In its present form this RFP should be rejected. My reasons for doing so are below. I have added this statement at the beginning so that it is not lost in the details of my response.

I am concerned about this RFP as it appears to be a fait acompli. The timetable is extremely short and the inclusion of several present tense rather than future tense statements makes me tend to believe that this is an RFP for a product that already exists.

“The CRM logical components are intended to be reused as a starting point for a mission-specific CubeSat logical architecture, followed by the development of physical architecture during CubeSat development. On the other hand, should the mission-specific team decide to adopt a different logical architecture, the CRM is sufficiently flexible to accommodate this change.”

This is also borne out by the fact that this was originally an RFC rather than an RFP.

Six months to build a complex reference architecture for instruction, education, commercial use and as a standard is a ridiculously short amount of time. There can reasonably be no other submission than the one that has already been created, and this is not fair to other potential submitters.

I am also concerned that no effort has been made to ensure that the architecture will be tool-independent. For example, this is not listed as one of the issues in the first paragraph of the RFP. Why not? How can any of this be possible unless there is a tool-independent implementation that different organizations can use?

Also, references are made to models with no indications as to the format or type of model. For example: “6.4.1.4.2 A model overview of the CRM package organization.”

If a vendor in conjunction with others wishes to create an example model, then they should do so. I have done so within my own company but make no representation that it should be a reference model for a standards organization. Trying to create a standard within the OMG of a tool vendor specific tool should never be allowed and I will be lobbying hard against it unless the tool independent nature of the effort is firmly established. So there are some changes that will need to be made to the RFP before I will be willing to vote for it. Specifically, there needs to be multiple tool implementations of the CRM for this to be acceptable. The OMG should NOT be favoring one tool vendor over another and acceptance of a CRM in ONLY one tool would be blatant favoritism. This should NOT be allowed. The RFP team needs to address how they plan to remedy this problem.

My review is below.

Section 6.1

The authors assume a certain level of knowledge. For example, the term “CubeSat” is used throughout the RFP without being defined. This needs to be defined up front so that a common understanding can be reached. What are the characteristics of a CubeSat that uniquely make it one?

6.2 Scope of Proposals Sought

This RFP solicits proposals for a CRM (at the discretion of the submitter) based on the System Modeling Language TM [SysML] to facilitate the development of a mission specific CubeSat system.

I don’t know what this means? Why at the discretion of the submitter? Why is it just “based on” SysML? Section 6.4.1.11 says it must be implemented using SysML.

6.3 Related non-OMG Activities, Documents and Standards

The list of organizations is USA-only. Surely other international organizations exist that would be interested in this.

6.4.1.1

“Regarding these stakeholders, requirements, licenses, regulations, timelines, and procedures must be well understood and addressed as part of the CRM.” What licenses are being referred to here? None are mentioned in this RFP.

6.4.1.2 The CRM will be extendable to accommodate other national stakeholders and associated regulations and guidelines.

Which ones? This is a very open ended requirement.

6.4.1.3 The CRM shall provide well defined viewpoints and views for addressing stakeholder needs and objectives.

What makes a viewpoint “well-defined”? This needs to be further elaborated.

6.4.1.8 The CRM shall provide power, cost, and mass roll-up capabilities starting at the CubeSat component level.

What is the plan for making this executable? How will this be possible except within a vendor specific tool?

6.4.1.9 The CRM shall allow for the modification and extension of model elements and responsibilities to support mission objectives.

What is a model element responsibility? This requirement needs to be more exact.

6.4.1.12 The CRM shall be self-documentation on how to apply CRM for creation of the mission specific CubeSat

This sentence makes no sense in its current form.

6.4.1.13 The CRM must provide a model extraction in the form of a navigable document, preferably HTML and the associated XMI file.

Extraction from what exactly? Again, it appears that this will be a proprietary implementation in a single tool, which should NOT be allowed.

A.2 Glossary Specific to this RFP

[CRM] CubeSat Reference Model

There needs to be more of a glossary.