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A Discussion about Planning Horizons and Plans

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Personal Prolog

This is an Architecture Note. It is the opinion of ISEC's Chief Architect. It represents an effort to document ISEC's ongoing science and engineering discussions, and is one of many to be published over time. Most importantly, it is a sincere effort to be the diary, or the chronicle, of the multitude of our technical considerations as we progress; along the pathway developing the Space Elevator.

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Our Long-Term (30+ year) Planning Horizon

We have a Planning Horizon reaching out to 30 years into the future. That is different than having a plan for the next 30 years.

Introduction

In Arch Note #10, I caused a minor stir by citing a 30-year Planning Horizon. I got a few contacts calling out that ISEC's Initial Operations Capability (IOC) for the Space Elevator will be as early as 2037. For those of you keen on math, the 2037 IOC is 20 years away. While I cited a planning horizon, it was thought to be a plan. So, some confusion; and perhaps some points were poorly explained. Fair enough, let's talk about why we need planning horizons and plans.

Additionally, I called for 5 six yearlong planning phases. (planning phases, not plans!). I was really trying to point out that we have several distinct technical needs, not one great big 30 year one. The important point was that the phase durations should be about 5 to 7 years in order to get into the cycle of today's investors; government or industry.

Let's talk about all of this, and get our words to match our activities. We should also structure our planning phases in a way which attracts funds

and does not scare away potential partners. Let's talk about planning horizons, planning phases, IOC, and all that.

The Planning Horizon and how it fits us.

The key word is horizon. We mean horizon. Not "over the horizon" like a fancy radar or a battlefield cavalry scout. Not "short of the horizon", like something that is well within our view. We certainly expect our Space Elevator to be valuable for a while after IOC; perhaps even out to the horizon. We have discussed our Space Elevator Transportation System improving and growing after IOC. That growth and that improvement is within our planning horizon. If not, we would get to IOC and we would wonder what to do next! We don't want that!

In Architecture Note #10, I cited 5 phases that could be part of our journey. There are probably a few more. It is now obvious that each of the phases need not be six years. The phases could be partly concurrent, reducing the net duration to something effective for proper system development and for proper design integration of the results of each phase.

In my experience, the system development lead / system integrator foresees "need dates" for the various needed products. These products that are results of planned, focused, phases. In our case, these "planning phases" are technical maturation efforts. Other planning phases could be for needed operational testing, personnel training – or even marketing. Placing the need dates properly into an overall, Integrated Master Schedule, coordinating the progress of the several phases, and managing the trials and tribulations of Mega Project exigencies is our lot. Not the proverbial "piece of cake"; but it suits us.

Phases and the Space Elevator Transportation System.

The several technical phases need not be underway at the same time. Progress in one of the technical phases could have some impact on another. Arranging these technical maturation phases between now and IOC calls for a sweet combination of experience, investment, and bravado. Back up sources for high risk products would be a good idea. Alternatives shall be developed. Internal cross phase communication, and shared technical evaluations are a necessity. Surprise is not a good technical

management attribute. Risk management and risk mitigation are good technical management skills.

Phases and Fiscal Partners.

The considerations of the fiscal partners may take precedent from time to time. We should expect their participation. Their financial involvement makes them part of the technical management solutions to be employed. This is not new in the commercial space world. In my dealings with the large satellite communications providers, I have been impressed with their management processes which consider fiscal impact as well as technical, developmental, and operational factors. During the development of the Space Elevator Transportation System and the subsequent operations of it and the Enterprise System, a similar process will form; and then morph to meet similar exigencies. Our fiscal partners will bring funding only if it is seed for payback in the Enterprise.

Phases and the Space Elevator Enterprise.

Architecture Note #9 touches on this relationship of the many enabled entrepreneurial efforts ("The Enterprise") and the Transportation System. Architecture Note #10 foresees funding sources interested in the same technical products we need for development of the Transportation System. These early funding sources need not be the entrepreneurs; in fact likely not. The entrepreneurs will be part of the funding sources when they recognize that the Transportation System is being built, and is enabling an Enterprise System. With that recognition, the entrepreneurs will join us, building the business centerpiece we expect it to be.

In closing

In Architecture Note #9, we are admonished to not build that "bridge to nowhere". Instead, our 'bridge to somewhere' will be solidly based on our strategic approach and the implementation of sound 1) fiscal, 2) developmental, 3) technical, and 4) operational decision making. These four factors meet first when we develop the focused technical maturation efforts; introduced in Note #10 as the planning phases.

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