

XMSF Profile Standards Business Case Analysis

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ABSTRACT: *At the request of the chair of the Extensible Modeling and Simulation Framework Profile Study Group (XMSF Profile SG), the author has performed a cursory business case analysis aimed at stating business case options supporting development of XMSF standards products. To do this a preliminary analysis of alternative business models supporting Web based simulation services is developed. These business models in turn support business cases justifying development and widespread acceptance of standards for such Web based simulation services, and specifically the proposed XMSF Profiles standards line. The intent of this paper is to present options for discussion and follow-on action by the study group, rather than to recommend a final business case statement.*

1. Introduction.

Last September, during the meeting of the XMSF Profiles Study Group at the Fall 2004 Simulation Interoperability Workshop, (SIW), I accepted the task of trying to come up with a business case for XMSF Profile standards. I expected this to be a fairly straight forward extension of the case in favor of simulation, and the innate goodness of doing anything worth doing over the Web. After trying to work this business case, I still believe that the case exists for simulation, and for Web based simulation. It just hasn't yet been clearly stated. Once I realized the nature of my predicament, I thought about fleeing from the challenge, which looked to be a very good alternative (and still does). However, I marshaled my resolve and decided to press on. What follows is chain of cases for simulation, for Web based simulation, for Web standards for doing things, like simulation, on the Web, and a look at business models for making a go of Web based simulation. I finish by summarizing these cases and challenging the XMSF Profile Study Group to finish this compelling argument by showing how XMSF Profiles are both an essential enabler of Web based simulation and the best enabler in its class.

2. Building a Business Case for XMSF Profiles Standards

Any business case for standards seems logically to be tied to the business cases for the capabilities, technologies, or products those standards support. Business cases for similar enterprises seem to also apply. Let's look at a few of these.

2.1 Business Case for Web Based Simulation Standards

Bill Waite shared his considerable experience in business cases for modeling and simulation with the XMSF Profiles Study Group at the Fall 2004 SIW. Among his points were that a business case needs to justify a course of action to the relevant stakeholders and motivate those stakeholders to act accordingly. He further pointed out that standards have implicit and explicit costs, and those costs need to be identified, considered and justified in the business case for the standards. He also pointed out that there was still "more heat than light" in our efforts to define a definitive business case for simulation standards. [1].

After spending a good amount of my free time over these past few months considering a business case for XMSF Profile standards, I share his frustration. The best I have been able to do to date is to formulate a chain of logic that XMSF Profile standards are justified if they help XMSF Profiles become accepted, which in turn is justified if it furthers Web based simulation. Web based simulation is justified if simulation is valued, and getting simulation over the Web is a good way to get it. And that gets us back to the business case for simulation and simulation standards.

I suggest that the case for simulation rests on the value of simulation to the end users, especially those paying for the simulations.

We can group simulations broadly as analytical or experiential. Analytical simulations, which I see as including engineering simulations, are conducted to gain information, either answers or insights. There is an accepted theory of the value of information, and it basically comes down to whether the information obtained is more valuable than the cost incurred to obtain it. So for analytical and engineering simulations, we need to show that the costs of using simulation is somewhat less than the expected, or likely, costs of either using other analytical approaches, or the costs of a “cut and try” evolutionary approach to designing processes and systems. Note that the equation also improves by lowering the costs of simulation, in addition to increasing the value of the results. This will be useful in our case for Web based simulations, and the standards to support it.

The case for experiential simulations is similar. Is the value of the experience deemed worth its costs by the party paying for the experience, usually the user or a trainer or educator? One difference is that cost of delivery is often the driving cost, rather than cost of development (although some recent experiences in developing training simulations may argue against this). But either way, a method for Web delivery makes providing the experience easier and cheaper, so the case for Web based simulation standards is again also tied to the case for Web standards.

2.2 Business Case for Web Standards

Eric Sliman provides an excellent case for Open Standards, specifically detailing the following key advantages he attributes to Open Standards:

- More choice
- Reduced risk
- Durability
- Flexibility
- Quality
- More choice of vendors and less dependence on the chosen vendors
- Decreased cost to vendors
- Enhanced interoperability
- More agility— simpler and quicker integration (composability?)
- More repeatable processes
- More resources to leverage, both technical and human
- Better communications in and between the user and developer communities [2].

Karl Groves presents similar advantages in his case for Web Standards, adding the argument that good Web standards potentially decrease bandwidth requirements, based on the assumption that the community behind the standards is seeking and evolving the most efficient approaches [3].

2.3 The Business Model for Web Based Simulation Impacts the Case for Standards

This paper admittedly fails to identify a solid business case for XMSF Profile Standards, due largely to my inability to find a definitive business model for Web based simulation or simulation services. The argument that simulation improves information supporting decisions, leading to better decisions and calculable savings, is a strong one. Users should obviously want to take advantage of simulation to improve their decisions and ultimately their bottom lines. But how do simulation providers make a business of satisfying this demand? I think this is the biggest challenge facing simulation as a line of business in a Web centric world.

Although I could not find a case for the value of Web based simulation, I did find an interesting analysis by Greg Costikyan and Jessica Mulligan of business models for online gaming. Important insights they provide that may apply to Web based simulations include:

- Customize technology to appeal to the various user bases
- Episodic delivery (pay per use) seems effective, but direct micropayments don't work well (although going through a payment service may work)
- Advertiser and ISP sponsored delivery doesn't work well
- Only 5% of the global population is currently Web enabled. Business usage may be higher, but their point is that the untapped potential is still huge [4].

3. XMSF Profiles Business Case Options

Considering these cases and applying them to XMSF Profile Standards, the following case emerges.

Simulation promises the greatest benefit if it is widely accessible, widely applicable to users' problem solving needs, and agile enough to provide simulations that provide meaningful answers quickly, that is, in time to make a difference in users' business or other operations. Web based simulation promises to provide this wide accessibility to users. However, comprehensive standards seem to be essential to allowing these Web based users to collaborate through their simulations, and, more subtly, provide these users a broad set of composable tools, scenarios, and data that will enable the rapid assembly of specific simulation solutions, in time to make a difference.

Then the external economics of simulation comes into play, in that users need to see the value of what they can expect from their simulation sessions versus the cost of producing the simulation results. The lower the costs to the users, the more instances where simulation will be the prudent course of action in planning operations, making business decisions, and justifying and granting funding.

The internal economics of Web based simulation standards, that is the driver for simulation providers to embrace the standards and participate in, and fund, the standards, derives from increasing the likelihood that end users, or their consultants, will choose simulation products and providers based on conformance to a given standards baseline.

So a standards baseline such as XMSF Profiles needs to make the case that end users will significantly increase their use of simulation if it becomes more accessible, more agile, and less expensive, all related to providing actionable information in time to positively improve their bottom lines. Simulation providers then need to ensure that their products and services are readily accessible to this Web centric user base, and are readily composable by end users or their consultants with other Web based simulation components, scenarios, synthetic environments, and data sources. This then leads to the conclusion that some set of Web standards are needed for Web base simulation to take off.

XMSF Profiles therefore needs to extend this line of reasoning to clearly state what part (or parts) of Web based simulation it enables, differentiate itself from other approaches in its niche, and show that it is in the group of approaches most likely to support success of the Web based simulation industry. Note that this may or may not be the same as establishing that XMSF Profiles are the best technical solution. That will help, but in this case, being successful will beat being right.

4. Conclusion

The findings presented here lay the ground work for a business case for XSMF Profile standards. That case must show that standards based XMSF Profiles are both necessary for enabling Web based simulation, and are the best approach. That case further rests on the argument that Web based simulation itself promises to be a major success, greatly increasing the use and appeal of simulation by increasing its accessibility, composability and agility, and in the end providing answers and experiences that are worth much more than they cost.

5. References

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