Open Source Software Scenarios Study Report *abstracted from*

Open Source Software

OSS

In Canada

Open Source Business Opportunities for Canada's
Information and Communications Technology Sector

A Collaborative Fact Finding Study

by
e-cology corporation
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The complete report may be obtained from
www.e-cology.ca/canfloss/report

The Canadian Open Source Landscape in 2010

The previous sections in this chapter have developed a current state picture of open source in Canada. How might this change as we move towards the year 2010? How can such a forecast be developed when conventional trend analyses are not able to cope with the high level of unpredictability inherent in the open source model?

Scenario planning techniques are designed to *navigate* uncertainty rather than out-guess it and thus were chosen to paint a picture of OSS in Canada for the year 2010. Scenario planning is a group process that first seeks to discover the underlying forces of uncertainty. The essence of the scenario approach is identification of multiple futures, which are concurrently explored for OSS characteristics. Options for future action will likely prove to be dependent upon which scenario might play out, but in considering more than one future strategies become iterative and emergent, not fixed, and thereby more resilient to future unknowns.

2.6.1. Methods and Approach

The scenario planning method developed by Global Business Network (www.gbn.org) was used in the Study[1]. A combination of workshop and web-based consultation was used to obtain a high level of diversity and consultation. Planning began with a workshop sponsored by Industry Canada and attended by 20 participants[2]. The workshop completed the first three of a six-stage approach:

- Stage 1 – brainstorm factors and events affecting the answer to the focus question
- Stage 2 – select factors of highest impact and uncertainty
- Stage 3 – cluster similar factors to uncover underlying driving forces
- Stage 4 – reduce driving forces to the scenario framework
- Stage 5 – detail each scenario with measurable indicators
- Stage 6 – on-going scanning of the environment or signals of emergence

The focus question the workshop participants developed for Stage 1 serves as a rudder for the process. The specific question developed by the workshop participants was:

"Would Canada be better off, financially and socially, if Government specifies Open Source as an alternative to proprietary licensing of its funded software development?"

This question was particularly useful because it posed a tangible and provocative possibility, and in doing so was able set the tone and direction for the subsequent Stages.

Stages 2 and 3 produced a ranked list of driving forces (DF) that affected the focus question. Of these, the most significant forces were determined to be:

- Alignment of Open Source policies with other, more significant objectives, policies and international initiatives of the Government

Driving Force Votes	Title
175	Alignment with more major Government Objectives and Policies
155	Consumer trust and confidence
60	Use of open standards
55	Full cost accounting - total cost of ownership
50	Proper supportive services, including training
40	Business ~ scarcityversus OSS ~ abundance
40	Reliable, effecitve, scaleable architectures
30	OEM – preconfiguration
30	Ability of Canada to resist huge lobbies
25	Different component behaviours: operating systems, applications, networking
25	Software is an emotional issue

[1] See, 'The Art of the Long View' by Peter Schwartz (1991); also www.gbn.org
[2] For details see; www.opensourcescenarios.org/osss.html

- Degree of consumer trust and confidence in Open Source systems for mission critical applications.

Stage 4 and a high level preview of Stage 5 were developed in first draft form with the help of the web-based consultation. In all, over 40 experts in information technology, government and business contributed to development of the preliminary scenarios and their implications to OSS in 2010. These developments also addressed several of the concerns expressed in the workshop, specifically the absence of more fundamental factors associated with social and economic forces. Although preliminary, these results provide the first iteration of a framework to explore what OSS might become, as described in the following section.

For more details on these activities and on-going work on Stages 4, 5 and 6, please see www.OpenSourceScenarios.org/osss.html.

2.6.2. *Preliminary* Scenario Framework – OSS in 2010

There are many differing opinions of what OSS might look like in 2010. The first goal of the scenario process was to determine the reasons why the picture is so obscure. This was done iteratively, searching for the *causes of the causes* of unpredictability.

The top two reasons the future of OSS is obscure were estimated in Stage 4 to be the fundamental uncertainties surrounding data *interoperability* and the *competitiveness* of open source solutions. In time, data interoperability may become transparent and ubiquitous, taken for granted – or it may become very limited and largely provided within small clusters of proprietary vendor partnerships. Similarly, OSS solutions may achieve broad, innovative leadership in all markets – or they may not, and remain always behind proprietary software leadership. The scenario framework is a practical 2 dimensional matrix formed with the extreme cases of these powerful driving forces of uncertainty. The two driving forces of uncertainty, in their extremes, define the four possible futures show in Figure 2.26. Each scenario world is given a name to facilitate its identification.

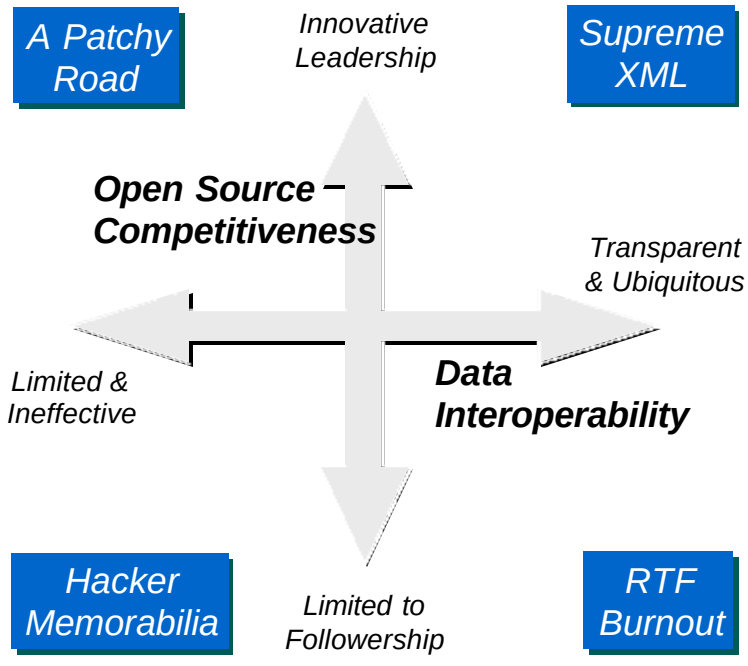


Figure 2.26

This framework is clearly *not* unique. What about the economy? What of genetic discoveries? These are examples of important factors that played a role in the development of the framework and which are contained, in context, in the fabric of each scenario world. Collectively, the scenarios capture the essence of hesitation and thereby enable effective risk management to occur.

The scenario logic is used to push and provoke future planning. It is meant to be inclusive so that the future does not take one by surprise – and it does *not* claim to be precise. The center of the grid can be thought of as today, with the future unfolding as an unpredictable trajectory into any of the quadrants. The scenarios themselves are where uncertainty is removed, by definition, and thus answers to specific questions become clear, scenario-by-scenario.

A Patchy Road is a frustrating journey for open source communities, whose innovative efforts fail to achieve significant diffusion, all for lack of data sharing standards. There is room only for the most competitive applications, which are largely proprietary and adopted despite their lack of inter-operability. In A Patchy Road, there is likely sustained, gradual progress in wealth and well being in societies. The world economy is in a slow but stable growth pattern that has not fully recovered from 2000/01. Technology innovation has shifted, possibly to energy but away from computers and telecommunications. Where is OSS? Here, it involves mainly niche players who have expanded their dominance in back office solutions. Trust in OSS has been slow to build in organizations and OSS business models are still based on license savings despite high technical support costs.

Supreme XML is a world where standards like XML are highly effective and reign supreme. The choice of a solution has become strictly based on matters of cost, function and preference, and not on interoperability, which is taken for granted. Vertical market specialization thrives on interoperability. Proprietary solutions are deployed in niches where complexity is high and the user base is small. In Supreme XML, world economies have likely rebounded and are growing. Interoperability has progressed to the desktop. There are many coexisting brands, and OSS business models are based on the total solution, including hardware, which has been enabled with a flourishing market of embedded systems. The IT workforce is shifting from big business to a diverse range of small and cooperative companies. Continent wide trade groups with world wide free trade is looming.

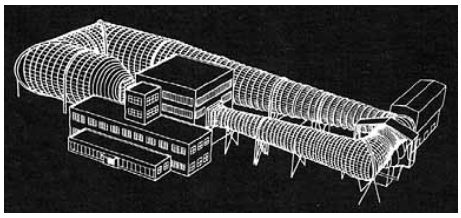
RTF Burnout is characterized by OSS communities that do not progress beyond Rich Text Format, the low level form of data compatibility. OSS fails to keep up to innovative private sector competition, which operates at the process level in business-to-business integration. Private sector experience in selling to business and large organizations prevails. Proprietary applications all are very successful in their use of common data formats. OSS is limited to insulated, cost-conscious communities. The focused nature of proprietary solutions proves to be more successful at generating innovation in rapidly changing product cycles. In RTF Burnout, governments are supportive of the sustained growth of private wealth and big business. There are a small number of strong brands of proprietary solutions. Web services flourish and business models for OSS are based on cost and focused in closed communities of practice. Trust is given only to brand names with demonstrable endurance.

Hacker Memorabilia is a world of dysfunctional open source communities and as with RTF Burnout, very strong branding in proprietary applications. A true tragedy of the commons has unfolded, caused in part by technical elitism. A combination of proprietary self-interest and technical feuding has prevented broad adoption of data standards. In Hacker Memorabilia the economy likely remains positive but weak with investment capital cautious. Information technology has largely abandoned standards based interoperability, moving instead to proprietary solutions that are extensively re-invested in all sectors. Business models for OSS are absent and OSS has become an elite group remembered for the Arpanet and Apache. There is a significant increase in venture capital investment in proprietary applications.

The scenario framework distills the forces of highest uncertainty, showing four plausible futures[3]. The fundamental purpose of the scenarios is to not be surprised by the future, in effect to rehearse the future. This is done by always considering multiple concurrent futures, not betting on one. The challenge to the planner is to develop strategies that succeed regardless of which scenario emerges.

2.6.3. Future Implications

The scenario framework for OSS in 2010 is a sort of wind tunnel that can be used to test-fly plans and model strategies for their future robustness. Strategies that work in all scenarios, so-called common strategic options, have the lowest risk of failure. Options that work only in one scenario carry the highest risk of failure; these should be mitigated if possible through delay or reduced levels of investment.



Returning to the focus question of Stage 1 for example, *Would Canada be better off, financially and socially, if Government specifies Open Source as an alternative to proprietary licensing of its funded software development?* The scenario-based answer is yes.

OSS licensing in a procurement policy would be a required strategic option in the two scenarios where OSS solutions are highly competitive (upper quadrants). Where OSS is not competitive, the value of an OSS option may be lower, but it is noteworthy that it comes without risk and so would still be advisable (Figure 2.27)

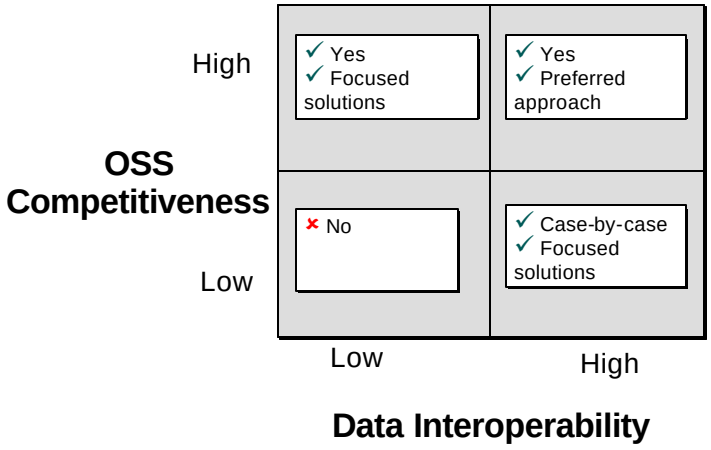


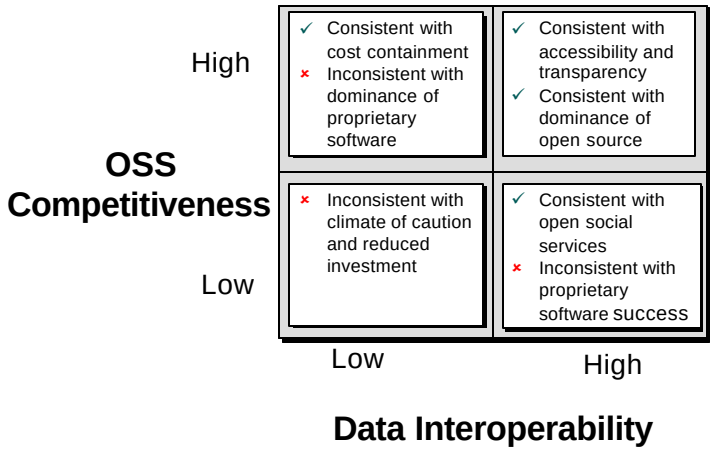
Figure 2.27 OSS Licensing in publicly funded systems

Similarly, OSS investment is advisable in the two upper quadrants, but not necessarily in the lower quadrants where OSS is not always commercially viable. However, it is important to assess the timing of these options when considering strategic action. The commentary and insights gained in development of these scenarios, and those received during the web-based consultation, suggest that it will be at least 3 years before any significant downturn in OSS would be possible, implying that cautious and monitored investment in the next few years is reasonable.

Finally, one result of the scenario workshop suggested that OSS policy in any government would need to be congruent and integrated with its broader policies and objectives. This important insight relates not to internal policy and use of OSS, but to external investment and support. This complex question can also be tested in the scenario framework by anticipating what these broader policies might be in each scenario and then asking the question, *are these consistent with the OSS strategic option?*

[3] The notion of attaching probabilities to scenarios was debated over a decade ago on the now historic, Well, with the conclusion, "attaching probabilities to scenarios is … inevitably inaccurate" (www.gbn.org).

The results in Figure 2.28 are very preliminary and speculative. They do imply however, that assessing external support for OSS and the fit with broader government objectives remains a challenge and would require significantly more detailed study of the scenarios. For example, only in the upper right quadrant, Supreme XML, is OSS fully consistent with anticipated public policy and objectives. In the other scenarios there is a mixture of positive and negative alignment.



In such cases, where strategic options are very sensitive to particular scenarios, an incremental approach to investment is often advisable[4].

Figure 2.28 OSS in Context: fit with broader public policies and objectives

[4] *Note: The scenario study of OSS is on-going. New challenges and insights are most welcome. For more details on these activities and to contribute, please see www.OpenSourceScenarios.org/osss.html.*