2.6 Technical and Operational Capability Evaluation

2.6.1 Introduction

The Technical and Operational Capability evaluation was one of the seven evaluation streams defined in the Applicant Guidebook (AGB). The technical questions in the AGB gathered information from the applicant regarding its plans for operations so that the evaluation panel could assess whether the applicant demonstrated the technical and operational capability to run a TLD.

2.6.2 Relevant Guidance

The following guidance is relevant to the topic of the Technical and Operational Capability evaluation and will be discussed in further detail in Sections 2.6.3 and 2.6.4 of this report:

- GNSO Principle D: "A set of technical criteria must be used for assessing a new gTLD registry applicant to minimise the risk of harming the operational stability, security and global interoperability of the Internet."[114]
- GNSO Principle E: "A set of capability criteria for a new gTLD registry applicant must be used to provide an assurance that an applicant has the capability to meets its obligations under the terms of ICANN's registry agreement."
- GNSO Recommendation 1:

  > ICANN must implement a process that allows the introduction of new top-level domains. The evaluation and selection procedure for new gTLD registries should respect the principles of fairness, transparency and non-discrimination.
  > All applicants for a new gTLD registry should therefore be evaluated against transparent and predictable criteria, fully available to the applicants prior to the initiation of the process. Normally, therefore, no subsequent additional selection criteria should be used in the selection process.

- GNSO Recommendation 4: "Strings must not cause any technical instability."
- GNSO Recommendation 7: "Applicants must be able to demonstrate their technical capability to run a registry operation for the purpose that the applicant sets out."
- GNSO Recommendation 8: "Applicants must be able to demonstrate their financial and organisational operational capability."
- GNSO Recommendation 9: "There must be a clear and pre-published application process using objective and measurable criteria."
- GNSO Recommendation 18: "If an applicant offers an IDN service, then ICANN's IDN guidelines must be followed."
- Applicant Guidebook, Module 1: Introduction to the gTLD Application Process[115]

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[114] ICANN. (8 August 2007) ICANN Generic Names Supporting Organization Final Report Introduction of New Generic Top-Level Domains, Part A. Retrieved from http://gnso.icann.org/en/issues/new-gtlds/pdp-dec05-fr-parta-08aug07.htm

- Applicant Guidebook, Section 2.2.2: Applicant Reviews
- Applicant Guidebook, Section 2.3.2: Technical/Operational or Financial Extended Evaluation
- Applicant Guidebook, Section 2.4: Parties Involved in Evaluation
- Applicant Guidebook, Attachment to Module 2: Evaluation Questions and Criteria

2.6.3 Background

The AGB anticipated that Initial Evaluation (IE) (see Section 2.1: Initial and Extended Evaluation of this report) would take five months to complete, all IE results would be published at the conclusion of IE, and the Contracting process would commence at the end of IE. This would allow applicants that passed IE to move expeditiously toward signing an RA if there were no other issues that the application must resolve (i.e., contention resolution, dispute resolution).

AGB Section 2.2.2.1 required that "the applicant [would] respond to a set of questions (see questions 22 – 44 in the Application Form) intended to gather information about the applicant's technical capabilities and its plans for operation of the proposed gTLD." There were 30 points available. Twenty-two points were required to pass, with no zero scores on any question (other than the optional Question 44).

The AGB, Attachment to Module 2, Section III stated, "Given the requirement that technical and financial planning be well integrated, the panels will work together and coordinate information transfer where necessary." To support this, ICANN selected the same panel firms for the Technical and Operational Capability evaluation and the Financial Capability evaluation, and allocated both sections of an application to the same panel firm. The panel firms for the Technical and Operational Capability evaluation and Financial Capability evaluation were Ernst & Young, KPMG, and JAS Global Advisors. For more information, see Section 8.2: Service Provider Coordination of this report.

The overall evaluation process was described in Module 2 of the AGB. The implementation of the evaluation process was performed in alignment with the AGB-defined processes, and has been described in further detail in Section 2.1: Initial and Extended Evaluation of this report.

Once the evaluation panels' evaluations were complete, they presented their results to ICANN. The results reports provided by the Technical and Operational Capability evaluation panel included detailed rationale for applications that did not meet the AGB criteria. ICANN reviewed the results for consistency and to confirm that the results appeared to be in alignment with the AGB. After review, ICANN consolidated the results received from the panels for publication and to share with the applicants.

1,795 applications passed the Technical and Operational Capability evaluation during IE and eight applications were eligible for EE. Ultimately, all applications that participated in the Technical and Operational Capability evaluation during EE passed.

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[115] ICANN. (4 June 2012) gTLD Applicant Guidebook Version 2012-06-04. Retrieved from
http://newgtlds.icann.org/en/applicants/agb/guidebook-full-04jun12-en.pdf

Once an applicant executed a Registry Agreement (RA) with ICANN, it was required to demonstrate its Technical and Operational Capability during Pre-Delegation Testing (PDT). For more information, see Section 5.2: Pre-Delegation Testing and Transition to IANA of this report.

Additionally, all registry operators were obligated to comply with the technical specifications in the Registry Agreement (RA) upon signing of the agreement. [116]

2.6.4 Assessment

GNSO Recommendation 7 stated, "Applicants must be able to demonstrate their technical capability to run a registry operation for the purpose that the applicant sets out." To support this, the AGB criteria in Questions 24 – 44 of the application were developed. The design of the application required applicants to consider the requirements for operating a TLD, as the responses to the Technical questions were theoretical in nature. Section 2.2.2.1 of the AGB stated, "Applicants [were] not required to have deployed an actual gTLD registry to pass the Technical/Operational review. It [would] be necessary, however, for an applicant to demonstrate a clear understanding and accomplishment of some groundwork toward the key technical and operational aspects of a gTLD registry operation."

Although the Technical portion of the application was not designed to test actual registry operations, if the application was successful, the registry operator was ultimately required to pass PDT and demonstrate compliance with the technical specifications defined in the RA. Per the requirements of the AGB in this application round, the Technical section of the application was intended to "gather information about the applicant's technical capabilities and its plans for operation of the proposed gTLD," and the applicant was not required to have deployed an operational registry.

Although 1,930 applications were submitted, most shared one of a relatively small number of technical infrastructures (less than 50). In fact, 90% of applications shared one of 13 technical infrastructures (see Table 2.6.i).

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[116] ICANN. Registry Agreement. Retrieved from
http://newgtlds.icann.org/en/applicants/agb/agreement-approved-09jan14-en.pdf

Table 2.6.i: Registry Service Providers (RSPs) Engaged

Registry Service Provider	% of Applications Using RSP
Neustar	18%
Demand Media	17%
Afilias	16%
Verisign	12%
ARI	8%
Google Registry	5%
Minds+Machines	5%
CentralNIC	3%
ISC	3%
CORE	2%
GMO	2%
Other	8%

The application process was designed so that even if an applicant chose to engage a provider to operate its back-end registry services, the applicant would be the party accountable for the application. In addition to promoting greater accountability for the applicant, the design of the application process was intended to level the playing field for new entrants to the market, whereas had the process encouraged engagement with an RSP, new entrants may have been discouraged.

Ninety percent of applications received one or more CQs from the Technical and Operational Capability panel. The table below shows the number of applications that received CQs for each question in the Technical section.

Table 2.6.ii Clarifying Questions Issued by Application Question

Technical Question	Question Description	# Applications with CQ Issued	% Applications with CQ Issued
Q24	Shared Registration System (SRS) Performance	54	3%
Q25	EPP	919	49%
Q26	Whois	142	8%
Q27	Registration Life Cycle	181	10%
Q28	Abuse Prevention & Mitigation	72	4%
Q29	Rights Protection Mechanisms	594	32%
Q30	Security	170	9%
Q31	Technical Overview of Proposed Registry	412	22%
Q32	Architecture	65	3%
Q33	Database Capabilities	18	1%
Q34	Geographic Diversity	24	1%
Q35	DNS Service Compliance	264	14%

Q36	IPV6 Reachability	41	2%
Q37	Data Backup Policies and Procedures	27	1%
Q38	Escrow	30	2%
Q39	Registry Continuity	57	3%
Q40	Registry Transition	121	6%
Q41	Failover Testing	42	2%
Q42	Monitoring and Fault Escalation Processes	13	1%
Q43	DNSSEC	334	18%
Q44	IDNs (Optional)	170	9%

ICANN observed during the implementation of the Technical and Operational Capability Evaluation that the responses to the Technical application questions were generally provided by the applicants' RSPs. As evidenced in Table 2.6.ii, five questions in particular generated a large proportion of CQs. The use of RSPs may have skewed these results (e.g., a particular RSP may have made a minor administrative error for a single question many times), but the high rate of CQs for certain questions may also indicate a systemic issue with particular questions. ICANN should review the CQs issued and responses received to determine if changes to application questions are required.

In addition to the responses being theoretical in nature, ICANN has observed that applicants did not necessarily follow through with implementing their technical infrastructure in the manner specified within the application. While to a certain extent, Pre-Delegation Testing (PDT) tested applicants' operational technical capabilities, PDT did not confirm whether registry operators were complying with their responses to application questions, only that they met the baseline requirements of the RA. (For more information on PDT, see Section 5.2: Pre-Delegation Testing and Transition to IANA of this report.)

The fact that applicants almost universally engaged an RSP also brought to light that the existing requirement of evaluating each application on a stand-alone basis did not enable evaluation of a particular RSP's ability to support multiple TLDs. Due to the application-by-application nature of evaluation, RSPs were not evaluated across the universe of applications and existing TLDs.

GNSO Recommendation 7 called for applicants to "demonstrate their technical capability." There were several different options that could have been used to implement this policy, including a question and answer approach, an approach involving the testing of infrastructure, and a more targeted evaluation specifically focused on technical back-end providers. In this application round, a question and answer approach was implemented to address this recommendation. In future rounds, different options, such as a program to accredit registry service providers, should be explored.

For example, a program to accredit registry service providers could prove to be more efficient for applicants and providers of technical back-end services in terms of application processing. An RSP accreditation program could allow for the thorough review of an RSP's full set of services provided (across TLDs). Such a program could also streamline processes for registry operators outside of the evaluation process, such a the process for adding new registry services (i.e., services could be pre-certified at the registry service provider level and thus require less testing, if any). This form of testing

could also fulfill some of the intent of PDT. Such an option should be carefully considered in terms of whether it supports the New gTLD Program's objectives of competition, choice, and consumer trust.

2.6.5 Conclusion

The AGB criteria for Technical and Operational Capability evaluation required that applicants describe their plans for technical operations, but it did not require that actual registry operations be tested. In the execution of the Technical evaluation, ICANN observed that the majority of applicants used one of a relatively small population of back-end providers to operate their technical infrastructure. There were several possible approaches that could have been explored in order to achieve an effective evaluation of technical evaluation, and the operational experience brought to light certain inefficiencies in the evaluation approach that was taken.

To meet the objectives of GNSO Recommendation 7, consideration should be given as whether an alternate approach to the Technical and Operational Capability Evaluation would support the GNSO's recommendation and the New gTLD Program objectives of competition, choice, and consumer trust, and whether the exploration of such an approach would be worthwhile.

In summary:

2.6.a Consider whether an alternate approach to the Technical and Operational Capability Evaluation would be worthwhile

2.6.b Review Technical and Operational Capability CQs and responses to determine whether improvements to the application questions can be made