

**AN ALGORITHM PREVIOUSLY WROTE THIS ESSAY:
LESSONS FOR PUBLIC CONSULTATIONS FROM ARTIFICIAL INTELLIGENCE**

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THE LIBRARY OF BABEL

In the digital age, we are overloaded by incomprehensible volumes of data like the characters of Borges' 1944 short story *La biblioteca de Babel* (The Library of Babel).¹ Borges' characters are trapped in their massive library, which contains peculiar books. Every room, of which there are too many to explore in a lifetime, has the same number of shelves and volumes. The 410 pages of each book are filled with one unique permutation of letters and punctuation. Most combinations of characters do not result in words, let alone sentences or paragraphs, but since every combination exists every potential phrase is on the library's shelves somewhere.² Some trapped inhabitants search the volumes for the rare coherent fragment or paragraph, or even the meaning of their existence, which must be on the shelves—along with every false explanation. Shakespeare's plays and the Harry Potter series are in the Library of Babel, but no human can read enough to find many coherent pages, let alone the information they seek. Inhabitants of the library have no alternative to tedious, directionless searching. Today, proactive governments can take advantage of access to more information than ever, but disorganized governments will flounder.

PUBLIC CONSULTATIONS

Is public consultation valuable? Governments consult to learn from citizens and build goodwill. Citizen expertise may be hidden, but it certainly exists and is valuable to find.³ Moreover, ineffective communications systems are a larger threat to democracy than the public being a thoughtless, staggering mob.⁴ Effective public consultations not only identify public expertise, but also communicate the dilemmas of decision making to citizens.⁵ Improving current public consultations practices can lead to more responsive government decisions and citizens happier with the results.

¹ Borges, 1944. *The Library of Babel*.

² The Library is made of hexagonal rooms. Each wall has five bookshelves that hold precisely 32 books. Each book is 410 pages of 40 lines. Each line has approximately 80 letters. It only contains lower case letters. Punctuation is restricted to the comma and period.

³ Coleman and Götze, "Bowling Together: Online Public Engagement in Policy Deliberation", 12.

⁴ Dewey, *The Public and Its Problems*, 1927, refuting Lippmann *Public Opinion*, 1922.

⁵ Coleman and Götze, "Bowling Together: Online Public Engagement in Policy Deliberation", 12.

Technology creates opportunities to diversify the public consultation toolbox to achieve those two objectives. Digital tools show potential to enhance public communications and even address shortfalls of offline consultations, but also create new challenges like the infamous incivility of conversations on online comment sections and discussion forums.⁶ But under certain conditions, computer-based discussion achieves open conversation regarding controversial political ideas.⁷ Some scholarship has found in online deliberations participants were more information driven than offline.⁸ Even advocates of digital consultation technology reject that it is a panacea:⁹ the most engaged participants dominate the discussion online in the same way as offline;¹⁰ digital engagement platforms must address procedural, social, and psychological barriers to meaningful participation;¹¹ and platforms must be rule-based and mediated.¹² For digital public consultation, the design of the platform—how citizens interact with each other, the government, and information—matters.¹³

Both government and citizen benefit from effective public consultations of both digital and analog varieties. Meaningful engagement is foundational to good policy and programming,^{14 15 16} and participation is higher when perceived as impactful¹⁷ and connected to outcomes.¹⁸ If she knows the government consulted widely on an issue, a Canadian is more likely to approve of the decision.¹⁹ If her local government engages citizens digitally and consults with her, scholarship shows she is likely to increase her trust in it.²⁰ Digital public consultation can improve decisions, increase citizen participation,

⁶ Shirky, “How the Internet will (one day) transform government” (2012); Megill, “pol.is in Taiwan”; and others.

⁷ Price, “Citizens deliberating online: Theory and some evidence”, 37.

⁸ Luskin, Fishkin, and Iyengar, “Considered Opinions on U.S. Foreign Policy”, 24.

⁹ Chien, “Can technology improve democracy?”

¹⁰ Albrecht, “Whose voice is heard in online deliberation?” 62.

¹¹ R. Farina et al., “Regulation Room”, 501.

¹² Coleman and Gøtze, “Bowling Together,” 6.

¹³ Wright and Street, “Democracy, deliberation and design: the case of online discussion forums”, 849.

¹⁴ Wernick, “Annual Report to the Prime Minister on the Public Service of Canada”, 15.

¹⁵ Coleman and Gøtze, “Bowling Together”, 12.

¹⁶ Kearney, “The path to Canada’s open dialogue engagement principles”.

¹⁷ Wesley, “A Study on Citizen Engagement”, and EKOS, “Rethinking Citizen Engagement”.

¹⁸ R. Farina et al., “Regulation Room”, 501-502.

¹⁹ EKOS, “Rethinking Citizen Engagement”.

²⁰ Kim and Lee, “E-Participation, Transparency, and Trust in Local Government”, 819.

and improve Canadians' views of their Government, but only with appropriate consultation processes and platforms. Taiwan has an excellent example.

VTAIWAN

In 2014, mass protests for government transparency pushed Taiwan's government to the unorthodox proposal eventually dubbed vTaiwan.²¹ Citizen hacktivists were tasked with designing a transparent platform and process for rational discussion the whole nation could participate in. The government pledged to be bound by the popular will of the discussions of vTaiwan,²² which regularly leads to the passing of laws in the Taiwanese legislature.²³ Especially unique is the artificial-intelligence facilitated digital conversation platform, which avoids traditional online debate pitfalls by incentivizing participation that helps identify consensus among all participants.²⁴ The four steps of vTaiwan:

1. Proposal Stage - Issues are selected based on citizen, stakeholder, or government proposals. No issue will move forward without a government authority being accountable to it.
2. Opinion Stage - Pol.is, an artificial-intelligence facilitated conversation platform distributed among stakeholders and through Facebook advertisements gathers opinions on user-generated statements.^{25 26}
3. Reflection Stage - Emerging issues are discussed in a public meeting between officials and scholars. The meeting is broadcast by video and remote participants are fully connected and can contribute with discussion tools and on social media.²⁷

²¹ The "v" in "vTaiwan" stands for virtual.

²² Barry, "Frontier of Democracy".

²³ Barry, "Frontier of Democracy".

²⁴ Hsiao et al., "vTaiwan".

²⁵ vTaiwan makes use of other technology platforms like Typeform and Sli.do for purposes of gathering, organizing, and communicating information. These are typically open-source or free to use software.

²⁶ As part of finding relevant stakeholders, existing stakeholders are surveyed whether they know other potential stakeholders who should be a part of the discussion.

²⁷ Primarily, Livehouse.in and Youtube are used to broadcast these deliberations. Livehouse.in has comment functionality that allows remote participants ask questions to the experts.

4. Legislation Stage - For statements achieving consensus, the government either agrees to take action, or outlines s detailed explanations for why that action it is not presently feasible.²⁸

Much of vTaiwan’s success is due to the consultation platform Pol.is.²⁹ When it was added during vTaiwan’s development, participation scaled two orders of magnitude and the complexity of conversations increased.³⁰ On Pol.is citizens respond “agree”, “disagree”, or “pass” to participant-generated statements and can add their own.³¹ The software uses artificial intelligence to visualize groups of citizens with similar opinions in clusters.³² More popular statements are awarded with visibility, leading to statements with more and more mass-appeal that extend from one cluster to another. The software works in real time, gradually incentivizing clusters towards points of general consensus over the course of weeks. This consensus is what most participants agree on about a policy problem, not universal agreement about how to solve it. Participation in vTaiwan is scalable beyond the limits of other forms of public consultation.³³ Since the process is also effective for finding the points of consensus in polarized debates,³⁴ vTaiwan’s benefits are most substantial for divisive, impactful issues. It is a feasible model for mass, decentralized public consultation by the Government of Canada.

THE CANADIAN CONTEXT

The Government of Canada must anticipate positive and negative consequences of implementing a mass consultation process like vTaiwan. Concerns like geographic distance, digital literacy, internet access, security, and language rights all need valid answers. While digital consultations advantageously reach across distance, raising awareness of consultation efforts across Canada and navigating time zone

²⁸ Hsiao et al., “vTaiwan.”

²⁹ As noted, the software is Pol.is.

³⁰ Barry, “Frontier of Democracy.”

³¹ It is not insignificant the platform does not allow for responses to other statements or other vestiges of social media. Megill, “pol.is in Taiwan.”

³² Principal components analysis and k means clustering are used. Hsiao et al., “vTaiwan.”

³³ Data automatically collected as part of the pol.is surveying is also scalable.

³⁴ Hsiao et al., “vTaiwan.”

issues could be a challenge. Most Canadians could participate in an online consultation,³⁵ but those without internet access or who are not digitally literate are concentrated in age and location. Citizens need to be assured the software and process is truthful and not hackable; transparency is as critical to Canada's use of this process as it is Taiwan's. Government of Canada consultations must be accessible in both official languages,³⁶ requiring either translation of statements for a single conversation, or two parallel ones. These are significant hurdles, but many other Government of Canada services already address them.

To establish a consultation process similar to vTaiwan, the Government of Canada may either license Pol.is or procure an equivalent. Context matters; the process may work in Canada as well as it does in Taiwan.³⁷ But some consultations hosting roundtable conversations in every region almost certainly could be partially replaced with less expensive digital consultations. However, the vTaiwan process can never entirely replace other consultation processes. Considering its low risk, low cost, and high upside the Government of Canada should explore a pilot of this technology. Indicators of a pilot's success include increased participation, more complex deliberation, and whether legislation based on points of consensus is passed, and those are only some of the potential benefits.

CONCLUSION

Technology has rapidly changed in recent decades, especially since Borges described the information in the Library of Babel as incomprehensibly massive for a human lifespan. The world is no longer analogue, and the library is no longer a fiction. The website *LibraryofBabel.info* uses algorithms to create every possible string of characters in 10^{4677} books, which is one followed by almost 5000 zeros books.³⁸ While written by an algorithm and mostly waiting to be discovered, every possible page exists, from the next decade of Canadian federal budgets to upcoming best sellers. Moreover, digital

³⁵ Government of Canada, "National Digital and Data Consultations."

³⁶ Government of Canada, "Creating Canada's 4th Plan on Open Government."

³⁷ This discussion focuses on the novel, impactful platform. As well the other stages and components of Taiwan's Consensus-Identifying consultation process seem more similar to efforts already in Canada.

³⁸ While *LibraryofBabel.info* contains the permutations for every possible page, it does not have every possible combination of books. Flood, "Virtual Library of Babel", and "LibraryofBabel.info".

technologies are referenceable in the way Borges' fictional library never could be, and specific pages can be digitally recalled with a reference to a room, shelf, and book.³⁹ Although it was never searched for or found, the algorithms on LibraryofBabel.info previously wrote this essay.⁴⁰ Similarly, the public service should reflect on Coleman and Gøtze's argument that while public expertise exists, the challenge is to find it.⁴¹ This task is now easier thanks to new technology.⁴²

³⁹ Specific search terms generate a reference code of numbers and letters with an algorithm. This reference code is not a specific address like a URL as much as it is a key that can generate a location in the digital library.

⁴⁰ A caveat: the LibraryofBabel.info limits references to 3200-character pages, so only a portion of this essay would be referenced in one location tag. Multiple tags could contain it in full, excluding formatting, capitalization, and most punctuation.

⁴¹ Coleman and Gøtze, "Bowling Together," 12.

⁴² This essay was previously written by the algorithms at LibraryofBabel.info. For convenience, the location in the library is referenceable by a URL I created, https://libraryofbabel.info/bookmark.cgi?an_algorithm_previously_wrote_this_essay. It also can be referenced by its "physical" location: page 58 of volume number 15, shelf 3, on wall number 2 of the hexagonal room: 2hlczv bq9778v1j3ra0cklq55bxyyqvacgb9de1pnw1411ww2v2dcpd4r493hdm298icisgl0xefuqn27thdxbzrb35pbp3qs c561ozavhmm6ejbcey41ilyd5lh3d0yq36sc6rufmwyrr3guplt8yzyk83si8yas4prgaybifxh6ykvgdzdi597htlfo4k5apgt bo8jjc000m3w3t8y21lcx9cpoi8ssysh7xr9kp5w7tjemksxp2gcfxc949twhsitr12x4pdqke089x3jthhwoz1vu1w4h8bqlcl hga7k4csgyp69tsbz4canoo72h4jtb3x6y97s2jn9bt0wu7hlyf5tskol5kwab3uz15xp102llzn52ds1jlg0vsflisnqovuf766vk cm8wdit1zyfqlp4gawh5pqkzwpk7tx74dvg6lj5om11554ryrmbps7mrfd85zst9jzc4whwgdpzmutvzhl30mady2c8tr5o4 49tko4hfhyuv45y938mrcfeyo74860a7rvv5bl7r3nldwlrin679I9do7041037fwm59ddab6qr85op8aypvzu66kibnoe4d0k 37786wkj7gnacxu6w76err1r5cpnd3omcrybyp8iwmebqv7xlt4cdr57iu2arueqo1c3rbjkbucxdt0szjyppqfvwex8k8yaoe 6ywedts05umjleffjfx24xt1959zi5jmhzmh4yheeqxg3xeravcs6g0fmy8hyq3d9sfxm04dlgb2hz1m66au53c5mtqflcs3c 8ltv033cvufj4ds26q3s6julry63wu8rptq98a471bwekmlyua33x3uubyytd3x0jj08s0dbt9qv6peokm1cdrozdprouliapjm 790y3dkfgqui123abzawt679dqax6f472o65psk5s0jtpz2ns5w857norwum5u1rpoaendjffpwkd1vwn6gi7oxibiofvu1ztt bzf9absqjrr39c2onm6m9on1sjm47nyfmwv7w6wd8wao46drk022qlkantqi397yg51sikctr7nsjmplthcdjkh51d3pcehip lk6vww5b6eled97phzx1sl7fps1kbexxs89k2h1v2lvkpfpg4y76174cglzfxbp0ruyd5ua6cuuwtm3hwnqgrw2kefj2799br 5qen9gqqv3dbm6w8gyi7bq7ti9ce7s50yqzmai qfdx9lkrv0arf0vqdpascj39gwcoula9l4tzacppryhkkv3w9xguys827e417 wf85xq0vu63dhbth29pva14vpjel8m7gq6p0jrm6cw4qz876invs8jrn20hakv1p3pw7cn7x3nignv92saj25xfripp69h9sdh od5cdk1k1kxyvg44ycplx3750rcd0ogwqfp23xcc8db2bl39ki23h420ecx8tzpkrm09waftobmhm77adup7xvl27566nvuit 56fp3q709hiuwid0hvpix453lljnwvi3eru6qrlp24oh1qurlywg7fcqx36k0jshnjtgo9lrdzk2w53anwbqhdcmi7b5slozajt0 fuxngvohgx6zk5m9s003lan8mn3k7tn67l793xi35y66fnrbkrca3r49fzudl9hr94dsj9t61cr0dngkanx2c5vepao8esk3sa26 cqgtwosagvu3did421y123q3meuudy1cmwr8eyfak3xnrdnmjs93m41e4ifzrb5cdow9gbit6zhg6229rqi7xkosolffgrw5 syggr8yt8lahz8l1jxx8l2ay7l6qvxd06ebu3361xtf8petad9uxaupedwo8i6g61npeety45swv918u2w5cr3o3g2hf3tnndzi5t xgbjv8zcg9vt8uvs33p6z3vzd6b4193p4wklw5ppqzvcjpa79ngetzac6uj994pb7ngu7e3pvx1lmg0vjeypk9gw4f3l4x6f9mg 01zdpjj6i8s0v9ogir4zsapnhexshdm7taab8v28bh1xldguzqzd9zjcl2s2i2g7trqqa3k30gfc5m2048l3xmj9c6w3cnuuriz whvxwrpvgohuqn3glvndjazzq9nsr0huxax015ssma6uytxv0yl82gfjg5s7s6j7prnfgjq6mab6mkpftvwrkd5zf632zflsx4tw v1sqj3z5svygdgatwg0ig8ti57oi4ahrpbkiysok2980oe988e6novdoca6ejv0zm3cvbd5f9g12uynr7tgr44gart44iegfqr0bgi ha2pq51ucntda3yvr1iu7br3r5z1frc6asbmz596wytowu1clrfoxiyd3jyzevi51dp5hodv1bvjkjq5jpkalq008shwx0lgu7ihr 38077z7syn7b1kqbydsu780hqyhr6797r6prf6yfqj0cni0x1jp9syth5reshj00qrrhfr05sjf6gylut6mnerg01n4h561x72sfs xhqsb2j3lydok4h93bwtj0i3y1vok3fkos063bxsqwb5j5teyxhndk99hg7lxyypo5z39nkqnrmdckwnypw4oj0c3uw60eeg vvir9xrd342lc58wgkqairo6bya6x7ube84tb319il6s6uglwyxl7viiqud0c0xuyft3oo2xr2957x45s153aeg30vtx5lmvojoy8d 5m5dgpqtfl6h7qomasqfo6u5u6peodv71y0pjm0p0coiqrpodupr16ne43udsq7y0tmlsbwt1zqpfym68i5m44lwtj1rwtj67k b5hl711191iw7dyvkz782am5uyll2gwm5mxmdzzjtm2325er6tah78eea3vawrz2cu0s879jou6qsx3vc1ykja6u2j51ftb2 kdb09lkzdb408gas2271kup7p849k4npx3d37ut0kzszckiezdwei2vyzpt5t4o8961px1tggbl8fqlgy7d0locofndar2adu0nj xuaq6npxp9l2kzqgofzygfocf3l22zembwzvw8m8ivrg8if96zp1s3fwlra6wl19qmucvfpapycaepn1f93jyg9ud8ny7bc18vx yemturm44e9umg06y0xejweu9vtkvjho8d7zhr20nusb36lqdyillqudfr1qwagvcmtcdxwilhw7tampjz9meg5e01lcx3tujel kw3ksweyus0p6nyzdgozo2g46im0eelqytemr5oh8419bq5nf8cyorheoibiabhdw54wtljvuv18clbg1wha

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1. ARTIFICIAL INTELLIGENCE: Students walk around the class and talk to other students about Artificial Intelligence. Change partners often and share your findings. 2. CHAT: In pairs / groups, decide which of these topics or words from the article are most interesting and which are most boring. Write five GOOD questions about Artificial Intelligence in the table. Do this in pairs. Each student must write the questions on his / her own paper.