

Implementation Advisory Group for Competition, Consumer Trust & Consumer Choice (IAG-CCT): Final Recommendations on Metrics for CCT Review

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Executive Summary

The Implementation Advisory Group for Competition, Consumer Trust & Consumer Choice (IAG-CCT) was convened in October 2013 by the ICANN Board of Directors to evaluate metrics proposed by the Generic Names Supporting Organization (GNSO) and the At-Large Advisory Committee (ALAC). After eight months of deliberation, the group presents the metrics referenced herein to be used for ICANN's review of the New gTLD Program, as mandated by the Affirmation of Commitments (AOC), section 9.3.¹

The IAG-CCT's mandate was to develop a set of recommendations on the metrics suggested for the eventual review team to compile and analyze. The group evaluated each metric on its feasibility, utility and cost-effectiveness. Its evaluation considered data available to the review team both internally from ICANN, as well as that which may be acquired from third party sources. The CCT review is one of four periodic reviews called for in the AOC focused on the following four objectives:

1. Ensuring accountability, transparency and the interests of global Internet users;
2. Preserving security, stability and resiliency of the DNS;
3. Promoting competition, consumer trust and consumer choice; and
4. Whois policy.

In its discussions, the 28 IAG-CCT members debated the merits of the recommended metrics, including whether targeted values demonstrated that a particular metric would be useful in evaluating the impact of the New gTLD Program. Where the IAG-CCT's recommendations differed from those of the GNSO and ALAC, members consulted with their communities to share the IAG-CCT's rationale and determine whether the collective recommendations sufficiently addressed the larger community's goals. Ultimately, the group came to a consensus on the below recommendations.

The CCT review is expected to launch after new gTLDs have been in operation for one year. However, in order to establish a baseline for activity in the current TLD space, some metrics were measured soon after they were deemed to be feasible and useful for the review team to ensure an accurate baseline was captured.

Recommendations

The IAG-CCT reviewed the 70 recommended metrics from the GNSO and ALAC and makes the following recommendations:

- Collect data on 65 metrics, with some adjustments to terms and parameters for data collection.
- Delete 5 metrics.
- Add one new metric on the impact of name collisions on new gTLD registrations.

¹ Affirmation of Commitments, 9.3: "ICANN will ensure that as it contemplates expanding the top-level domain space, the various issues that are involved (including competition, consumer protection, security, stability and resiliency, malicious abuse issues, sovereignty concerns, and rights protection) will be adequately addressed prior to implementation. If and when new gTLDs (whether in ASCII or other language character sets) have been in operation for one year, ICANN will organize a review that will examine the extent to which the introduction or expansion of gTLDs has promoted competition, consumer trust and consumer choice, as well as effectiveness of (a) the application and evaluation process, and (b) safeguards put in place to mitigate issues involved in the introduction or expansion. ICANN will organize a further review of its execution of the above commitments two years after the first review, and then no less frequently than every four years."

Of the 65 recommended metrics, several included baseline figures that capture a snapshot of behaviors and activity in the domain name marketplace prior to the saturation of new gTLDs. Depending on the metric, the baseline period may span from one year to multiple years prior to the delegation of new gTLDs.

ICANN staff recommends a baseline period of two years prior to the first delegation of a new gTLD in October 2013.

Background

ICANN's Affirmation of Commitments (AoC) is one of the key documents guiding the organization's operating principles. As an agreement between ICANN and the U.S. Department of Commerce, the AoC lays out commitments from both sides to: ensure that decisions made related to the global technical coordination of the DNS are made in the public interest and are accountable and transparent; preserve the security, stability and resiliency of the DNS; promote competition, consumer trust, and consumer choice in the DNS marketplace; and facilitate international participation in DNS technical coordination. While the U.S. Department of Commerce in March 2014 announced its intention to transition its oversight of the IANA functions to the multistakeholder community, ICANN plans to maintain its commitments, including those explicitly prescribed in the document.

As one of the four key objectives to be evaluated as part of the AoC, the CCT review will also help inform how ICANN may approach a second round of new gTLDs, from the opening of the application process to delegation. To that end, the ICANN Board tasked the GNSO and ALAC to propose metrics that would not only inform this review but also provide insight into how to improve on the rollout of a new round of gTLD applications.

The ICANN Board asked the GNSO and ALAC to come up with metrics in December 2010. In June 2011, at the ICANN meeting in Singapore, a working group was formed to come up with recommended metrics for the CCT review. The working group's goal was to provide the ICANN Board with definitions, measures, and targets that could be useful to the CCT review team. In December 2012, the group presented the board with a document detailing 70 recommended metrics, with proposed definitions and three-year targets.²

The ICANN Board formed the IAG-CCT in September 2013 to review those recommended metrics and make recommendations to the review team based on an evaluation of the feasibility, utility and cost-effectiveness of each of the proposed 70 metrics. The group first met in November 2013, first via conference call, then in-person at the ICANN 48 meeting in Buenos Aires.

With the IAG-CCT's recommendations in hand, the ICANN Board may now take steps toward forming a review team to collecting the recommended data points, considering those recommendations made by the IAG-CCT. The CCT evaluation will provide insight into how the program fared, how the next round of applications might be improved, as well as provide general information on how people use the internet, view the DNS, and collect opinions Internet users may have about ICANN.

² See the updated document, "Advice requested by the ICANN Board regarding definitions, measures, and targets for competition, consumer trust and consumer choice," for a summary of the updated recommendations.

Previous new gTLD evaluations

Part of the IAG-CCT's mandate was to assess historical data regarding metrics used to evaluate earlier rounds of new gTLDs in 2000 and 2004. Five previous reports provided input on several metrics to evaluate past rounds and provide recommendations on implementation of future rounds of new gTLD delegations. With the selection in 2000 of seven new gTLDs (which were subsequently delegated in 2001 and 2002), the domain name space increased from 7 to 14. The seven new gTLDs chosen for delegation in 2000 included four unsponsored (.biz, .info, .name and .pro) and three sponsored TLDs: .aero, .coop and .museum. Six more sponsored gTLDs were introduced in 2003: .asia, .cat, .jobs, .mobi, .tel and .travel.

"The Final Report of the New TLD Evaluation Process Planning Task Force³," published in 2002, explored various topics like the opportunities and risks associated with parallel processing, quickening the pace of gTLD launches against the risk of cutting short the evaluation of the program, and setting priorities for the future evaluation team. The report's aim was to set the parameters for a future evaluation team, which published "A Plan for Action Regarding New gTLDs,"⁴ in 2002. That report found that sponsored TLDs seemed to generate fewer community and business concerns and generate fewer problems than unsponsored TLDs. For example, there were less worries about trademark infringement and cybersquatting in the sponsored space. Further, sponsored TLDs had fewer and less complex start-up and launch phase concerns.

Another report, published in 2004, by the Organization for Economic Co-operation and Development, "Generic Top Level Domain Names: Market Development and Allocation Issues,"⁵ found that ICANN's changes to the market structure for registering gTLDs has been successful. In particular, the division between registry and registrar functions has led to more competition with lower prices and greater innovation. The report did note, however, the early defensive registrations, domain name speculation and traffic aggregation has made it difficult to evaluate the early success of new gTLDs. The report tracked second-level domain name registrations in major gTLDs and ccTLDs, as well as geographic locations of registrations. In addition, it charted geographic locations of registries and registry operators and evaluated the market share of registries and registrars.

Also in 2004, Summit Strategies International's "Evaluation of the New gTLDs: Policy and Legal Issues"⁶ determined that the 2000 round of new gTLDs introduced some competition to the domain name marketplace, but indicated that how much competition was debatable. The report noted that examining market share, choice and price elasticity indicates a minimal level of enhanced competition. Other evidence the report notes indicates that registrants were finding new uses for domain names in the new gTLDs and that the new gTLDs may have attracted domain name registrants who didn't previously have any registrations.

A 2005 report from the World Intellectual Property Organization (WIPO), "New Generic Top-Level Domains: Intellectual Property Considerations"⁷, explored the concerns and benefits of new gTLDs for IP

³ See: <http://archive.icann.org/en/committees/ntepptf/final-report-31jul02.htm>

⁴ See: <https://archive.icann.org/en/committees/ntepptf/new-gtld-action-plan-18oct02.htm#I-Analysis>

⁵ See: <http://www.oecd.org/internet/ieconomy/32996948.pdf>

⁶ See: <http://www.icann.org/tlds/new-gtld-eval-31aug04.pdf>

⁷ See: <http://www.wipo.int/amc/en/domains/reports/newgtld-ip/>

owners. On the one hand, the cost of policing registered marks and other protected names were highlighted as a concern of the expansion, the report also noted benefits for rights holders in an expanded DNS with potentially more relevant TLDs or TLDs identified with their brands.

Metric evaluation

The IAG-CCT met on a regular basis starting in November 2013 until the publication of this report. The first few meetings focused on categorizing the original 70 recommended metrics. They were grouped by ICANN staff into those where data was easily accessible; those whose data was deemed to be more difficult to compile due to challenges in acquiring meaningful statistics; metrics whose data came with a price tag; and those whose values or targets were unclear and thus were unlikely to provide meaningful input for the evaluation. Staff provided feedback to the IAG on each of these evaluation axes. Based on the final analysis, the group settled on its recommendations, which are detailed below.

The IAG took several passes at evaluating metrics. First, they explored those which staff deemed to be easily collectible and clearly useful to the evaluation. Of those, metrics that had baseline data that needed to be captured immediately as a snapshot in time were categorized as the first priority for collection. In the case of the global consumer survey of Internet users, registrants and potential registrants, and the economic study, the group discussed possible methodologies and related costs before coming to a consensus on a recommendation that was made to the ICANN Board at the ICANN 49 meeting in Singapore. For more on the survey and the economic study, see the First Priority Metrics section below.

The remaining metrics, upon further investigation by both ICANN staff and IAG-CCT members, were deemed to require outside resources, and thus came with a cost or needed further definition or clarification in order to make an informed recommendation. Based upon their evaluation for feasibility, utility and cost-effectiveness, the IAG-CCT members recommended the next subset of metrics for collection.

Some of the metrics that are included in the recommendation come with caveats for the analysis as the data produced may not offer a complete picture of the metric's indication of the New gTLD Program's success. For example, metrics 5.2, 5.3 and 5.4 are all related to growth in use of tools that hide domain names, such as QR codes or URL shorteners, and the use of Google or Facebook for hosted pages with domain names that may not be otherwise memorable. There was disagreement among IAG-CCT members on whether an increase in the use of such tools is indicative of trust in the DNS. Some members argued that an increase in the use of tools is more a reflection of increased choice to consumers using the Internet or simply a change in the nature of how Internet users employ technology. Others suggested that an increase in the use of such tools as compared with modest increases of registration and traffic in domain names registered in new gTLDs as opposed to domain names in the legacy space is an indication of a lack of trust. The group agreed to collect the data to offer the review team a robust cross-section of sources for their evaluation.

For the five metrics that were not recommended for inclusion in the review, the IAG-CCT members, together with staff, evaluated the data sources available for the five metrics that were flagged as potentially difficult to measure. The group collectively determined that those metrics were either redundant or that the data was not sufficiently available to provide meaningful insight.

First priority metrics

Baseline and available data

In an effort to categorize a subset of metrics as leading priorities, 37 of the 70 metrics were highlighted as falling into this category. These metrics were included because they calculated data that was readily available either internally or could be easily obtained from third party sources. They also represented data which were deemed to provide useful insight into the New gTLD Program.

Several of these metrics required the collection of baseline data to allow for a later comparison when domain name registrations in new gTLDs begin to saturate the market. IAG-CCT members expressed concern that some of this baseline data could become more difficult to obtain or no longer be available for collection with the passage of time. This issue was of particular concern with regard to the consumer survey as well as the economic study, as detailed below.

Table 1: First priority metrics

Metric	Description	Data source	Category
1.1	% DNS Service Availability (present SLA is 100%).	Internal, technical services team and registry reporting	Trust
1.2	% Availability for Registration Data Directory Services (RDDS). (SLA is 98%)	Internal, technical services team	Trust
1.3	% of Service Availability for Shared Registration Services (SRS, using EPP). (SLA is 98%). Open TLDs only.	Internal, technical services team	Trust
1.6	Relative incidence of breach notices issued to Registry operators for contract or policy compliance matters.	Internal, compliance team	Trust
1.7	Relative incidence of breach notices issued to Registrars, for contract or policy compliance matters.	Internal, compliance team	Trust
1.8	Relative Incidence of Registry & Registrar general complaints submitted to ICANN's Internic System.	Internal, compliance team	Trust
1.9	Relative incidence of combined UDRP and URS Complaints. URS is required only in new gTLDs, so combined UDRP and URS complaints may be comparable to UDRP complaints in legacy gTLDs	Internal, compliance team	Trust
1.10	Relative incidence of combined UDRP and URS Decisions against registrants.	Internal, collecting UDRP and URS providers' decisions	Trust
1.12	Decisions against Registry Operator arising from Registry Restrictions Dispute Resolutions Procedure (RRDRP).	Internal, collecting RRDRP decisions	Trust
1.20	Quantity and relative incidence of complaints regarding inaccurate, invalid, or suspect WHOIS records in new gTLD.	Internal, compliance team	Trust
1.22	Qualitative comparison of mission and purpose set forth in Question 18 of the new gTLD Application with current actual	Internal/external. Qualitative study may be conducted externally or may require a third	Trust

	use of the gTLD.	party's analysis.	
2.4	Quantity of TLDs using IDN scripts or languages other than English.	Internal, registry agreements	Choice
2.5	Quantity of Registrar websites offering IDN scripts or languages other than English.	Internal, registry and registrar agreements, websites	Choice
2.7	Quantity of different national legal regimes where new gTLD Registry Operators are based.	Internal, registry agreements	Choice
2.11	Measure the increased geographic diversity of registrants across all new gTLDs, as indication of new choices created by gTLD expansion.	Internal, technical services team, Whois records, zone files. Note that Whois records may not be a reliable record of geographic locations of registrants.	Choice
3.1	Quantity of total TLDs before and after expansion.	Internal, registry agreements	Competition
3.2	Quantity of gTLDs before and after expansion.	Internal, registry agreements	Competition
3.3	Quantity of unique gTLD Registry Operators before and after expansion.	Internal, registry agreements	Competition
3.4	Quantity of unique gTLD Registry Service Providers before and after expansion.	Internal, registry agreements	Competition
3.5	Quantity of Registrars before and after expansion, along with indication of country where Registrar is based. This measure should count only registrars distributing Open gTLDs.	Internal, registrar accreditation agreements	Competition
3.6	Relative share of new gTLD registrations held by "new entrants". For purposes of this measure, "new entrants" are gTLDs run by Registry Operators that did not operate a legacy gTLD. A "new entrant" is one whose ownership is not among owners of legacy gTLD registries.	Internal, registry agreements	Competition
7.1	How many gTLD registries have privacy policies which are clearly and easily accessible by end users	Internal, registry websites	Trust
7.2	How many gTLD registries have allocation policies which are clearly and easily accessible by end users, even if those policies simply restrict or prohibit public availability	Internal, registry websites	Trust
7.3	How many registries disclose end-user information regarding their codes of conduct for sub-domain owner/operators	Internal, registry websites	Trust
8.1	How many complaints are received by ICANN related to confusion or	Internal, compliance team	Trust

	misunderstanding of TLD functions		
8.3	How many registries have been the subject of complaints related to their Public Interest Commitments (PICs)	Internal, compliance team	Trust
8.4	How many registries have lost a dispute resolution process related to their PICs	Internal, compliance team	Trust
9.1	Are end-user software applications capable of implementing all of the new gTLDs; Can browsers and DNS clients in end-user systems resolve all new gTLDs	Internal, technical services team. Universal acceptance study will examine this and metric 9.2.	Trust
9.2	Which browsers or other end-user applications require plugins or user-installed enhancements in order to use new gTLDs	See 9.1.	Trust
9.3	Number of reports of name collisions	Internal, technical services team	Trust

Consumer survey and economic study

Another subset of metrics derived from the first priority class were categorized as requiring a global consumer survey to gauge public opinion not only on the New gTLD Program, but also on general use and understanding of the DNS. As anticipated in the ICANN Board of Directors Resolution 2014.03.27.22 – 2014.03.27.26,⁸ passed at the ICANN 49 meeting in Singapore, the two studies are critical “to establish a benchmark of the current state of the generic domain name sector prior to the widespread adoption and use of new gTLDs.”

After gaining board approval for the two studies, two smaller groups of IAG-CCT members split into ad hoc working groups to provide feedback to ICANN staff on the RFPs that were to be written. A timeline for the consumer survey RFP was agreed upon:

RFP released	16 July 2014
Respondent proposals due	6 August 2014
Target date for contracting	24 September 2014

With this timeline in mind, ICANN anticipates the launch of a baseline survey in either late 2014 or early 2015 with a follow-on survey to be conducted one year later. ICANN staff contacted more than 20 survey firms with an invitation to participate in the survey, in addition to publicly making the RFP available on the ICANN website: <https://www.icann.org/resources/pages/rfps-2012-02-25-en>

Table 2: Survey metrics

Metric	Description	Considerations/Definitions	Category
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⁸ See: <https://features.icann.org/collection-benchmarking-metrics-new-gtld-program-support-future-aoc-review-competition-consumer>

1.4	Survey of perceived consumer trust in DNS, relative to experiences before the gTLD expansion. Survey could at least measure experiences with phishing, malware and spam; confusion about new gTLDs; user experience in reaching meaningful second-level domains; registrant experience in being in a different gTLD; Registrant and Internet users' experience with regard to cybersquatting. Survey to be conducted every two years (biennial).	CONSIDERATIONS: Note that questions related to trust should also include measures of awareness about new gTLDs, and DNS in general. Capture baseline of attitudes now – do not ask survey respondents to recall past attitudes. ICANN provides the following definitions as a starting point for the contracted vendor to refine these terms into clear, common-language definitions that can easily translate into other languages: Consumer: Actual Internet users and registrants, and potential registrants. Consumer trust: The confidence Consumers have in the domain name system. This includes (i) trust in the consistency of name resolution (ii) confidence that a TLD registry operator is fulfilling the Registry's stated purpose and is complying with ICANN policies and applicable national laws and (iii) confidence in ICANN's compliance function. Consumer choice: The range of options available to Consumers for domain scripts and languages, and for TLDs that offer meaningful choices as to the proposed purpose and integrity of their domain name registrants. Phishing: Using social and technical engineering to steal consumers' personal identity data and financial account credentials. Malware: Short for malicious software, used to disrupt computer operations, gather sensitive information or gain access to private computer systems. Spam: Electronic junk mail or junk newsgroup postings. Some people define spam even more generally as	Trust
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		any unsolicited email. Second-level domains: The data directly before the top-level domain (TLD). For example, in www.example.com, “example” represents the second level domain, as the suffix “(dot)-com” represents the TLD. The SLD is generally the portion of the URL that identifies the website's domain name. Cybersquatting: Registering, trafficking in, or using a domain name with bad faith intent to profit from the goodwill of a trademark belonging to someone else. Note: While the IAG-CCT proposed this as a starting point for a definition in the RFP for the global consumer survey, there was divergence in the group’s opinion on how narrowly to define cybersquatting. In particular, some group members indicated that measuring bad faith registrations would be difficult and potentially undiscernible to the average Internet user. gTLDs: A TLD (top-level domain) appears in a domain name as the string of letters following the last (right-most) dot, such as “net” in www.example.net. A gTLD (generic TLD) is a TLD that does not correspond to any country code.	
2.1	Measure potential registrants’ understanding of TLD benefits and restrictions, such that potential registrants can make informed choices about registration of their domain names.	CONSIDERATIONS FOR 2.1 AND 2.2: Survey should not serve as a venue to explain policies or to explain the nature of gTLD benefits or restrictions. It is reasonable to assume that registrants’ and end-users’ understanding and knowledge of gTLD benefits and restrictions will be conditional on their awareness of new gTLDs. Therefore, ICANN anticipates survey questions	Choice

		regarding this metric will likely include skip patterns to target survey respondents who are aware of the issues, while allowing survey respondents who are unaware to move to the next section of the survey.	
2.2	Measure Internet users' understanding of TLD eligibility restrictions, such that Internet users can make informed choices about reliance on domain names in that TLD.	CONSIDERATIONS: See considerations in 2.1.	Choice
2.3	Biennial surveys of perceived consumer choice in DNS, relative to experience before the gTLD expansion. Survey should assess public awareness of new gTLDs. Survey should also measure costs of defensive or duplicate registrations. Survey should assess motivations, intent and satisfaction with new gTLDs.		Choice
2.10	Automated analysis or online survey to determine the number of "duplicate" registrations in new gTLDs.	CONSIDERATIONS FOR 2.10, 2.13, and 4.3: Responses will likely be dependent on awareness of new gTLDs and perhaps on the financial resources of registrants. For registrants who are aware of new gTLDs, the survey instrument should be constructed to measure: 1. Prevalence of registrants holding multiple domains 2. Motivation for registering (e.g., defensive) and not registering (e.g., lack of resources) multiple domains, regardless of knowledge of new gTLDs. 3. For registrants who are aware of expansion, measure attitudes towards expansion and satisfaction with expansion of gTLDs. For example, the instrument might inquire about what the expansion means to the respondent (what are the	Choice

		implications, such as providing increased choice or necessitating defensive measures), and inquiries about the potential benefits in comparison to the potential costs.	
2.12	Survey or Study to gauge the frequency with which users access Internet resources via tools that do not reveal the TLD (e.g. QR Codes, search results, apps, etc., that do not display URLs).	CONSIDERATIONS: If this metric is also used to inform trust in the DNS, will need to disentangle the issue of familiarity from why users choose these tools. To operationalize these metric, contractors will work with ICANN to devise a list of relevant examples of tools that do not reveal gTLDs, and to describe the examples in plain language.	Choice
2.13	Biennial survey of perceived consumer choice relative to experiences before the gTLD expansion. Survey should assess public awareness of new gTLDs. Survey should also measure costs of defensive or duplicate registrations. Survey should assess motivations, intent, and satisfaction with new gTLDs.	CONSIDERATIONS: See 2.10.	Choice
4.1	Frequency of success in reaching the intended information supplier through direct entry of domain names.		Trust
4.2	Frequency of landing at unintended destinations.		Trust
4.3	Frequency of redundant or defensive domains (i.e., multiple domains pointing to the same destination)	CONSIDERATIONS: See 2.10.	Trust
5.1	Relative preference or explicit use of domain names versus search engines for end-user general Internet use.	CONSIDERATIONS: The survey should also consider including as part of this topic, other tools that do not reveal TLDs such as those mentioned in Metric 2.12.	Trust

Metrics 3.9-3.11 were determined to require a third party's economic analysis of wholesale and retail pricing in the new gTLD space, as well as other indicators of non-price-related competition indicators. Because pricing in the legacy gTLD space may shift with the introduction of new gTLD domain names,

IAG-CCT members felt it was important to launch this study as soon as possible to ensure a sufficient baseline of data was available for comparison when new gTLD domain names become more prevalent online. The study will place high importance on confidentiality of pricing data, particularly as it relates to specific registries, to guard against the appearance of collusion, and to protect registries' and registrars' competitive positions.

In addition to the issues raised in metrics 3.9-3.11, the IAG-CCT members recommended several additional issues to be considered in the study. The following considerations were included in the RFP for the economic study published in September 2014:

- How are consumers informed about or able to purchase so-called "premium" domain names? And how do registrars identify domain names for premium pricing?
- How many domain names have been withdrawn from general availability due to speculation or bulk registrations?
- Which registries are supported by which registrars?
- How do registrars present TLDs on their websites, i.e. in terms of shelf space?
- Is shelf space fixed, randomly rotated, or adaptable according to different criteria, such as price?
- Do registrars give priority on their websites or within their pricing and service offerings to gTLDs which they operate or with which they are otherwise associated?

ICANN anticipates contracting a vendor to conduct this study by November 2014.

Table 3: Economic study metrics

Metric	Description	Category
3.9	Wholesale price of domains in new gTLD domains offered to the general public. TLD attributes should be noted with the data (i.e. open TLDs, closed keyword TLDs, country of operations, single registrant, etc.).	Competition
3.10	Retail price of domains in new gTLD domains offered to the general public. TLD attributes should be noted with the data (i.e. open TLDs, closed keyword TLDs, country of operations, single registrant, etc.).	Competition
3.11	Qualitative assessment of non-price indicia of competition through innovations that benefit registrants and users, particularly for new markets served.	Competition

Remaining metrics

The remaining metrics were evaluated based on feasibility, utility and cost-effectiveness – the three axes for analysis prescribed in the IAG-CCT's mandate from the ICANN Board. ICANN staff and IAG-CCT members worked together to research possible data sources, evaluate their applicability to the review and provide feedback to the review team. Most of these remaining metrics were adopted in the recommendation for inclusion in the review. The remaining metrics were broken into two categories: Those that would require multiple data sources that may not be sufficient to provide a complete picture, and those that were recommended for exclusion.

Table 4: Remaining metrics for evaluation

Metric	Description	Data source/considerations	Category
1.5	% Uptime for Registrar services such as WHOIS, contact info, and complaints, assuming that SLAs are established for these measures in the new RAA.	Internal, technical services and RAAs, dependent upon established SLAs	Trust
1.11	Quantity of intellectual property claims and cost of domain name policing relating to new gTLDs. Relative incidence of IP claims made in good faith should be measured in 3 areas: IP claims against registrants regarding second level domains in new gTLDs; IP claims against registrars regarding Second level domains in new gTLDs; IP claims against new gTLD registries regarding second level domains and TLDs. Quantity of second level domains acquired because of infringement or other violations of IP rights of acquiring parties; and Cost of domain name policing and enforcement efforts by IP owners.	External, IAG-CCT members exploring feasibility with International Trademark Association (INTA,) which has expressed an interesting in polling their members on this topic. Subject to some definition of terms, such as which costs would be included, whether these are internal or external (in-house vs. outside counsel.)	Trust
1.13	Quantity of Compliance Concerns regarding Applicable National Laws, including reported data security breaches.	Internal, compliance team. Data security breaches are tracked, but not concerns related to applicable national laws. Rephrased to read: Quantity of compliance concerns regarding data security breaches.	Trust
1.14	Quantity and relative incidence of domain takedowns.	External, will require reporting from registries	Trust
1.15	Quantity and relative incidence of spam from domains in new gTLDs, which could be measured via specialized email addresses and methodologies.	External, multiple sources will likely be required to capture a comprehensive picture of abusive activity in the DNS. Possible sources include the Anti-Phishing Working Group, Surbl, Spamhaus and others.	Trust
1.16	Quantity and relative incidence of fraudulent transactions caused by phishing sites in new gTLDs.	See 1.15.	Trust
1.17	Quantity and relative incidence of detected phishing sites using new gTLDs	See 1.15.	Trust
1.18	Quantity and relative incidence of detected botnets and malware distributed using new gTLDs.	See 1.15.	Trust
1.21	Relative incidence of errors in new gTLD	Internal, technical services team.	Trust

	zones.	Will require some clearer definition of “errors.”	
2.8	Measure share of Sunrise registrations & domain blocks to total registrations in each new gTLD.	Internal, may require some data from registries.	Choice
2.9	Relative share of new gTLD registrations already having the same domain in legacy TLDs prior to expansion. For this measure, count all registrations that redirect to domains in legacy TLDs. Open gTLDs only.	Internal, technical services team. The team can query redirects in the system to SLDs that match between legacy TLDs and new gTLDs.	Choice
2.10	Automated analysis or online survey to determine the number of “duplicate” registrations in new gTLDs. For purposes of this measure, “duplicate” registrations are those where registrant reports having (and still maintaining) the same domain name in a legacy gTLD. Open gTLDs only.	Internal, consumer survey results. 2.10 is related to 2.9 but may require survey results from a statistically significant sample of relevant registrants.	Choice
2.14	DNS traffic in new gTLDs should be compared to contemporary user traffic in legacy gTLDs. DNS traffic is an indicator of trust, choice, and competition. If comprehensive traffic data is not available, sampling should be used.	External, registry reports, DNS traffic market research. Some of the data may be reported by registry operators, while some purchased data may be required for a more complete picture.	Choice
3.7	To assess competitive impact of new gTLDs, measure the quantity of second level registrations per gTLD and ccTLD on a weekly or other interval. TLD attributes should be noted with the data (i.e. open TLDs, closed keyword TLDs, registration, country of operations, single registrant, etc.).	Internal, external, zone files. While gTLD zone file data is readily available, ccTLD data is not or may have use restrictions. This may limit the review team’s ability to comprehensively analyze the data.	Competition
3.8	Quantity of “unique” second level registrations in the new gTLD space where that same string does not appear as a registration in any other TLD on a weekly or other interval basis (data analyzed in conjunction with website traffic identified in metric 2.14). Open gTLDs only.	See 2.14 and 3.7.	Competition
4.4	Frequency of dead-end domains (registered but do not resolve)	Internal, technical services team. May require comparing zone files to Whois records.	Trust
4.5	Numbers of complaints received by ICANN regarding improper use of	Internal, compliance team. Will require defining “improper use”	Trust

	domains	with categories of compliance categories already tracked in system.	
5.2	Growth in use of hosted pages for organizations (such as Facebook or Google+)	External, market research. May want to consider in parallel with survey metrics related to use of tools that hide URLs.	Trust
5.3	Growth in use of QR codes	See 5.2.	Trust
5.4	Growth in use of URL shortening services	See 5.2.	Trust
5.5	Growth in registrations in ccTLDs relative to gTLDs	Internal, technical services team. Will require data from ccTLDs, which may not provide a representative sample. In addition, ccTLD data may have use restrictions.	Trust
6.2	Number of complaints to police agencies alleging fraud or misrepresentation based on – or traced to – domain names	External, fraud reports, government and law enforcement authorities. May be difficult to gather a representative sample of data that can be traced to domain names. May have to rely on reports more generally tracking cyber crime.	Trust

Metrics that may require contextual analysis or rephrasing

A subset of metrics were identified as requiring additional contextual analysis in the final review or rephrasing to capture the available data. Twelve metrics fell into this category. Among them:

1.5: % Uptime for Registrar services such as WHOIS, contact info, and complaints, assuming that SLAs are established for these measures in the new RAA.

ICANN's technical services team can provide data on this metric provided the SLAs are established and ICANN receives reportable data.

1.11: Quantity of intellectual property claims and cost of domain name policing relating to new gTLDs. Relative incidence of IP claims made in good faith should be measured in 3 areas: IP claims against registrants regarding second level domains in new gTLDs; IP claims against registrars regarding Second level domains in new gTLDs; IP claims against new gTLD registries regarding second level domains and TLDs. Quantity of second level domains acquired because of infringement or other violations of IP rights of acquiring parties; and cost of domain name policing and enforcement efforts by IP owners.

IAG-CCT members and ICANN staff continue to explore avenues for collecting this data. The International Trademark Association (INTA) has expressed an interest in polling its members on this topic.

1.13: Quantity of compliance concerns regarding applicable national laws, including reported data security breaches.

ICANN staff working with its liaisons in the law enforcement community determined there was no reliable way to gather data linking compliance concerns and “applicable” national laws. As such, the group decided to drop the first part of the metric. In addition, as data security breaches are required to be reported to ICANN, this part of the metric will be counted. The rephrased metric now reads: “Number of reported data security breaches.”

1.14 Quantity and relative incidence of domain takedowns.

ICANN will reach out to registries to provide this information, which they are not required to provide. It will be important to gauge the incidences of takedowns in the context of the reasons for the takedowns. For examples, were domains taken down for nonpayment of services or due to law enforcement concerns? The relative incidence of various justifications may provide greater insight into the nature of abusive behavior in particular TLDs. It may also require additional information from governments or law enforcement authorities, who may only provide partial data on some of these requests.

1.15 Quantity and relative incidence of spam from domains in new gTLDs, which could be measured via specialized email addresses and methodologies.

1.16 Quantity and relative incidence of fraudulent transactions caused by phishing sites in new gTLDs.

1.17 Quantity and relative incidence of detected phishing sites using new gTLDs

1.18 Quantity and relative incidence of detected botnets and malware distributed using new gTLDs.

Data on abusive behavior in the DNS is widely available and collected by third parties. Though these data sets often come with a fee – and will require some technical expertise to interpret and analyze the numbers – the IAG-CCT members agreed that this is important data to collect and compare against a baseline of abusive behavior in the legacy TLDs. Given the fact that multiple streams of data define particularly botnets and malware in different ways, the group recommended exploring multiple sources of information to compare the data and help the review team reach a conclusion about how this behavior is changing over time. Spam and phishing statistics may be best provided by Spamhaus and the Anti-Phishing Working Group.

1.19: Quantity and relative incidence of sites found to be dealing in or distributing identities and account information used in identity fraud.

IAG-CCT members investigated the possibility of asking an academic or graduate students to conduct this research as it may require a complex mapping effort or more detailed research efforts than can be provided in-house. IAG-CCT members also noted the data that is available may only provide a snapshot of a larger, underground network, making it more important to capture a baseline soon.

1.21 Relative incidence of errors in new gTLD zones.

While this is data that can be internally gathered, IAG-CCT members were asked to provide a further definition of “errors” in the case of gTLD zones. Some initial definitions included the following: Errors may be caused by commas instead of dots, bad IP addresses or malformed domains. ICANN is working with its technical services team to better define measures to capture this data.

Upon consultation with ICANN’s technical services team, ICANN staff recommends using a test based on that which is used to measure lame delegations. In short, the test would query a given TLD for domain names registered and whether they are actually represented in the zone file. ICANN staff suggested that

syntactic errors (such as commas instead of dots) are extremely difficult to measure due to DNS resiliency. The distinction is that the chosen test should measure the quality of the registration data and not the quality of registrants' DNS operations.

2.6: The percentage of IDNs as compared to the total number of gTLDs in each script or language should be compared to the percentage of people who use each particular language or script.

IAG-CCT members decided that the numerator in this instance is the data in metrics 2.4 and 2.5 regarding IDN registrations and available registries. The group recommends the review team collect this data by comparing the numbers available to UNESCO or other data on languages spoken in the world if the review team so chooses. The group recommends the metric to be rephrased to read: "The number of registrations in IDN TLDs as compared to the total number of registrations in new gTLDs. Measure growth over time."

2.8: Measure share of Sunrise registrations & domain blocks to total registrations in each new gTLD.

IAG-CCT members agreed that this is an important metric to capture the nature of domain name transactions during the sunrise and launch periods. To provide a baseline for comparison, ICANN may need to require some legacy registries to provide sunrise and domain block information. For new gTLDs, registries will provide ICANN with sunrise data, but registries are not required to report domain blocks. Depending on the response ICANN receives from registry operators, the available data may be limited and thus difficult to analyze. It will be important to distinguish between domain blocks and IDN variants to ensure that the right set of data is being captured.

2.9: Relative share of new gTLD registrations already having the same domain in legacy TLDs prior to expansion. For this measure, count all registrations that redirect to domains in legacy TLDs. Open gTLDs only.

2.10: Automated analysis or online survey to determine the number of "duplicate" registrations in new gTLDs. For purposes of this measure, "duplicate" registrations are those where registrant reports having (and still maintaining) the same domain name in a legacy gTLD. Open gTLDs only.

The distinction between these two metrics is that 2.10 is meant to survey registrants who are maintaining identical sites in different TLDs, while 2.9 only looks at those domain names which redirect from new gTLDs to legacy TLDs. The group noted that 2.10 may be a challenge if the consumer survey does not sample a statistically significant sample of registrants. Further, ICANN's technical services team notes that this would be extremely difficult to measure using queries or other methodologies given the size of the data sets that must be compared. The IAG-CCT members agreed to recommend the review team put 2.10 on hold until it can confirm that 2.9 resulted in a statistically significant sample of relevant registrants.

2.14: DNS traffic in new gTLDs should be compared to contemporary user traffic in legacy gTLDs. DNS traffic is an indicator of trust, choice, and competition. If comprehensive traffic data is not available, sampling should be used.

Measuring traffic in new gTLDs may require the purchase of third party data. Sampling traffic in particular TLDs may not offer an accurate picture of traffic in the DNS. Registry operators report on queries that the TLD receives. This may be one source for capturing the data. Multiple vendors offer access to more complete data sources on DNS traffic, though the price tag may vary. ICANN staff recommends the review team revisit this topic to determine the best source of data.

3.7: To assess competitive impact of new gTLDs, measure the quantity of second level registrations per gTLD and ccTLD on a weekly or other interval. TLD attributes should be noted with the data (i.e. open TLDs, closed keyword TLDs, registration, country of operations, single registrant, etc.).

3.8: Quantity of “unique” second level registrations in the new gTLD space where that same string does not appear as a registration in any other TLD on a weekly or other interval basis (data analyzed in conjunction with website traffic identified in 2.14). Open gTLDs only.

While ICANN has access to zone files for gTLDs, there may be use restrictions for ccTLD zone files. With limitations on data available from ccTLDs IAG-CCT members acknowledged these metrics may prove challenging to gain a comprehensive picture of unique domain name registrations in the new gTLD space. Counting active domain name registrations may result in a clearer picture of rate of growth.

4.4: Frequency of dead-end domains (registered but do not resolve)

ICANN staff recommends further refining the definition of “dead-end domains.” Domains that are registered but do not resolve may be attributed to IDN variants, where a set of variants may be registered but only one may resolve. Measuring parked domains may also result in faulty data as some domains may be registered for email or other such purposes. Similarly, websites that redirect may also result in false reports of “dead-end domains.” Finally, a dead-end domain could be one registered and delegated but the authoritative servers for the name are inoperable, unreachable or otherwise misfiring. This might be a measure of how little a registrant values a name registration in the TLD or just bad management by the registrant.

4.5: Numbers of complaints received by ICANN regarding improper use of domains.

8.1: How many complaints are received by ICANN related to confusion or misunderstanding of TLD function?

These metrics both required further definition to be able to parse data available from ICANN’s contractual compliance department. Because the compliance department tracks complaints based on certain types of complaints, ICANN staff worked with the IAG-CCT members to identify complaint types that were most applicable to these metrics.

Complaints related to improper use of domains:

- Reports of alleged illegal activity: These complaints are referred to government or law enforcement agencies.
- Legitimate domain use: Registrants are not required to use their websites in any particular way.
- Website content: As ICANN does not have the authority to police website content, these complaints are closed.
- Hijacking (email or control panel): Hijacking of email addresses or access credentials should be reported to law enforcement.
- Denied OK – Evidence of fraud: The registrar was justified in refusing to transfer a domain name because of evidence of fraud.
- Spam: ICANN does not have authority to address complaints about spam.

Complaints related to confusion or misunderstanding of a TLD function:

- Non-IDN: The complaint is not for an IDN domain name.

- Registrar does not offer IDNs: Complaint about an IDN registered with a registrar that does not offer IDNs.
- Deletion OK: Registrar demonstration that deletion of a domain name was compliant with the 2013 RAA.
- Not a new gTLD: Complaint notice about trademark notices in a domain that is not a new gTLD, which require trademark notices.
- Outside claims period: Trademark notice complaint that is outside the claim notice period.
- Non-2013 RAA: Complaint is related to a 2013 RAA but the registrar is using a 2001 or 2009 version of the RAA.
- ccTLD: The complaint is related to a domain registered in a ccTLD. ICANN does not accredit ccTLD registrars.
- Customer service not in RAA: ICANN does not have contractual authority to address customer service issues that fall outside the RAA.
- Private dispute: The complaint indicates a private dispute between the complainant and a third party, over which ICANN does not have contractual authority.
- Spam: ICANN does not have authority to police spam.
- Website content: ICANN does not regulate website content.
- Complaint about wrong website: Complaint referred to a site that is not registered with the referenced registrar.
- Complaint about wrong entity: Complaint referenced a non-ICANN-accredited registrar or a wrong entity.
- Complaint outside data retention obligations: Complaint references data that registrars aren't obligated to maintain or those that can no longer be maintained due to age.
- Irrelevant: A Whois-related complaint for an irrelevant/invalid complaint.
- Complainant owns domain name: Complainant owns the domain name about which they are complaining.
- Complaint outside scope: Complaint falls outside provisions of registry agreement.
- ICANN not a registrar: ICANN doesn't register domain names.
- Not applicable to this TLD (Invalid): The complaint is not applicable to the generic, top-level domain (gTLD) of the complaint.
- Reseller/web hosting: Complaint falls outside the scope of the RAA and is with an entity that does not have a contractual relationship with ICANN.
- Blocked SLD confirmed (Invalid): The registry operator may reserve or block additional character strings at its own discretion; or the second level domain (SLD) name of the complaint is in the list of SLD names required to be blocked per the Alternate Path to Delegation Report of the gTLD of the complaint.

5.2: Growth in use of hosted pages for organizations (such as Facebook or Google+)

5.3: Growth in use of QR codes

5.4: Growth in use of URL shortening services

There was disagreement among IAG-CCT members on the utility of these metrics as gauges of trust in the DNS. Some members argued that growth in the use of alternative tools to access content on the Internet is more a reflection of changes in how people interact with the DNS than a measure of trust. As such, some members argued that it may be a better indicator of choice, though not choice in the DNS.

Other IAG-CCT members suggested the metrics are reliable indicators of trust because growth in the use of these services may indicate diminished trust in and use of what may arguably be more memorable domain names in the new gTLDs.

Because the data is available, for a fee, using market research and other web analytic firms, the group decided to recommend collection of this data to the review team. ICANN staff recommend considering the findings in context, perhaps in consideration with DNS traffic in new gTLDs to be measured in 2.14.

6.2: Number of complaints to police agencies alleging fraud or misrepresentation based on – or traced to – domain names

The review team may want to consider rephrasing this metric to be more broadly inclusive of cyber crime or cyber fraud, as opposed to connecting those crimes to domain names, which may be difficult to track. There is global data available on cyber crime, such as Kroll's Global Fraud Report and econsumer.gov, an initiative of the International Consumer Protection and Enforcement Network.

Metrics that were not recommended

The following metrics were deemed to be redundant, presented difficulties for data collection, or were defined in such a way that other metrics may be capturing the same information.

2.13: Biennial survey of perceived consumer choice relative to experiences before the gTLD expansion. Survey should assess public awareness of new gTLDs. Survey should also measure costs of defensive or duplicate registrations. Survey should assess motivations, intent, and satisfaction with new gTLDs.

IAG-CCT members decided this metric was duplicative of metric 2.3: Biennial surveys of perceived consumer choice in DNS, relative to experience before the gTLD expansion.

5.6: Growth of Software Defined Networking (SDN) as alternative to the DNS

For the purposes of this analysis, SDN was defined as those tools that hide a URL when navigating the Internet, such as QR codes. Given that the group recommended the collection of data related to tools that present an alternative to memorable domain names in metrics 5.2-5.4, the IAG-CCT members chose to recommend this metric for exclusion from the analysis. IAG-CCT members also noted another definition for SDN as a different approach to computer networking.

6.1: Number of consumer complaints to government agencies related to confusing or misleading domain names

The IAG-CCT members agreed that this would be difficult data to capture from government agencies that may track data in disparate ways. In addition, the group expressed concern that the "confusing or misleading domain names" may be difficult to define in a consistent way across different legal environments and cultures.

6.3: Number of fraud investigations where WHOIS information positively assisted investigation and identification of offending parties

The group recommended this metric be excluded from the evaluation as feedback indicated law enforcement would be unwilling to reveal their investigation techniques in a public way, nor were they likely to keep track of this data on a larger scale. Further, some members suggested that there was little connection between this metric and the success of the New gTLD Program.

8.2: How many registries are subject to Compliance activity based on reported breaches of RAA?

The group members agreed that metric 1.6, Relative incidence of breach notices issued to Registry operators for contract or policy compliance matters, covers this topic given that registries are not subject to compliance activity based on reported breaches of an RAA. Further, metric 1.7 also captures compliance activity related to registrar breach notices: Relative incidence of breach notices issued to Registrars, for contract or policy compliance matters. Consequently, this measure was recommended for exclusion.

Proposed new metrics

Over the course of its discussions, IAG-CCT members raised examples of potential abuses in the New gTLD Program and debated potential sources of data that may be able to quantify some of that activity. As a result, the group came up with 14 potential new metrics. The group came to the consensus that many of these could be included in the economic study ICANN is commissioning to evaluate pricing trends and marketing models. Others were deemed difficult to obtain or would rely on contracted parties providing the data. Below are listed each of the metrics followed by both IAG-CCT and staff feedback on their utility.

Evaluation

1. Number or percentage of failed registrations
2. Percentage or number of pre-registrations that converted into real registrations
3. Number of registrars who accepted pre-registrations on gTLDs but did not enter into a contract with the registry

Evaluation: ICANN does not have access to this data and would have to ask registrars for their cooperation in providing this information. With more than 1,000 accredited registrars, it could prove difficult to capture a meaningful sample of registrars willing to provide the necessary data. Further, some of the data may not be an accurate indicator of trust or choice. For example, in metric 1, failed registrations may be due to canceled credit card transactions or a registrant changing her mind. Similarly with metric 2, an increase over time may simply be an indicator of trust in a registrar and not necessarily in the DNS. Some data related to metric 3 may be captured in the economic study insofar as it relates to registrars marketing new gTLDs.

4. How were users informed or able to purchase premium names?

Evaluation: The group recommended incorporating this question into the economic study.

5. Number of registrations that are non-arms-length transactions.
6. If a registration was non-arms-length transaction how was the domain used?

Evaluation: Arms-length transactions were defined as those which involve a third party in the registration of a domain name. For example, if a registry is registering domain names through a related party, it would be considered an arms-length transaction. If it was directly registering domain names, that would be considered non-arms-length. The data may be difficult to obtain as it relies on registries' self-reporting these figures. Gathering a representative sample of these figures from enough new gTLDs to draw valid conclusions may be a challenge.

The metrics question the impact of such behavior on consumer trust and choice. These metrics may be somewhat addressed in metric 2.8, the share of sunrise registrations and domain blocks in new

gTLDs. Evaluating these registrations for motive may be difficult to establish. Survey metrics related to registrants' experiences attempting to register domain names in new gTLDs may help to provide context for this metric.

7. Which registries and TLDs are supported by which registrars?
8. How does each registrar present each TLD on their websites, from the point of view of "shelf space" and the user experience?
9. Is the presentation or prioritization of "shelf space" among available TLDs is fixed, randomly rotated, or adaptable according to different criteria, including payment?
10. Do registrars give priority, on their websites or within their pricing and service offerings, to TLDs which they own (as vertically integrated registrars) or with which they are otherwise associated?
11. Data on the registration of domain names in the new gTLDs.
12. Data on the numbers of domains which have been withdrawn from consumer choice by speculation or bulk registrations.
13. Baseline data on wholesale/retail prices charged for 'premium' valued domains across the spectrum of new Registries.

Evaluation: IAG-CCT members agreed that these questions could all be incorporated into the RFP for the economic study, particularly as they relate to marketing of new gTLDs.

14. Number of reports of name collisions

Evaluation: IAG-CCT members felt that given the attention this issue has received and ICANN's own plans to track incidences of such collisions, this would be an important metric to include. It will be included in the category of trust metrics.

Conclusion

The IAG-CCT members worked together over the course of nearly a year to reach consensus on the recommendations made in this report. While there may have been disagreement on some metrics, this report aims to present a complete picture of the various viewpoints that were considered in the group's discussions in order to inform more fully the review team's own plans for moving forward with its review plan.

By using the IAG-CCT's mandate to evaluate each metric for feasibility, utility and cost-effectiveness, the group used a consistent approach in composing its advice. The final group of 66 recommended metrics represents the IAG-CCT'S attempt to capture a complete picture of the New gTLD's Program's progress through several lenses encapsulating competition, consumer choice and consumer trust. These represent several axes of ICANN's own internally available data, as well as external sources, such as the global consumer survey, economic study and market research.

The IAG-CCT submits this report with the goal of serving as a useful tool as the review team begins to tackle the challenge of the CCT review.

Appendix 1: Original proposed metrics

Note: All metrics were recommended by the Generic Names Supporting Organization (GNSO) and the At-Large Advisory Committee (ALAC).

METRIC	DESCRIPTION	CATEGORY
1.1	% DNS Service Availability (present SLA is 100%).	Trust
1.2	% Availability for Registration Data Directory Services (RDDS). (SLA is 98%).	Trust
1.3	% of Service Availability for Shared Registration Services (SRS, using EPP). (SLA is 98%). Open TLDs only	Trust
1.4	Survey of perceived consumer trust in DNS, relative to experiences before the gTLD expansion. Survey could at least measure experiences with phishing, parking sites, malware and spam; confusion about new gTLDs; user experience in reaching meaningful second-level TLDs; registrant experience in being in a different gTLD; Registrant and Internet users' experience with regard to cybersquatting. Survey to be conducted every two years (biennial).	Trust
1.5	% Uptime for Registrar services such as WHOIS, contact info, and complaints, assuming that SLAs are established for these measures in the new RAA.	Trust
1.6	Relative incidence of breach notices issued to Registry operators for contract or policy compliance matters.	Trust
1.7	Relative incidence of breach notices issued to Registrars, for contract or policy compliance matters.	Trust
1.8	Relative Incidence of Registry & Registrar general complaints submitted to ICANN's Internic System.	Trust
1.9	Relative incidence of combined UDRP and URS Complaints. URS is required only in new gTLDs, so combined UDRP and URS complaints may be comparable to UDRP complaints in legacy gTLDs	Trust
1.10	Relative incidence of combined UDRP and URS Decisions against registrants.	Trust

1.11	Quantity of intellectual property claims and cost of domain name policing relating to new gTLDs. Relative incidence of IP claims made in good faith should be measured in 3 areas: IP claims against registrants regarding second level domains in new gTLDs; IP claims against registrars regarding Second level domains in new gTLDs; IP claims against new gTLD registries regarding second level domains and TLDs. Quantity of second level domains acquired because of infringement or other violations of IP rights of acquiring parties; and Cost of domain name policing and enforcement efforts by IP owners.	Trust
1.12	Decisions against Registry Operator arising from Registry Restrictions Dispute Resolutions Procedure (RRDRP).	Trust
1.13	Quantity of Compliance Concerns regarding Applicable National Laws, including reported data security breaches.	Trust
1.14	Quantity and relative incidence of Domain Takedowns.	Trust
1.15	Quantity and relative incidence of spam from domains in new gTLDs, which could be measured via specialized email addresses and methodologies.	Trust
1.16	Quantity and relative incidence of fraudulent transactions caused by phishing sites in new gTLDs.	Trust
1.17	Quantity and relative incidence of detected phishing sites using new gTLDs.	Trust
1.18	Quantity and relative incidence of detected botnets and malware distributed using new gTLDs.	Trust
1.19	Quantity and relative incidence of sites found to be dealing in or distributing identities and account information used in identity fraud.	Trust
1.20	Quantity and relative incidence of complaints regarding inaccurate, invalid, or suspect WHOIS records in new gTLD.	Trust
1.21	Relative incidence of errors in new gTLD zones.	Trust
1.22	Qualitative comparison of mission and purpose set forth in Question 18 of the new gTLD Application with current actual use of the gTLD.	Trust
2.1	Measure potential registrants' understanding of TLD benefits and restrictions, such that potential registrants can make informed choices about registration of their domain names.	Choice

2.2	Measure Internet users' understanding of TLD eligibility restrictions, such that Internet users can make informed choices about reliance on domain names in that TLD.	Choice
2.3	Biennial surveys of perceived consumer choice in DNS, relative to experience before the gTLD expansion.	Choice
2.4	Quantity of TLDs using IDN scripts or languages other than English.	Choice
2.5	Quantity of Registrar websites offering IDN scripts or languages other than English.	Choice
2.6	The percentage of IDNs as compared to the total number of gTLDs in each script or language should be compared to the percentage of people who use each particular language or script.	Choice
2.7	Quantity of different national legal regimes where new gTLD Registry Operators are based.	Choice
2.8	Measure share of Sunrise registrations & domain blocks to total registrations in each new gTLD.	Choice
2.9	Relative share of new gTLD registrations already having the same domain in legacy TLDs prior to expansion.	Choice
2.10	Automated analysis or online survey to determine the number of "duplicate" registrations in new gTLDs.	Choice
2.11	Measure the increased geographic diversity of registrants across all new gTLDs, as indication of new choices created by gTLD expansion.	Choice
2.12	Survey or Study to gauge the frequency with which users access internet resources via tools that do not reveal the TLD (e.g. QR Codes, search results, apps, etc., that do not display URLs).	Choice
2.13	Biennial survey of perceived consumer choice relative to experiences before the gTLD expansion. Survey should assess public awareness of new gTLDs. Survey should also measure costs of defensive or duplicate registrations. Survey should assess motivations, intent, and satisfaction with new gTLDs.	Choice
2.14	DNS traffic in new gTLDs should be compared to contemporary user traffic in legacy gTLDs. DNS traffic is an indicator of trust, choice, and competition. If comprehensive traffic data is not available, sampling should be used.	Choice
3.1	Quantity of total TLDs before and after expansion.	Competition
3.2	Quantity of gTLDs before and after expansion.	Competition
3.3	Quantity of unique gTLD Registry Operators before and after	Competition

	expansion.	
3.4	Quantity of unique gTLD Registry Service Providers before and after expansion.	Competition
3.5	Quantity of Registrars before and after expansion, along with indication of country where Registrar is based. This measure should count only registrars distributing Open gTLDs.	Competition
3.6	Relative share of new gTLD registrations held by “new entrants”. For purposes of this measure, “new entrants” are gTLDs run by Registry Operators that did not operate a legacy gTLD. A "new entrant" is one whose ownership is not among owners of legacy gTLD registries.	Competition
3.7	To assess competitive impact of new gTLDs, measure the quantity of second level registrations per gTLD and ccTLD on a weekly or other interval. TLD attributes should be noted with the data (i.e. open TLDs, closed keyword TLDs, registration, country of operations, single registrant, etc.).	Competition
3.8	Quantity of “unique” second level registrations in the new gTLD space where that same string does not appear as a registration in any other TLD on a weekly or other interval basis (data analyzed in conjunction with website traffic identified in Choice). Open gTLDs only.	Competition
3.9	Wholesale price of domains in new gTLD domains offered to the general public. TLD attributes should be noted with the data (i.e. open TLDs, closed keyword TLDs, country of operations, single registrant, etc.).	Competition
3.10	Retail price of domains in new gTLD domains offered to the general public. TLD attributes should be noted with the data (i.e. open TLDs, closed keyword TLDs, country of operations, single registrant, etc.).	Competition
3.11	Qualitative assessment of non-price indicia of competition through innovations that benefit registrants and users, particularly for new markets served.	Competition
4.1	Frequency of success in reaching the intended information supplier through direct entry of domain names	Trust
4.2	Frequency of landing at unintended destinations	Trust
4.3	Frequency of redundant or defensive domains (i.e., multiple domains pointing to the same destination)	Trust
4.4	Frequency of dead-end domains (registered but do not resolve)	Trust
4.5	Numbers of complaints received by ICANN regarding improper use of domains	Trust

5.1	Relative preference of explicit use of domain names versus search engines for end-user general Internet use	Trust
5.2	Growth in use of hosted pages for organizations (such as Facebook or Google+)	Trust
5.3	Growth in use of QR codes	Trust
5.4	Growth in use of URL shortening services	Trust
5.5	Growth in registrations in ccTLDs relative to gTLDs	Trust
5.6	Growth of Software Defined Networking (SDN) as alternative to the DNS	Choice
6.1	Number of consumer complaints to government agencies related to confusing or misleading domain names	Trust
6.2	Number of complaints to police agencies alleging fraud or misrepresentation based on – or traced to – domain names	Trust
6.3	Number of fraud investigations where WHOIS information positively assisted investigation and identification of offending parties	Trust
7.1	How many gTLD registries have privacy policies which are clearly and easily accessible by end users	Trust
7.2	How many gTLD registries have allocation policies which are clearly and easily accessible by end users, even if those policies simply restrict or prohibit public availability	Trust
7.3	How many registries disclose end-user information regarding their codes of conduct for sub-domain owner/operators	Trust
8.1	How many complaints are received by ICANN related to confusion or misunderstanding of TLD functions	Trust
8.2	How many registries are subject to Compliance activity based on reported breaches of RAA?	Trust
8.3	How many registries have been the subject of complaints related to their Public Interest Commitments (PICs)	Trust
8.4	How many registries have lost a dispute resolution process related to their PICs	Trust
9.1	Are end-user software applications capable of implementing all of the new gTLDs; Can browsers and DNS clients in end-user systems resolve all new gTLDs	Trust
9.2	Which browsers or other end-user applications require plugins or user-installed enhancements in order to use new gTLDs	Trust

Appendix 2: Recommended metrics, reorganization, and data collection phases

Working together with ICANN staff, the IAG-CCT came to a consensus on reorganizing the metrics to better represent the various categories of data that will be collected. Each category of data would then be examined on the axes of choice, competition and trust. As such, the group proposes the following structure for the eventual review team report:

- I. Technical metrics
- II. Registration data
- III. Law enforcement/domain abuse
- IV. DNS use/choice
- V. Compliance
- VI. Global consumer survey
- VII. Qualitative studies

Also included below are the recommended phases for data collection. Phases were broken down to account for metrics that required a baseline, as well as collection to begin one year after new gTLDs have been in operation. The phases represent the following time periods:

Phase 1: Baseline metrics requiring immediate collection, March-September 2014

Phase 2: Baseline metrics that do not require immediate collection, June-September 2014

Phase 3: Metrics that are readily available in-house, October 2014-until collected

Phase 4: All metrics that are due to be collected one year after the launch of new gTLDs

Phase 4A: Technical services and compliance metrics, October-December 2014

Phase 4B: Registry and registrar-related metrics, November 2014-January 2015

Phase 4C: Consumer survey, qualitative studies, December 2014-February 2016

Technical metrics

#	Description	Category	Baseline phase	General collection phase
1.1	% DNS Service Availability (present SLA is 100%).	Trust		3
1.2	% Availability for Registration Data Directory Services (RDDS). (SLA is 98%).	Trust		3
1.3	% of Service Availability for Shared Registration Services (SRS, using EPP). (SLA is 98%). Open TLDs only	Trust		3

1.5	% Uptime for Registrar services such as WHOIS, contact info, and complaints, assuming that SLAs are established for these measures in the new RAA.	Trust		4B
1.21	Relative incidence of errors in new gTLD zones.	Trust		4A
2.10	Automated analysis or online survey to determine the number of “duplicate” registrations in new gTLDs.	Choice		4B
2.14	DNS traffic in new gTLDs should be compared to contemporary user traffic in legacy gTLDs. DNS traffic is an indicator of trust, choice, and competition. If comprehensive traffic data is not available, sampling should be used.	Choice	2	4A
4.4	Frequency of dead-end domains (registered but do not resolve)	Trust		
9.1	Are end-user software applications capable of implementing all of the new gTLDs; Can browsers and DNS clients in end-user systems resolve all new gTLDs	Trust		4A
9.2	Which browsers or other end-user applications require plugins or user-installed enhancements in order to use new gTLDs	Trust		4A
9.3	Number of reports of name collisions	Choice		4A

Registration data

#	Description	Category	Baseline phase	General collection phase
2.11	Measure the increased geographic diversity of registrants across all new gTLDs, as indication of new choices created by gTLD expansion.	Choice		4A
2.4	Quantity of TLDs using IDN scripts or languages other than English.	Choice	2	4B
2.5	Quantity of Registrar websites offering IDN scripts or languages other than English.	Choice	2	4B
2.6	The number of registrations in IDN TLDs as compared to the total number of registrations in new gTLDs. Measure growth over time.	Choice	2	4B
2.7	Quantity of different national legal regimes where new gTLD Registry Operators are based.	Choice	1	4A
2.8	Measure share of Sunrise registrations & domain blocks to total registrations in each new gTLD.	Choice	2	4A

2.9	Relative share of new gTLD registrations already having the same domain in legacy TLDs prior to expansion.	Choice	2	4A
3.1	Quantity of total TLDs before and after expansion.	Competition		3
3.2	Quantity of gTLDs before and after expansion.	Competition	1	4B
3.3	Quantity of unique gTLD Registry Operators before and after expansion.	Competition	3	4B
3.4	Quantity of unique gTLD Registry Service Providers before and after expansion.	Competition	3	4B
3.5	Quantity of Registrars ⁵ before and after expansion, along with indication of country where Registrar is based. This measure should count only registrars distributing Open gTLDs.	Competition	3	4B
3.6	Relative share of new gTLD registrations held by “new entrants”. For purposes of this measure, “new entrants” are gTLDs run by Registry Operators that did not operate a legacy gTLD. A “new entrant” is one whose ownership is not among owners of legacy gTLD registries.	Competition	2	4A
3.7	To assess competitive impact of new gTLDs, measure the quantity of second level registrations per gTLD and ccTLD on a weekly or other interval. TLD attributes should be noted with the data (i.e. open TLDs, closed keyword TLDs, registration, country of operations, single registrant, etc.).	Competition	1	4A
3.8	Quantity of “unique” second level registrations in the new gTLD space where that same string does not appear as a registration in any other TLD on a weekly or other interval basis (data analyzed in conjunction with website traffic identified in Choice). Open gTLDs only.	Competition	2	4A
5.5	Growth in registrations in ccTLDs relative to gTLDs	Trust	2	4B
7.1	How many gTLD registries have privacy policies which are clearly and easily accessible by end users	Trust	1	4B
7.2	How many gTLD registries have allocation policies which are clearly and easily accessible by end users, even if those policies simply restrict or prohibit public availability	Trust	1	4B
7.3	How many registries disclose end-user information regarding their codes of conduct for sub-domain owner/operators	Trust	1	4B

Law enforcement/domain abuse

#	Description	Category	Baseline phase	General collection phase
1.11	Quantity of intellectual property claims and cost of domain name policing relating to new gTLDs. Relative incidence of IP claims made in good faith should be measured in 3 areas: IP claims against registrants regarding second level domains in new gTLDs; IP claims against registrars regarding Second level domains in new gTLDs; IP claims against new gTLD registries regarding second level domains and TLDs. Quantity of second level domains acquired because of infringement or other violations of IP rights of acquiring parties; and Cost of domain name policing and enforcement efforts by IP owners.	Trust	1	4C
1.13	Number of reported data security breaches.	Trust	2	4A
1.14	Quantity and relative incidence of Domain Takedowns.	Trust		4B
1.15	Quantity and relative incidence of spam from domains in new gTLDs, which could be measured via specialized email addresses and methodologies.	Trust		4B
1.16	Quantity and relative incidence of fraudulent transactions caused by phishing sites in new gTLDs.	Trust		4C
1.17	Quantity and relative incidence of detected phishing sites using new gTLDs.	Trust	2	4A
1.18	Quantity and relative incidence of detected botnets and malware distributed using new gTLDs.	Trust	2	4A
1.19	Quantity and relative incidence of sites found to be dealing in or distributing identities and account information used in identity fraud.	Trust	2	4A
6.2	Number of complaints to police agencies alleging fraud or misrepresentation based on – or traced to – domain names	Trust	1	4B

DNS use/choice

#	Description	Category	Baseline phase	General collection phase
5.2	Growth in use of hosted pages for organizations (such as Facebook or Google+)	Trust	1	4B
5.3	Growth in use of QR codes	Trust	1	4B

5.4	Growth in use of URL shortening services	Trust	1	4B
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Compliance metrics

#	Description	Category	Baseline phase	General collection phase
1.6	Relative incidence of breach notices issued to Registry operators for contract or policy compliance matters.	Trust	1	4A
1.7	Relative incidence of breach notices issued to Registrars, for contract or policy compliance matters.	Trust	1	4A
1.8	Relative Incidence of Registry & Registrar general complaints submitted to ICANN's Internic System.	Trust	1	4A
1.9	Relative incidence of combined UDRP and URS Complaints. URS is required only in new gTLDs, so combined UDRP and URS complaints may be comparable to UDRP complaints in legacy gTLDs	Trust	1	4A
1.10	Relative incidence of combined UDRP and URS Decisions against registrants.	Trust	1	4A
1.12	Decisions against Registry Operator arising from Registry Restrictions Dispute Resolutions Procedure (RRDRP).	Trust		3
1.20	Quantity and relative incidence of complaints regarding inaccurate, invalid, or suspect WHOIS records in new gTLD.	Trust	1	4A
4.5	Numbers of complaints received by ICANN regarding improper use of domains	Trust	1	4A
8.1	How many complaints are received by ICANN related to confusion or misunderstanding of TLD functions	Trust	1	4A
8.3	How many registries have been the subject of complaints related to their Public Interest Commitments (PICs)	Trust		3
8.4	How many registries have lost a dispute resolution process related to their PICs	Trust		3

Surveys

#	Description	Category	Baseline phase	General collection phase
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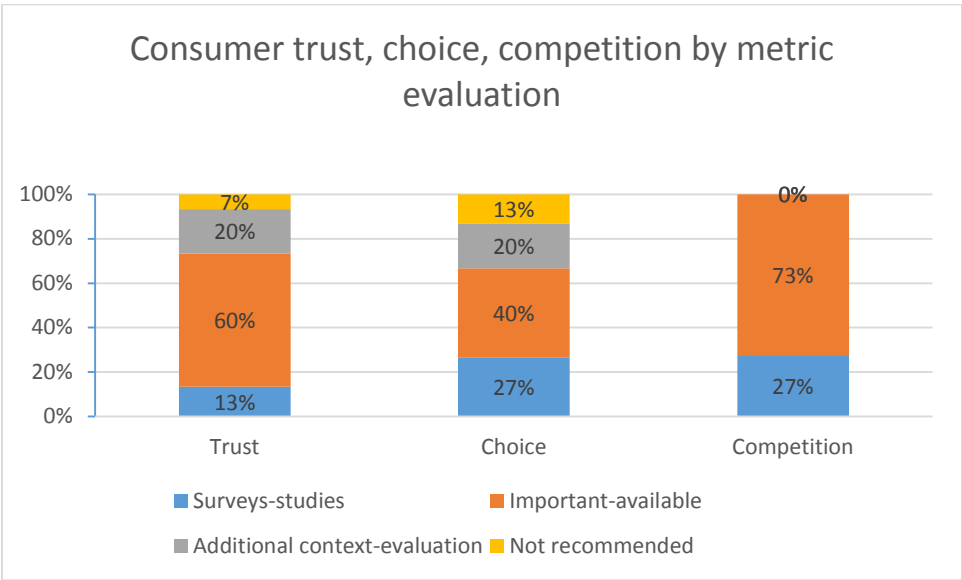
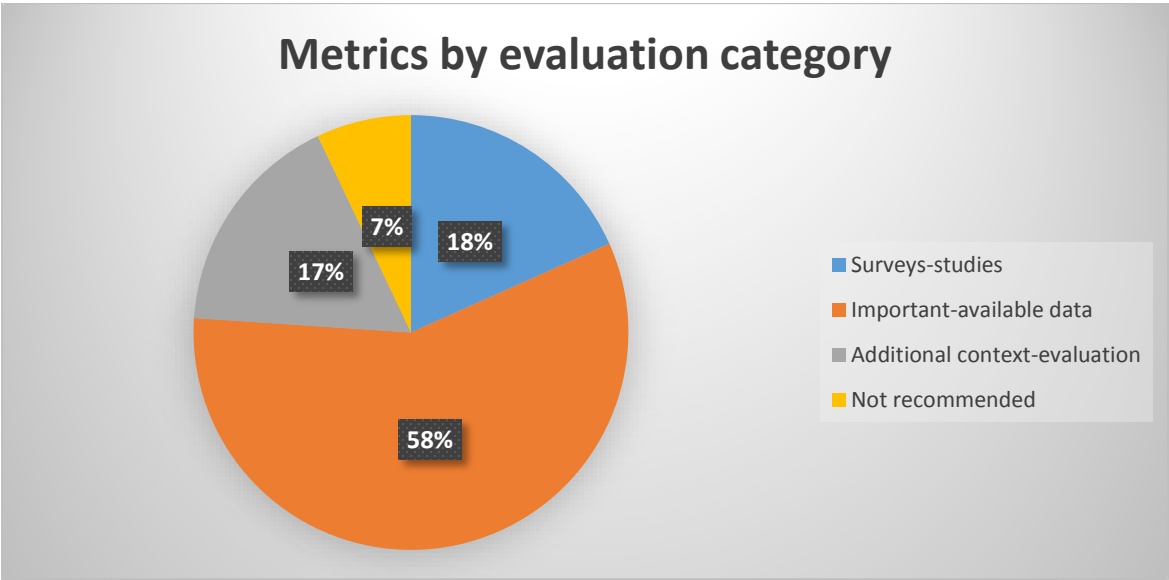
1.4	Survey of perceived consumer trust in DNS, relative to experiences before the gTLD expansion. Survey could at least measure experiences with phishing, parking sites, malware and spam; confusion about new gTLDs; user experience in reaching meaningful second-level TLDs; registrant experience in being in a different gTLD; Registrant and Internet users' experience with regard to cybersquatting. Survey to be conducted every two years (biennial).	Trust	1	4C
2.1	Measure potential registrants' understanding of TLD benefits and restrictions, such that potential registrants can make informed choices about registration of their domain names.	Choice	1	4C
2.2	Measure Internet users' understanding of TLD eligibility restrictions, such that Internet users can make informed choices about reliance on domain names in that TLD.	Choice	1	4C
2.3	Biennial surveys of perceived consumer choice in DNS, relative to experience before the gTLD expansion.	Choice	1	4C
2.12	Survey or Study to gauge the frequency with which users access internet resources via tools that do not reveal the TLD (e.g. QR Codes, search results, apps, etc., that do not display URLs).	Choice	1	4C
4.1	Frequency of success in reaching the intended information supplier through direct entry of domain names	Trust	1	4C
4.2	Frequency of landing at unintended destinations	Trust	1	4C
4.3	Frequency of redundant or defensive domains (ie, multiple domains pointing to the same destination)	Trust	1	4C
5.1	Relative preference of explicit use of domain names versus search engines for end-user general Internet use	Trust	1	4C

Qualitative studies

#	Description	Category	Baseline phase	General collection phase
1.22	Qualitative comparison of mission and purpose set forth in Question 18 of the new gTLD Application with current actual use of the gTLD.	Trust	1	4C
3.10	Retail price of domains in new gTLD domains offered to the general public. TLD attributes should be noted with the data (i.e. open TLDs, closed keyword TLDs, country of operations, single registrant, etc.).	Competition	1	4C

3.11	Qualitative assessment of non-price indicia of competition through innovations that benefit registrants and users, particularly for new markets served.	Competition	1	4C
3.9	Wholesale price of domains in new gTLD domains offered to the general public. TLD attributes should be noted with the data (i.e. open TLDs, closed keyword TLDs, country of operations, single registrant, etc.).	Competition	1	4C

Appendix 3: Metrics breakdown



Appendix 4: Team composition

A list of all meetings, including links to agendas, recordings and transcripts is available at the following link: <https://community.icann.org/display/IAG/IAG-CCT+Conference+Call+Schedule>

Candidate	Country	Affiliation	SOI
A.B. Ishiaku	Nigeria		Adamu Ishiaku - SOI
Carlton Samuels	Jamaica	ALAC	Carlton Samuels - SOI
Cheryl Langdon-Orr	Australia	Currently serve as ICANN NomCom Chair; Affiliation also (in order) ccNSO (please note they have given Council endorsement for me to represent their interests in this work and as no ccNSO SOI exists you should note I am a Director of auDA the ccTLD for AU, have been for more than 10 years and am active in the ccNSO community and have served on ccNSO Council; Also a Member of At-Large ALS ISOC-AU Regional Asia Pacific ; various ALAC appointment roles; Individual Member of the GNSO's Non Commercial Stakeholder Group.	Cheryl Langdon-Orr - SOI
Christa Taylor	Canada		Christa Taylor - SOI
Christopher Wilkinson	Europe/Great Britain	ISOC-Wallonia; EURid	Christopher Wilkinson - SOI
Cintra Sooknanan	Caribbean/Trinidad and Tobago	NPOC; Internet Society Trinidad and Tobago Chapter (ISOC-TT)	Cintra Sooknanan SOI
Darryl C. Wilson	United States		Darryl Wilson SOI
David C. Stuckman	United States		David Stuckman - SOI
Ephraim Percy Kenyanito	Kenya		Ephraim Percy Kenyanito SOI
Evan Leibovitch	Canada	ALAC / ISOC Canada	ALAC SOI /GNSO SOI

Jeffrey Thomas	United States		Jeffrey Thomas - SOI
Jeremy Rowley	United States		Jeremy Rowley - SOI
Jonathan Zuck	Belgium		Jonathan Zuck - SOI
Judy Song-Marshall	United States		Judy Song-Marshall - SOI
Mason Cole	United States	RySG	Mason Cole - SOI
Michael A. Flynn	United States		Michael A Flynn - SOI
Michael Graham			Michael Graham - SOI
Michael R. Nelson	United States		Michael R. Nelson - SOI
Nathalie Coupet	Haiti / USA		Nathalie Coupet SOI
Olga Cavalli	Argentina		Olga Cavalli SOI
Phil Buckingham	United Kingdom		Phil Buckingham - SOI
Ray Fassett	United States		Ray Fassett - SOI
Reg Levy	United States	RySG	Levy - SOI.pdf
Ron Andruff	Canada / US	RNA Partners / BC constituency	Ron Andruff SOI
Rudi Vansnick	Belgium (EU)	NPOC / NCSG	Rudi Vansnick SOI
Santiago Rodriguez Ortiz	Colombia		Santiago Rodriguez - SOI
Steve DelBianco	United States	NetChoice / Business Constituency	DelBianco - SOI
Tony	United States		Tony Onorato

Onorato			- SOI
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