

IVOA “Business Plan”

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1.0 Introduction

IVOA is in the business of producing internationally agreed standards definitions for the fundamental infrastructure of the IVO as outlined by the IVO Architecture. IVOA needs a business plan that will maximize its chance of success in this business and allow its customers to prosper. The IVOA needs to ensure its continued existence to the point where its mission is successfully concluded or it moves into a different market place with a different mission and a new set of customers. Today, the IVOA has already adopted several elements of a business plan. The formation of working groups, the publication of a roadmap, the promotion of project-level demonstrations and the building of bridges to international bodies (GGF, IAU, OECD) are all initiatives taken by the “founding persons” to ensure the success of IVOA. These initiatives, and new ones to come, collectively represent the IVOA Business Plan. Just as we are looking closely at the IVO architecture map to search for missing elements, so we should also look at the business plan to see if we have all the elements we need for success on the timescale of a fully enabled IVO. This document seeks to outline the elements of an initial IVOA Business Plan that must be a living document that evolves with the IVOA. It will define the major pieces of the plan and raise a number of issues that need to be addressed at the level of the IVOA Exec.

2.0 Strengths, Weaknesses, Opportunities and Threats (SWOT)

Most businesses conduct a periodic SWOT analysis to checkpoint their strategic and business plans. This can happen on the timescale of months in the ICT arena. A SWOT study of IVOA would form an important backdrop to the development of the IVOA Roadmap and the strategic choices for development priorities within the IVO architecture.

2.1 Strengths

- The VO concept is well regarded internationally at the level of governments and funding agencies as effectively addressing a well defined need for access to data, for maximizing scientific return on public investment and as an important ICT activity
- The IVOA is an effective international collaboration including large and small projects from large and small countries. This builds link within and across astronomical communities that may not have existed before and which will result in the advancement of astronomy
- The VO concept is appealing as a method of empowerment for research communities without access to major facilities and as a means of connecting research with educational needs.
- In the past several years, there has been significant unity of purpose amongst a large enough group of international astronomers in Europe, the US and elsewhere to make the IVOA possible.

2.2 Weaknesses

- The IVOA is not a project has no resources other than those committed to its mission that are under the control of member projects. This means the IVOA will only succeed and advance by achieving and maintaining a strong consensus on all actions while allowing the success and autonomy of each member project
- The success of the IVOA depends on the uptake of its products by data centres and service providers that will form the IVO. These centres are maintained and funded by organizations that may not share similar views, interests or resources with the agencies that are funding the IVOA projects.
- The IVOA developments must precipitate new scientific results that must then be widely recognized by astronomers and others as having being enabled by the IVO. Without effective seeding of projects and promotion of results, there will be no incentive for uptake by data centres, development projects or research teams – “publish or perish”. Finding “killer VO problems” has not been easy to date.

2.3 Opportunities

- Funding agencies are still willing to provide funds for ICT developments following the “grid paradigm”
- Large international astronomy projects are in start-up (ALMA, LOFAR, ELT, SKA) and there is a window of opportunity for VO concepts to be planted in the fundamental design of these facilities
- The concept of data heritage and curation in archives is spreading and, in some cases, being imposed by government funding agencies to ensure public access
- A multi-wavelength strategy to solving problems is widely regarded by the astrophysics community
- Future large projects, by their sheer scale, will need to be international and therefore will have to deal with distributed data, resources and teams.

2.4 Threats

- The VO concept is still regarded with considerable scepticism by some (maybe a majority) of the astronomical community, based either on the failure of “similar” efforts in the past or a misunderstanding of the basic IVO mission. These individuals at least consider VO a threat to the funding of instruments and telescopes. A few loud voices and/or a relatively minor slip-up by the IVOA effort could have very serious consequences with respect to acceptance by the broader astronomical community.
- Unless network infrastructures are improved in a large number of international communities, the true potential of the IVO will not be realised and fractions of the community will be cut off from the benefits.
- Too close an association with “the grid” may be a treat if it fails to deliver on its promises

3.0 The Business, the Products and the Customers

3.1 Business

The business of the IVOA is to

- produce standards documents that cover all aspects of the IVO infrastructure and interoperation mechanisms
- formulate priorities for the roll out of these standards based on assessments of short term need, their strategic significance and cross-project consensus
- promote the international adoption of IVOA standards, IVO enable science and inter-project collaboration through sponsorship of conferences, workshops and the maintenance of a website

Issues:

- What is the natural lifetime of this business (if any)?
- How is IVOA business different from IVO business?
- Is there such a thing as IVO business?
- Should IVOA get involved with defining what IVO business might be?

3.2 Products

What are our products?

- Configuration controlled documents

Issues:

- Should we produce and/or support reference implementations of standards?
- How should we warranty/protect/licence our products?

3.3 Customers

Who are our customers?

- Member VO projects
- Other VO projects?
- Large facility development projects?

4.0 Business Methodology and Measuring Success

4.1 IVOA structure and governance

The IVOA is an alliance of established VO projects. The alliance seeks to fulfil the IVOA mission statement:

To facilitate the international coordination and collaboration necessary for the development and deployment of the tools, systems and organizational structures necessary to enable the international utilization of astronomical archives as an integrated and interoperating virtual observatory.

Each project is represented by at least one member on the IVOA Executive Board. The chairperson of the Executive Board is identified by consensus from the members of the Board and serves a one-year term. The chairperson is supported by a deputy chair (also identified by consensus from the Board) who also serves for one year. The deputy chair replaces the chair at the end of his/her term. The chair and deputy chair are supported by three officers (a technical lead, a secretary and a document coordinator) who are nominated by the chair and serve for a three-year term. The IVOA Executive Board meets face-to-face twice a year (in January and June/July) and via telephone conference as needs require. All meetings of the Board are minuted and publish on the IVOA website.

VO projects seeking to join the IVOA can apply at any time to the chair of the Board. Guidelines for participation are posted on the IVOA website (<http://www.ivoa.net/pub/info/index.html#statement>).

4.2 IVOA business partners

The IVOA has formed a business relationship with the IAU Commission 5 in order that standards developed and recommended by the IVOA can be given the appropriate level of international recognition and support. Commission 5 will form a VO working group to discuss recommended IVOA standards, provide feedback to the IVOA and to facilitate IAU endorsement for the standards.

Issues:

- Should IVOA develop other relations where appropriate or should this be done at the project level? (digital library community?, other physical sciences?...)
- What is our relationship to the GGF?

4.3 The role of working groups and interest groups

The IVOA Executive Board creates working groups and interest groups to pursue the discussion and definition of IVOA standards and mechanisms. Each working group will have a chairperson nominated by the Executive who will produce reports on the actions of the working group to the Board twice a year. To facilitate the global advancement of working group activities, the IVOA will organize Interoperability Workshops twice a

year (Spring and Autumn) at which all working groups will discuss progress and work towards final definitions of standards. Interest groups have no specific mandate to produce draft standards but rather to identify needs and requirements that may precipitate working group activities. The operation of working groups and interest groups will be supported through a collaborative environment maintained on the IVOA website with oversight by the IVOA document coordinator

The process of defining standards within the working groups is described by a standards process (<http://www.ivoa.net/Documents/REC/DocStandard>) modelled on the W3C process.

4.4 The role of coordinated demonstrations

All partner projects of the IVOA are encouraged to demonstrate their development efforts on an annual basis to their national or international supporting communities. These demonstrations can coincide with national astronomical meetings or be part of a regular series of meetings with science steering groups. Several projects have chosen to undertake these demonstrations each January.

Demonstrations of capabilities and developments provide IVOA member projects and the IVOA with several major benefits:

- They provide a forum to engage the scientific community in order to
 - highlight new and emerging capabilities – show the astronomical community IVOA projects are actually doing something!
 - allow scientific requirements to be identified
 - allow open astronomical comment and criticism of priorities, directions and results
 - showcase scientific results obtained by VO projects with new tools and standards
- They provide a major, regular and predictable milestone for development projects to meet deadlines and provide operational code
- They allow IVOA to assess progress on standards development and implementation and to set priorities for standards roll-out in a coordinated way

4.5 Strategies for standards roll-outs and development

IVOA wants to see the extensive taken up of its standards by international projects, archive centres and service providers. In order for this to happen, the standards must:

- have broad visibility and acceptance in the IVO community
- be well documented
- be configuration controlled and maintained
- be stable on a timescale that allows developers to make manpower investments and development choices for long term projects
- be updated in a consistent and coordinated manner which anticipates the needs of developers and long-term operators of data centres

IVOA does not have any guidelines for standards roll-out. Possible guidelines would be:

- The initial introduction of a new standard is timed to allow development projects to incorporate it into the next available demonstration. This would normally mean standards come out mid-year for beginning of year demonstrations – a six month lead time
- Once introduced, a new standard is not updated and reissued within the first year (two years?). This will allow sufficient time for market penetration and developments. The standards may be evolved within the working groups on a shorter timescale.
- The first reissue of a standard should not result in major functional changes. Major changes should occur (if necessary) on alternate releases.
- Since we are dealing with standards and not code, changes to standards can, in principle, be significant, involve major concept changes and not be entirely “backward compatible” conceptually. This is necessary if we are to put acceptable standards in place early (e.g. VOTable) and refine them (perhaps significantly) at a later date.

4.6 Promotion and fostering of IVO-enabled science

Issues:

- Should we be doing more at the IVOA level than coordinated demos and the IAU General assembly?
- Is this primarily a project-level activity?

4.7 Public relations

Issues:

- What level of public relations do we need as IVOA? We are visible through the member projects (logo etc) and we have a significant individual presence through the website and at meetings like the Global Science Forum.
- Should we be thinking about the new round of VO projects and the role of education/outreach? Are there IVOA-like standards necessary there as well?

4.8 How can we measure our success?

Issues:

- We've always said that success = losing control. I still think that is largely true but what does it mean in detail? How much control, if any, do we want to retain and who is “we”?
- Measuring success must have a lot to do (at the IVOA level) with the number of centres that use the standards. Success at the IVO level has to do with the amount of science enabled. Measuring the enabled science is not easy. Maybe IVOA should be talking to journals about how to do this in an internationally consistent manner??