SO SUCCESSFUL?

— U.S.-Japan collaborations in space science —

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DIFFICULTIES WITH CROSS-BORDER COLLABORATIONS

Major hurdles: **Difference in cultures:**

For examples:

- **Language (The toughest one between US & Japan.)**
- **The way of decision making**
- **Documents**
- **Meetings**
- **Communications across the Pacific Ocean**
- **Funding system**
- **Legal issues**

In a word: EVERYTHING!

Question : WHY SO SUCCESSFUL?

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Answer:

Because both parties have esteemed each other's culture!

What is ISAS?

ISAS is :

- Institute of Space and Astronautical Science
- one of the two Japanese space agencies
- dedicated to space science
- the equivalent of NASA's OSS
- self consistent with its own launchers and tracking stations
- what is called an inter-university organization with 300 personnel and 200 graduate students

HOW TO OVERCOME THE DIFFICULTIES(1)

- Both parties clearly recognize the difference of the two cultures or two ways in which things are treated.
- Then both parties **esteem** each other's culture and traditions and **trust** each other.

EXAMPLES:

LANGUAGE: English was used, but both parties always took it into consideration that there existed high probability of misunderstandings at any time. Repetition, paraphrase, speed reduction or frequent confirmation was usual.

HOW TO OVERCOME THE DIFFICULTIES(2)

- Both parties clearly recognize the difference of the two cultures or two ways in which things are treated.
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EXAMPLES:

DOCUMENTS:

- Heated debates between the two parties had lead to dramatic reduction of the number of requested documents.
- Still ISAS side compromised in creating much more documents than they thought necessary.

HOW TO OVERCOME THE DIFFICULTIES(3)

- Both parties clearly recognize the difference of the two cultures or two ways in which things are treated.
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EXAMPLES:

MEETINGS:

- Bare minimum number of the red-tape formal meetings.
- JSWG(Joint Science Working Group) meeting was held twice in a year: one at NASA and the other at ISAS.

HURDLES TO OVERCOME(3)

DOCUMENTS

- Traditionally ISAS requires very few documents; typically the following two which cover almost every GEOTAIL related matter:

1) Interim report 2) Pre-launch report

- The reasons:

The team is small with bare minimum number of interfaces to be documented.

Small team just cannot afford large volume of documents which require tremendous energy.

- NASA requires numerous documents

HOW TO OVERCOME THE DIFFICULTIES(4)

- Both parties clearly recognize the difference of the two cultures or two ways in which things are treated.
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EXAMPLES:

DECISION MAKING:

- Quick decisions among small number of experts was esteemed without formal signatures of the management outside the project.
- Within the project, however, a consensus was a baseline for decision making.

HURDLES TO OVERCOME(4)

MEETINGS

- ISAS traditionally prefers very limited number of formal, redtape meetings, while holding numerous small, informal meetings.

- NASA prfers numerous formal meetings.

NO T-SHIRTS HERE!

HOW TO OVERCOME THE DIFFICULTIES(5)

- Both parties clearly recognize the difference of the two cultures or two ways in which things are treated.
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EXAMPLES:

COMMUNICATIONS:

- Telemail was used as a communication means.
- Telemail was exchanged almost every day between the systems managers on both teams.

HURDLES TO OVERCOME(5)

COMMUNICATIONS

- Internet was still not widely used in early 1980's when the joint project started.
- Fax was not widely used either.
- Telephone was not so convenient.
  The reasons:
  - language problem
  - time difference (10 to 11 hour difference)
  - lack of written record

HOW TO OVERCOME THE DIFFICULTIES(6)

- Both parties clearly recognize the difference of the two cultures or two ways in which things are treated.
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EXAMPLES:

DIFFERENCE IN PHILOSOPHY:

- Satellite design philosophy is sometimes quite different from each other's. A typical example is the sub-system redundancy policy.
- We needed to understand and esteem the other party's way of thinking. A theoretical analysis could sometimes reveal a reasonable way of redundancy policy.

HURDLES TO OVERCOME(6)

FUNDING SYSTEM

- Japanese fiscal year starts in April and ends in March.
- The budget is usually not approved unless the partner’s participation is assured on both sides.

HOW TO OVERCOME THE DIFFICULTIES(7)

- Both parties clearly recognize the difference of the two cultures or two ways in which things are treated.
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EXAMPLES:

LEAGAL ISSUES:

- Legal issues were very hard to resolve and they still remain to exist even now.
- It, however, never affected the excellent relationship between the engineers or scientists in both parties.
- They were the issues only among lawyers, not among the engineers and scientists.

HURDLES TO OVERCOME(7)

LEGAL ISSUES

- There exists a small difference between the U.S. and Japanese law regarding the cross waiver of liability.

- This seemingly trivial difference has always been extremely serious and every joint project between NASA and ISAS has had difficulties for concluding MOU.

- A dedicated treaty had been concluded to bridge this gap, but NASA lawyers seem never to have been satisfied.

HOW TO OVERCOME THE DIFFICULTIES(7)

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LESSONS LEARNED (US SIDE)

Professor R.Anderson(PI, Univ. of Iowa)

- Japanese language lessons prior to working on the (GEOTAIL) project in Japan were positive steps in encouraging cooperation.

- It also gives one a better idea of how challenging it is for the Japanese to work in an English-speaking environment.

- In international cooperation it is important that one side not dictate requirements to the other side.

- Diplomacy is very important. It is much better to guide your colleagues in the direction you want them to go than to make demands.

- The Japanese practice of seeking consensus and group decision making during spacecraft testing was contrary to what we had experienced on other U.S. and European projects.

CONCLUSONS(1)

IMPORTANT THINGS IN INTERNATIONAL (OR ANY) COLLABORATION PROJECTS

- Two(or more) teams share the same goal seeking for the overall optimum, not the local optimum.
- Both teams should clearly recognize and esteem the other parties' different culture and tradition.
- The most important one word in international project is definitely "TRUST".
- That means we should deserve "trust", in other words, you should be sincere, honest and open minded.

CONCLUSIONS(2)

- The GEOTAIL program has been and continues to be an outstanding success. ***Dr. M.Acuna(NASA)***

- …the development of a mutual trust relationship between the partners was perhaps the most critical element of all for success. ***Dr. M.Acuna(NASA)***