Judging by Numbers:
How will judicial analytics impact the justice system and its stakeholders?

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Introduction

In 2019, the French government passed an unprecedented law that banned the public from analyzing information in reported court decisions to draw insights about the judicial behaviour of individual judges.[1] The penalty for breaking this law is steep: violators face up to five years in prison.[2] The law has broad application, limiting the uses that academic researchers, legal technology companies, law firms and members of the general public can make of publicly available court information.

The French ban follows previous legal provisions enacted in 2016 to make French case law more accessible to the public, as part of broader open data and digital governance reforms.[3] The resulting increased availability of public data made it relatively easy to model how individual judges decide certain types of matters, potentially exposing them to comparison with their fellow judges and criticism or allegations of bias.[4] For example, using a non-commercial analytics tool of his own creation, a French tax lawyer published a report concluding that, based on the publicly available data, "some judges had a very high asylum rejection ratio (close to 100%, with hundreds of cases per year) while others from the same court had a very low ratio."[5] The 2019 ban purports to "turn off the data spigot by banning the use of public information to 'assess, analyze, compare or predict' how judges make decisions."[6] Officially, the ban was justified on the basis that permitting judicial profiling could lead to undesirable pressures

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[1] LOI n° 2019-222 du 23 mars 2019 de programmation 2018-2022 et de réforme pour la justice (1) - Article 33, online: <https://www.legifrance.gouv.fr/eli/loi/2019/3/23/2019-222/jo/article_33>. As translated by Rebecca Loescher, a professor of French at St. Edward's University in France, and reported in Jason Tashea, "France bans publishing of judicial analytics and prompts criminal penalty" (7 June 2019), online: *ABA Journal* <http://www.abajournal.com/news/article/france-bans-and-creates-criminal-penalty-for-judicial-analytics>, the law reads: "No personally identifiable data concerning judges or court clerks may be subject to any reuse with the purpose or result of evaluating, analyzing or predicting their actual or supposed professional practices."

[2] *Ibid.*

[3] LOI n° 2016-1321 du 7 octobre 2016 pour une République numérique, Article 21.

[4] "France bans Judge Analytics, 5 Years in Prison for Rule Breakers" (4 June 2019), online: *Artificial Lawyer* <https://www.artificiallawyer.com/2019/06/04/france-bans-judge-analytics-5-years-in-prison-for-rule-breakers/>.

[5] Michaël Benesty, "The Judge Statistical Data Ban – My Story – Michaël Benesty" (7 June 2019), online: *Artificial Lawyer* <https://www.artificiallawyer.com/2019/06/07/the-judge-statistical-data-ban-my-story-michael-benesty/>.

[6] Michael Livermore & Dan Rockmore, "France kicks data scientists out of its courts" (21 June 2019), online: *Slate* <https://slate.com/technology/2019/06/france-has-banned-judicial-analytics-to-analyze-the-courts.html>.

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on judicial decision-making and strategic behaviour by litigants.[7] Critics have argued that the ban was motivated by the desire of judges to avoid scrutiny and accountability.[8]

In our view, a French-style ban is not normatively defensible in Canada given our protection of freedom of expression and our strong open courts principle. The public should be able to analyze information that is in the public domain. To give a stark example of what a French-style ban would mean in Canada: a person could face prison time if they produced a report that contained statistics comparing how often each judge of the Supreme Court in Canada wrote a dissent in any given year.

We do believe, however, that Canada – like France – faces important questions about how to respond to the fast-growing field of judicial analytics.[9] Although studying judges is not new, judicial analytics tools allow for much faster and more powerful analysis of large amounts of information. Judicial analytics tools for public use already exist but, for reasons we explain later in the article, such tools are likely to become even more powerful and readily accessible in the near-to-medium future, resulting in unprecedented public insight into judges and the work of judging. We term this phenomenon "mainstreamed judicial analytics."

It is this future world of mainstreamed judicial analytics that is the focus of our article. What happens in a world where technology allows us to instantaneously draw up a detailed profile of a judge's past behaviour with a click of a smartphone button? What happens when we have a plethora of "stats" on how judges react to particular types of litigants, lawyers, legal arguments or even individual words? What happens when we can pull up reports on how a judge's behaviour may be impacted by the day of the week, time of day or even the weather? Motivated by these and related questions, this article provides an analysis of the future of judicial analytics, its likely impacts, and potential responses to the rise of this technology in Canada.

We conclude that the key potential benefit of mainstreamed judicial analytics is significantly increased transparency into the work of judging. Such transparency could provide an opportunity for the public to

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[7] See, for example, the report from France's Constitutional Council, stating at para. 93: "En prévoyant que les données d'identité des magistrats et des membres du greffe figurant dans les décisions de justice mises à disposition du public par voie électronique ne peuvent faire l'objet d'une réutilisation ayant pour objet ou pour effet d'évaluer, d'analyser, de comparer ou de prédire leurs pratiques professionnelles réelles ou supposées, le législateur a entendu éviter qu'une telle réutilisation permette, par des traitements de données à caractère personnel, de réaliser un profilage des professionnels de justice à partir des décisions rendues, pouvant conduire à des pressions ou des stratégies de choix de juridiction de nature à altérer le fonctionnement de la justice", which translates to: "By providing that personally identifiable data concerning judges or court clerks appearing in court decisions made available to the public by electronic means cannot be reused with the purpose or effect of evaluating, analyzing, comparing or predicting their real or supposed professional practices, the legislator intended to prevent judicial profiling which could lead to pressures on judges or strategies of choice of jurisdiction likely to alter the functioning of justice." (France, Conseil Constitutionnel, *Loi de programmation 2018-2022 et de réforme pour la justice,* Décision n° 2019-778 DC).

[8] See the discussion in, for example, Simon Taylor, "French Data Analytics Law Won't Stop Analytics" (7 June 2019), online: *LegalWeek* <https://www.law.com/legal-week/2019/06/07/french-data-analytics-law-wont-stop-analytics/> and "France bans Judge Analytics, 5 Years in Prison for Rule Breakers" (4 June 2019), online: *Artificial Lawyer* <https://www.artificiallawyer.com/2019/06/04/france-bans-judge-analytics-5-years-in-prison-for-rule-breakers/>. For a less critical viewpoint, see Florence G'sell, "Predicting courts' decisions is lawful in France and will remain so" (24 June 2019), online: *Blog de Florence G'sell* < https://gsell.tech/predicting-courts-decisions-is-lawful-in-france-and-will-remain-so/>.

[9] Our focus is on "judicial analytics" given that existing tools and commentary tend to focus on analyzing patterns in judicial decision-making. We acknowledge, however, that most, if not all, of our arguments would apply to analytics of all adjudicative processes, including administrative tribunals.

better critique and more effectively operate within the justice system. Also, judges could use information produced by judicial analytics tools to reflect on and improve upon their practices, where needed. Meaningful transparency, however, is not a guaranteed output. There will remain some practical complications to producing high-quality information even with "mainstreamed" tools. We also identify potential risks resulting from increased surveillance of judges, including the potential for unwanted strategic behaviour and negative impacts on health and well-being. Finally, we note that lawyers and judges will need to become familiar with this technology in order to competently perform their jobs.

This article is organized in five parts. In Part I, we describe the technology at the heart of judicial analytics and identify the types of information that analytics tools can reveal about judges and judging. In Parts II and III, we acknowledge limitations of current legal analytics tools, and explain why it is likely that judicial analytics tools will become more powerful and widely available – "mainstreamed" – in the near-to-medium future. In Part IV, we consider the possible impacts of mainstreamed judicial analytics tools for three justice system stakeholder groups: the public, the judiciary and the legal profession. In Part V, we look to responses to judicial analytics, highlighting voluntary third-party certification and the production of credible public tools as possible means to mitigate some of the risks inherent in judicial analytics. We also call on judicial regulators to consider how information made available through mainstreamed judicial analytics tools may impact their work.

I. What is Judicial Analytics?

Broadly speaking, analytics is the process "of discovering and communicating the meaningful patterns which can be found in data."[10] There are different categories of analytics: (1) descriptive analytics, which focus on "gathering, organizing, tabulating and depicting data"; (2) predictive analytics, wherein data is used to "predict future courses of action"; and (3) prescriptive analytics, which offers "recommendations on future courses of action."[11]

Excitement about analytics is closely tied to the emergence of "big data". Big data refers not only to the vast amount of data available in a digitalized world but also the technical capacity to do things with this data:

> [W]hat makes Big data a new and interesting phenomenon in the world…is not its volume alone, but the fact that we are able to "mine" large data sets using new and advanced techniques to uncover unexpected relationships, patterns and categories within these data sets…[12]

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[10] "Definition – What does *Analytics* mean?" (last modified 20 February 2017), online: *Techopedia* <https://www.techopedia.com/definition/30296/analytics>.

[11] Thomas H. Davenport & Jinho Kim, *Keeping up with the Quants: Your Guide to Understanding and Using Analytics* (Boston: Harvard Business School Publishing Corporation, 2013) at 3.

[12] Bennett B. Borden & Jason R. Baron, "Finding the Signal in the Noise: Information Governance, Analytics, and the Future of Legal Practice" (2014), 20 Rich JL & Tech 7 at 16.

The availability of techniques like machine learning[13] and natural language processing[14] have allowed for the development of more powerful analytics tools by making it possible to quickly find patterns in, and predict outcomes from, large amounts of data in ways that are simply not possible with the human mind alone or by using simpler technologies.

Analytics is now used in many industries and fields. For example, the film *Moneyball*, and the book upon which it is based, addresses use of analytics in baseball.[15] As digitized court data has become increasingly available to the public, the application of analytics tools to legal data – legal analytics – has grown apace. Legal analytics generally involves,

> …mining data contained in case documents and docket entries, and then aggregating that data to provide previously unknowable insights into the behavior of the individuals (judges and lawyers), organizations (parties, courts, law firms), and the subjects of lawsuits (such as patents) that populate the litigation ecosystem.[16]

The commercial potential of legal analytics tools has resulted in long-time legal research providers like LexisNexis and Westlaw acquiring and developing their own products,[17] while start-ups like Loom Analytics and Blue J Legal compete in the emerging Canadian legal analytics market.[18] The United States boasts significantly more legal analytics tools than Canada,[19] and, as the French ban suggests, the market in legal analytics is growing quickly in Europe, too.[20]

Judicial analytics – also referred to as judge analytics or court analytics – is a sub-category of legal analytics. Tools that are marketed under this title involve the specific application of analytics technologies to judges and judicial decision-making. One of the outcomes of judicial analytics is "judge

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[13] "Machine Learning" refers to when a tool "uses algorithms to parse data, learn from it, and then make a determination or a prediction based on it." Law Society of Ontario, *Technology Taskforce Update Report* (November 29, 2019) at 8.

[14] "Natural language processing" involves "deriving useful meaning from written and spoken language by drawing connections between words and phrases." (*Ibid.*)

[15] Michael Lewis, *Moneyball: The Art of Winning an Unfair Game* (New York: W.W. Norton & Company, 2004).

[16] Owen Byrd, "Legal Analytics vs Legal Research: What's the Difference?" (12 June 2015), online: *Law Technology Today*, <https://www.lawtechnologytoday.org/2017/06/legal-analytics-vs-legal-research/>.

[17] See eg Robert Ambrogi, "LexisNexis Launches Lexis Analytics, Putting a 'Stake in the Ground' to Claim the Legal Analytics Space" (13 July 2018), online: *Law Sites* <https://www.lawsitesblog.com/2018/07/lexisnexis-launches-lexis-analytics-putting-stake-ground-claim-legal-analytics-space.html>; Robert Ambrogi, "Move Over Westlaw: Meet the Next-Generation Westlaw Edge, with Advanced AI and Analytics" (12 July 2018)*,* online: *Law Sites* <https://www.lawsitesblog.com/2018/07/move-westlaw-meet-next-generation-westlaw-edge-advanced-ai-analytics.html>.

[18] Loom Analytics, online: <https://www.loomanalytics.com> and Blue J Legal, online: <https://www.bluejlegal.com/ca>.

[19] Examples of tools available in the American market include: *Lexis Analytics,* online: <https://www.lexisnexis.com/en-us/products/lexis-analytics.page>; *Westlaw Edge,* online: < https://legal.thomsonreuters.com/en/insights/articles/announcing-westlaw-edge>; *Bloomberg Law*, online: < https://pro.bloomberglaw.com/ai-analytics/>; *Gavelytics*, online: <https://www.gavelytics.com/>; and *Premonition Analytics LLC*, online: <https://premonition.ai/about-us/>.

[20] Bart Jan van Ettekoven & Corien Prins, "Data Analysis, Artificial Intelligence and the Judiciary System" in Vanessa Mak, Eric Tjong Tjin Tai & Anna Berlee, eds., *Research Handbook in Data Science and Law* (Edward Elgar Publishing Ltd., 2018) 425 at 426. European legal analytics tools include, eg, lexiq.nl; legalloyd.com, kenedict.com/rodeo.

profiling," which involves "the monitoring and prediction of the behavior of judges."[21] Providers of judicial analytics tools promote the ability of their tools to provide information on topics including:

- the language, precedents and other judges that a particular judge finds the most compelling;[22]
- the "specific logic" that a judge tends to use when granting or denying a particular type of motion;[23]
- how likely a user's case is to prevail before a particular judge;[24]
- how long a particular judge takes to decide a particular type of motion;[25]
- how a particular judge tends to rule on a particular type of case, like a summary judgment motion;[26]
- how often a judge is affirmed or reversed (in whole or in part) on appeal;[27] and
- "outcome analysis by gender and race".[28]

Most judicial analytics tools also offer a comparative function, where statistics on an individual judge can be compared against other judges or a court average.[29]

Not all judicial analytics tools are commercial products geared toward lawyers and law firms. Academic researchers have also built judicial analytics tools in order to conduct their own empirical analyses of judicial decision-making.[30] In general, the judicial analytics tools used in academic settings are tailored-

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[21] Bart Jan van Ettekoven & Corien Prins, "Data Analysis, Artificial Intelligence and the Judiciary System" in Vanessa Mak, Eric Tjong Tjin Tai & Anna Berlee, eds., *Research Handbook in Data Science and Law* (Edward Elgar Publishing Ltd., 2018) 425 at 427.

[22] "Context Judge Analytics", online: *LexisNexis* <https://www.lexisnexis.com/en-us/products/context.page>.

[23] *Ibid.*

[24] *Ibid.*

[25] "Westlaw Edge: Litigation Analytics", online: *Westlaw* <https://legal.thomsonreuters.com/en/products/westlaw/edge/litigation-analytics>.

[26] *Ibid.*

[27] See eg, Bloomberg Law, online: <https://pro.bloomberglaw.com/>.

[28] See eg, Premonition Analytics LLC, online: https://premonition.ai/about-us/ (This feature is explicitly referenced on this fact sheet provided by the company: https://premonition.ai/wp-content/plugins/wonderplugin-pdf-embed/pdfjs/web/viewer.html?disableddownload=1&file=https%3A%2F%2Fpremonition.ai%2Fwp-content%2Fuploads%2F2018%2F01%2FPA036-Judicial-Dashboard-Sales-Sheet3.pdf).

[29] See, for example, Bloomberg Law's "Comparative Analytics tool" (online: <https://help.bloomberglaw.com/docs/blh-030-litigation-intelligence-center.html>).

[30] See, for example, Wolfgang Alschner, "The Computational Analysis of International Law" in Rossana Deplano & Nicholas Tsagourias (eds), *Research Methods in International Law: A Handbook* (forthcoming) (available online at <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3428762&download=yes>), Sean Rehaag, "Judicial Review of Refugee Determinations (II): Revisiting the Luck of the Draw" Queen's LJ (forthcoming) (available online at: <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3249723>), Nikolaos Aletras et al, "Predicting Judicial Decisions of the European Court of Human Rights: A Natural Language Processing Perspective" (2016) 2 PeerJ Comp Sci 92 (although see, also, critique of the Aletras et al study in Frank Pasquale & Glyn Cashwell, "Prediction, Persuasion, and the Jurisprudence of Behaviorism" (2018) 68:1 UTLJ 63). In addition to the use of analytics tools to look at case law, there is also a growing field of "legal text mining" where analytical tools are applied to other legal documents (see, for example, Wolfgang Alschner's work analyzing international treaties: e.g. Wolfgang Alschner et al, "Text of Trade Agreements (ToTA)—A Structured Corpus for the Text-As-Data Analysis of Preferential Trade Agreements" (2018) 15:3 J Empirical Leg Stud 648).

made for specific research projects and generate narrow, albeit very interesting and important, results.[31] These non-commercial tools are not widely available for public use.

To be sure, reporting on patterns in judicial decision-making is not new. Academics have been doing this for decades without the benefit of analytics technology.[32] Judicial analytics tools, however, can radically decrease the resources required for such analyses and may yield insights that would otherwise be practically inaccessible using human cognition or traditional technologies. The difference that technological intervention can make in empirical studies of judges is evident in a comparison of Sean Rehaag's two studies of refugee law decision-making at Canada's Federal Court.[33] In Rehaag's first study, in 2012, he conducted a quantitative empirical assessment of 23,000 Federal Court applications for leave to review refugee determinations.[34] The 2012 study provided important insight into judicial decision-making in this context, concluding that "these applications often hinged on which judge was assigned to decide whether to grant leave, with the leave grant rates of individual judges ranging from 1% to 77%."[35] Reaching this conclusion took hundreds of hours of time and human labour.[36] Although a computer program was used to collect data from online dockets, the research team manually reviewed and coded the data.[37]

Rehaag's second study in 2018 provided an updated empirical analysis, with a view to looking at more recent data and assessing the impact of measures since adopted by the Federal Court to address variations in leave grant rates among judges.[38] For the 2018 study, Rehaag adopted a different methodological approach, revising computer code that was developed by another academic in order to automate the manual review and code the data and thus dramatically reducing the human labour required for the study.[39] By using this advanced technology, Rehaag was able to conduct a comparable study with significantly fewer resources and in less time. As this example demonstrates, what is novel about judicial analytics is not so much what it can do, but the speed and ease with which judicial analytics tools can sift through huge data sets to extract pertinent information and insights.

The capacity of legal analytics tools to quickly generate new insights has led to significant excitement within the legal industry. For example, legal analytics tools have been branded "moneyball for lawyers"

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[31] For example, for his first study of decision-making in the refugee law context in Canada's Federal Court, Sean Rehaag wrote his own computer program and, for his second study, he revised code that was developed by another academic to study factors that influence outcomes in immigration law judicial reviews in a different jurisdiction (Sean Rehaag, "Judicial Review of Refugee Determinations (II): Revisiting the Luck of the Draw" Queen's LJ (forthcoming) (available online at: <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3249723>)).

[32] Examples of Canadian studies that do not rely on judicial analytics technology include eg, Vanessa MacDonnell, "Justice Suzanne Côté's Reputation as a Dissenter on the Supreme Court of Canada" (2019) 88 SCLR (2d) 47; Benjamin Alarie & Andrew James Green, "The Reasonable Justice: An Empirical Analysis of Justice Frank Iacobucci's Career on the Supreme Court of Canada" (2007) 57 UTLJ 195 and Benjamin Alarie & Andrew James Green, "Quantitative Analysis of Judicial Voting" (19 December 2017) draft available on SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3090789; Bruce Ryder, Cidalia C. Faria & Emily Lawrence, "What's Law Good For?: An Empirical Overview of *Charter* Equality Rights Decisions" (2004), 24 SCLR (2d) 103.

[33] Sean Rehaag, "Judicial Review of Refugee Determinations: The Luck of the Draw?" (2012) 38:1 Queen's LJ *1* and Rehaag*,* "Revisiting the Luck of the Draw", *supra* note 31.

[34] Rehaag, "Revisiting the Luck of the Draw"

[35] Rehaag, "Revisiting the Luck of the Draw"

[36] *Ibid.*

[37] *Ibid.*

[38] *Ibid.*

[39] *Ibid.*

and characterized as having the potential to "disrupt" current norms in legal practice.[40] In addition to the hype, there is evidence that lawyers are, in fact, using these tools in their practices. The third Annual Analytics Survey conducted by the Coalition for Technology Resources for Lawyers (CTRL) in 2018 revealed "unmistakable traction in the broader adoption of analytics" in the legal community, increasingly in the use of analytics to predict case outcomes.[41] A 2020 Legal Analytics Study, conducted by ALM Intelligence in collaboration with LexisNexis, surveyed 163 large law firm professionals and reported that 70% of law firms surveyed were using legal analytics.[42] While determining the exact size of the market for legal analytics tools – including the sub-set of judicial analytics tools – is difficult, it is clear that this is not a fringe technology and that its use is growing, at least among certain segments of the legal profession.

II. The Limits of Current Legal Analytics Tools

Notwithstanding the excitement and increased use of legal analytics, it is important to address the limitations of existing analytics tools.

First, there are limitations in what is covered in the available data set. Not all judicial behaviour is recorded and not all court records are made available in digital format, such that they can be readily inputted into judicial analytics tools. Many court decisions are not publicly reported, either because a judge issues oral reasons, gives no reasons at all, or the written reasons are not provided to a public or commercial database. Likewise, not all proceedings are transcribed and even where proceedings are transcribed, it can be very difficult and costly to access transcripts.[43] Finally, court files – which contain materials such as the parties' pleadings and written evidence in affidavit form and which might be combined with other sources of information to indirectly gain insights into judicial decision-making[44] – are generally only accessible in hard copy, by attending at a court house.[45] The incomplete nature of the data set available to judicial analytics tools narrows the insights that such tools are able to produce.

Second, data quality can impact the work of analytics. For example, even if a case is reported, it may contain a typo or misspelling which results in it being improperly included or excluded from a certain data set. Inconsistencies can also generate problems. For example, a judge's name may be written in a variety of different formats, even in related decisions from the same court that are published within a

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[40] For blog and media takes, see eg, Anne Tucker & Charlotte Alexander, "Why we're training the next generation of lawyers in big data" (2 October 2018), online: *The Conversation* <http://theconversation.com/why-were-training-the-next-generation-of-lawyers-in-big-data-103196>; Barney Thomson, "Big Data: Legal Firms play 'Moneyball'" (6 February 2019), online: *Financial Times* <https://www.ft.com/content/ca351ff6-1a4e-11e9-9e64-d150b3105d21>.

[41] 2018 CRTL Legal Analytics Survey Report, online: <http://ctrlinitiative.com/survey/>.

[42] LexisNexis, *2020 Legal Analytics Study: Bringing Value into Focus* (LexisNexis, 2020).

[43] For an excellent overview of the difficulty and costs associated with obtaining court transcripts in Canada, see Kaila Scarrow, Becky Robinet, & Julie Macfarlane, *Is Access to Court Transcripts in Canada an A2J Issue?* (Report prepared for the National Self-Represented Litigants Project, June 2018) (available at https://scholar.uwindsor.ca/cgi/viewcontent.cgi?article=1087&context=lawpub).

[44] For example written arguments on an appeal could be combined with information from the ultimate decision and transcripts of the oral arguments to better understand what types of arguments or case law a judge tends to find persuasive.

[45] For further discussion, see Jacquelyn Burkell & Jane Bailey, "Revisiting the Open Court Principle in an Era of Online Publication: Questioning Presumptive Public Access to Parties' and Witnesses' Personal Information" (2017) 48:1 Ottawa L Rev 147. Although these types of documents are not a direct record of judicial behaviour, in the same way that a court decision or a transcript of court proceeding would be, they can be combined with other sources of information to indirectly gain insights.

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short time frame.[46] These types of issues within a data set can affect the quality of the insights generated by an analytics tool relying on that set. In the American context, the uneven quality of the data contained in the electronic public access service for federal court documents, PACER,[47] has been identified as one of the most significant problems facing the legal analytics market.[48]

A third limitation arises from the fact that certain areas of law – where comparable matters are decided on a high-volume basis – may be more susceptible to statistical analysis than others. As Benjamin Alarie, Anthony Niblett and Albert H Yoon have observed:

> The temptation of artificial intelligence is to view it as a proverbial hammer where all the legal questions are nails. The law does not fit this paradigm. It is inappropriate in instances where the court's determination of a legal question does not lend itself to an identifiable set of factors, or where insufficient data exist. Future developments may well be able to surmount these current challenges of limited data and inchoate context; time will tell.[49]

In other words, it will generally be easier to track trends in judicial decision-making across discrete and narrow decisions that are made in large numbers by courts – like granting bail or decisions to allow judicial review of refugee determinations – than to draw out statistically relevant patterns within more amorphous categories of cases, like for example, comparing cases within the broad basket of "commercial disputes."

A fourth limitation relates to the capacity of analytics tools to read and analyze case law. Major challenges arise because case law is often highly "unstructured."[50] Judges do not follow a template or standard format in crafting their decisions.[51] As a result, a reported legal decision does not neatly organize the relevant information into pre-set fields, unlike, for example, a well-designed electronic medical record.[52] "While opinions follow a general form – recitation of facts, discussion of relevant case law, and

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[46] This example is taken from an August 2019 tweet of a legal research executive (Colin LaChance, "Fun with legal data. Reviewing judgments with a view to normalizing judge name as data field and come across 3 related decisions of same judge, same court, same parties, all within a few months of each other - but judge's name written 3 different ways. If only this were unusual." (31 August 2019) online: *Twitter* (original tweet no longer available because author changed accounts but on file with authors, who have also obtained permission to refer to the tweet in this article).

[47] PACER is the acronym for Public Access to Court Electronic Records. It is managed by the Administrative Office of the United States Courts and contains case and docket information from the United States district, appellate and bankruptcy courts. See PACER online: <https://www.pacer.gov/>.

[48] Jean O'Grady, "What Do Law Firms Need to Know About Purchasing Litigation Analytics Products?" (26 July 2019), online: *Above the Law* <https://abovethelaw.com/2019/07/what-do-law-firms-need-to-know-about-purchasing-litigation-analytics-products/>.

[49] Benjamin Alarie, Anthony Niblett & Albert H Yoon, "How Artificial Intelligence will Affect the Practice of Law" (2017), *TSpace Research Repository,* online: <http://dx.doi.org/10.2139/ssrn.3066816> at 10.

[50] For a detailed overview of the lack of standardization in Canadian legal decisions, see Jon Khan "The Life of a Reserve: How Might We Improve the Structure, Content, Accessibility, Length & Timeliness of Judicial Decisions?" (Master of Laws (LL.M) thesis, University of Toronto, Faculty of Law, 2019) (available online: <https://tspace.library.utoronto.ca/bitstream/1807/98120/1/Khan_Jon_%20_201911_LLM_thesis.pdf>)

[51] Benjamin Alarie, Anthony Niblett & Albert H Yoon, "How Artificial Intelligence will Affect the Practice of Law" (2017), *TSpace Research Repository,* online: <http://dx.doi.org/10.2139/ssrn.3066816> at 11.

[52] This helpful comparison was taken from Jon Khan "The Life of a Reserve": How Might We Improve the Structure, Content, Accessibility, Length & Timeliness of Judicial Decisions?" (Master of Laws (LL.M) thesis, University of Toronto, Faculty of Law, 2019) at 88.

application of law to the facts…", a computer cannot simply look for a field in a legal decision titled "ratio" and extract this information for use in a data set.[53] Compounding these challenges is the fact that each judge writes in his or her own "voice", relying on unique language preferences and habits.[54] Even gathering all cases on a single topic is not necessarily straightforward. An account of the founding of *Lex Machina* and the preparation of its original statistical database of intellectual property litigation decisions noted that "locating all cases related to *patent infringement* was complicated by the fact that the exact term didn't always appear in a document's text."[55] The net effect of these issues is that judicial analytics tools often rely heavily on humans to manually extract relevant data from the cases and/or to review initial computer-generated results.[56] The *Lex Machina* example above notes that "in total, it took the team about 100 000 hours" to "manually sort through, categorize, and correct the data" to develop its statistical database.[57] This human labour translates into significant front-end costs when developing judicial analytics tools.[58]

A fifth limitation stems from the fact that judicial analytics tools are expensive to create: these costs are passed along to users and, so, not everyone can afford to access judicial analytics tools. Commercial tools charge user fees. Pricing for commercial legal analytics platforms is not readily accessible but extrapolating from what we know about commercial legal research tools, the costs likely run at several hundreds of dollars a month, at minimum, for individual users.[59] While in some cases, access may be provided for "public interest" reasons to academic institutions at no-cost or low-cost, free or subsidized access is not generally available.[60] The costs associated with commercial tools are prohibitive to many, if not most, members of the general public.

III. The Rise of Mainstreamed Judicial Analytics

There are several reasons why judicial analytics tools are likely to improve significantly in the near-to-medium terms. The above limitations are not permanent, at least in their current form.

First, the available datasets are likely to increase in size and scope. Although courts have been notoriously slow to digitize their records, including judicial decisions, an increasing amount of past court material is being converted into digital format.[61] An example of the scale at which digitization of court decisions is

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[53] The first part of this sentence is taken from Benjamin Alarie, Anthony Niblett & Albert H Yoon, "How Artificial Intelligence will Affect the Practice of Law" (2017), *TSpace Research Repository,* online: <http://dx.doi.org/10.2139/ssrn.3066816>

[54] Benjamin Alarie, Anthony Niblett & Albert H Yoon, "How Artificial Intelligence will Affect the Practice of Law" (2017), *TSpace Research Repository,* online: <http://dx.doi.org/10.2139/ssrn.3066816> at 10.

[55] Tam Harbert, "The Law Machine", *IEEE Spectrum* 50:11 (2013) 31 at 34.

[56] See, for example, discussion in Kevin Ashley, *Artificial Intelligence and Legal Analytics* (Cambridge: Cambridge University Press, 2017) at 4 and Alarie, Niblett & Yoon, *supra* note 54 at 10-11.

[57] Tam Harbert, "The Law Machine", *IEEE Spectrum* 50:11 (2013) 31 at 34.

[58] Alarie, Niblett & Yoon, *supra* note 54 at 11.

[59] Bob Ambrogi, "Price Wars in Legal Research Mean Deals for Small Firms; I Compare Costs" *LawSites* (23 May 2019), online: < https://www.lawsitesblog.com/2019/05/price-wars-in-legal-research-mean-deals-for-small-firms-i-compare-costs.html>.

[60] For example, Lex Machina states that it provides free access to "certain university and college faculty staff and students, directly engaged in research, or study of law and policy" for "public interest purposes", online: https://lexmachina.com/public-interest/.

[61] For a description of this trend, see, for example, Jacquelyn Burkell & Jane Bailey, "Revisiting the Open Court Principle in an Era of Online Publication: Questioning Presumptive Public Access to Parties' and Witnesses' Personal Information" (2017) 48:1 Ottawa L Rev 147.

taking place is Harvard's *Case Law Access Project* which "digitized over 40 million pages of U.S. court decisions…transforming them into a dataset of over 6.7 million cases that represent 360 years of U.S. legal history."[62] Additionally, biographical information about judges is increasingly available and may be used by judicial analytics tools in combination with court records to develop judicial profiles.[63]

In many respects, the COVID-19 pandemic has accelerated the digitization of court records and court processes. As the Attorney General of Ontario noted recently, "COVID was the catalyst that allowed us to move forward [on court modernizations] 25 years in 25 days."[64] Additionally, to the extent that the COVID-19 pandemic has precipitated an increase in virtual hearings in the immediate and longer terms, it may be easier for judicial analytics tools to include oral decision-making and in-court behaviour (for example, the nature or frequency of questions from the bench) by judges into their datasets.[65] If the recordings of virtual hearings are publicly accessible, it may eventually be possible to use automated transcription technologies to easily produce digital transcriptions of proceedings that can then be analyzed by judicial analytics tools.[66]

Second, the technology is likely to continue to improve. Current functional limitations related to the ability of judicial analytics tools to "read" information in the data set are unlikely to be permanent. The available technology, while struggling with predictive tasks like modeling legal reasoning, is already good at one of the main functions behind judicial analytics: pattern recognition.[67] The challenges of creating a tool that can easily "read" court decisions are complex, but there have been significant technical advances in this area and experts seem confident that there are more to come. As Kevin Ashley observes in his book, *Artificial Intelligence and Legal Analytics,* there are several new techniques for analyzing text that hold promise for automatically, rather than manually, extracting information from legal texts.[68] At the same time, there is growing discussion about publishing judicial decisions in open, machine-readable format and, thus, addressing at least some of the readability issues at their source.[69]

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[62] *Project: Caselaw Access Project,* online: < https://lil.law.harvard.edu/projects/caselaw-access-project/>.

[63] For example, the Free Law Project, an American non-profit that, has launched a Judge and Appointer Database that "includes biographical data about each person, the roles they have held before, during and after their time in the judicial branch, their political affiliations, their education, and any retention events that kept them in a judicial position (such as a reappointment)", online: <https://free.law/judicial-database/>.

[64] John Lancaster, "How COVID-19 helped push Ontario's low-tech justice system into the 21st century" (4 June 2020), online: *CBC News* < https://www.cbc.ca/news/canada/toronto/covid-19-technology-courts-ontario-1.5596643>.

[65] For discussion about the increased use of virtual court hearings in Canada as a result of the COVID-19 pandemic, see, for example: "COVID-19 and the courts: May 11 update" (11 May 2020), online: *Canadian Lawyer Mag* <https://www.canadianlawyermag.com/practice-areas/litigation/covid-19-and-the-courts-may-11-update/329500>, Sean Fine, "Supreme Court of Canada to hold virtual hearings in June" (7 May 2020), online: *The Globe and Mail* <https://www.theglobeandmail.com/canada/article-supreme-court-of-canada-to-hold-virtual-hearings-in-june/>, and Daniel Urbas, "Canadian Courts Employ Virtual Hearings" (15 April 2020), online: *American Bar* <https://www.americanbar.org/groups/litigation/committees/alternative-dispute-resolution/practice/2020/canadian-courts-employ-vrtual-hearings/>.

[66] For discussion on the emergence and capacity of automated transcription tools, see, for example, John Markoff, "From Your Mouth to Your Screen, Transcribing Takes the Next Step" (2 October 2019), online: *The New York Times* <www.nytimes.com/2019/10/02/technology/automatic-speech-transcription-ai.html> and Greg Noone, "When AI Can Transcribe Everything" (20 June 2017), online: *The Atlantic* <www.theatlantic.com/technology/archive/2017/06/automated-transcription/530973/>.

[67] Kenneth A. Grady, "What is the Potential of AI in the Legal Sector?" in *The 2019 Aderant Business of Law and Legal Technology Survey* at 23 online: <https://www.aderant.com/research/2019-business-of-law-legal-technology-survey/>.

[68] Kevin Ashley, *Artificial Intelligence and Legal Analytics* (Cambridge: Cambridge University Press, 2017) at 4-5.

[69] See, for example, Dr. Natalie Byrom, "Digital Justice: HMCTS data strategy and delivering access to justice: Report and Recommendations" (October 2019) at 29, online: (pdf) *The Legal Education Foundation*

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Third, as judicial analytics tools have access to more data and become more powerful from a technical standpoint, they will also likely become more accessible. The primary accessibility barrier is cost. However, as digital court records become universally available and directly readable by machines, the front-end costs of developing judicial analytics tools should decrease significantly.[70] As the costs come down, tools that were previously the domain of "high-end" segments of the legal industry and pockets of the academy will become more easily accessible to the public.[71]

These three probable developments, taken together, are the basis for our prediction that judicial analytics will become mainstreamed. It is this future possible world of "mainstreamed judicial analytics" that informs the remainder of our analysis.

IV. Impacts of Mainstreamed Judicial Analytics on the Justice System and its Stakeholders

What does the world of mainstreamed judicial analytics look like? This section focuses on this question, from three perspectives: that of the public, judges, and lawyers.

A. The Public

If and when judicial analytics tools become more powerful and easily accessible to the public, broad public impacts are likely to follow. In this section, we consider the possibility that mainstreamed judicial analytics tools will result in increased transparency about the work of judging. We explore not only the benefits of such transparency but also the practical barriers to achieving meaningful transparency using tools of this type.

Canada prides itself on having court processes and outcomes that are open to the public. The Supreme Court of Canada has repeatedly stated that "[p]ublicity is the very soul of justice"[72] and that open courts

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<https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/835778/DigitalJusticeFINAL.PDF>.

[70] This prediction, of course, depends on whether court records, once digitized, are also easily accessible in the "bulk" format needed for use in judicial analytics tools. See, here, for some further discussion of this issue, Addison Cameron-Huff, "Why Google Can't Build A Case Law Search Engine in Ontario" (11 February 2014), online: *Cameronhuff.com* < https://www.cameronhuff.com/blog/ontario-case-law-private/>.

[71] Here, we might consider, Peter Diamandis' "6Ds" framework of the growth cycle of exponential technology. Diamandis argues that once something becomes *digitized*, "it becomes an information-based technology and enter exponential growth" but cautions that it first enter a *deceptive* phase because "exponential trends don't seem to grow very fast at first." Eventually, however, Diamandis contends that the technology will become *disruptive* at the digital technology "can outperform in effectiveness and cost."[71] Diamandis' framework then contemplates a *demonetized* phase as "the technology becomes cheaper, often to the point of being free" and then *dematerialized* as "separate physical products are removed from the equation." This cumulates, according to Diamandis, in *democratization,* where "more people can access it" and "powerful technologies are no longer for governments, large organizations or the wealthy." Newspapers is an example given of an industry faced this pattern. (Vanessa Bates Ramirez, "The 6 Ds of Tech Disruption: A Guide to the Digital Economy" (22 November 2016), online: *Singularity Hub* < https://singularityhub.com/2016/11/22/the-6-ds-of-tech-disruption-a-guide-to-the-digital-economy/>).

[72] *Attorney General of Nova Scotia v MacIntyre*, [1982] 1 SCR 175 at 183 citing Jeremy Bentham, 'Draught of a New Plan for the organisation of the Judicial Establishment in France: proposed as a Succedaneum to the Draught presented, for the same purpose, by the Committee of Constitution, to the National Assembly, December 21st, 1789' (henceforth 'Judicial Establishment in France'), printed in London, 1790, 25–6 (Bowring, iv. 285–406, at 316–17).

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are "a hallmark of a democratic society."[73] In many important respects, the current openness of our courts generates meaningful transparency about our justice system: the public is generally permitted to attend court proceedings and a significant number of judicial decisions are reported and made easily available to the public. This openness, however, has not resulted in widespread, sophisticated understandings about patterns in how judges decide cases or act in courtrooms. The public has far greater access to statistics about the performance of professional athletes in a given season than about judges. By providing the public with increased access to detailed information about judging, mainstreamed judicial analytics tools have the potential to provide increased insight into what judges actually do and how they do it. Armed with more information, the public can more effectively participate and critique what is happening in the justice system.

How might mainstreamed judicial analytics tool help the public more effectively participate in the judicial system? Analytics companies already frequently claim that litigants can achieve better results when they know more about the particular judge adjudicating their case.[74] For example, if a judicial analytics tool can highlight trends in the case law, arguments or language that a judge tends to prefer, then a litigant or their lawyer can tailor their submissions accordingly. Similarly, if a judicial analytics tool can highlight patterns in the types of questions are asked by a particular judge, then the litigant or their lawyer can better prepare to argue their case in court.

Litigants may also use the information provided by judicial analytics tools to try to have a matter heard or not heard by a particular judge. It is possible that "judge shopping" – that is, attempting to have a case heard or not heard by a particular judge because of that judge's record or reputation – may increase, where possible, if judicial analytics tools are more widely available. To date, our legal system has discouraged judge shopping on the basis that it generates "concerns for the impartiality of the administration of justice, real and perceived."[75] But our legal system is also committed to the principle of equality before and under the law.[76] That judges must avoid relying on bias, stereotypes or other discriminatory beliefs in reaching their decisions is a fundamental feature of equality.[77] If a judicial analytics tool demonstrates that Judge A takes disproportionately punitive measures against members of a particular group, while controlling for other factors such as the merits of the case, how can a litigant who belongs to that group be criticized for trying to avoid having Judge A hear her case?

In addition to increased "judge shopping", mainstreamed judicial analytics tools may also result in a surge in applications to have judges disqualified for a reasonable apprehension of bias. On such applications, courts are directed to apply "a strong presumption of judicial impartiality", which has

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[73] *Vancouver Sun (Re)*, 2004 SCC 43 at para 23.

[74] For example, the American judicial analytics company, Gavelytics, promises that its AI-generated reports on individual judges, which include information on a judge's background, typical workload, and whether a judge rules more often for plaintiffs or defendants (called a "Gavelscore"), will help lawyers "win more business, position your case, and better manage client expectations." (*Gavelytics, supra* note 19.)

[75] *R v Regan*, 2002 SCC 12 at para 60; *R v Scott,* [1990] 3 SCR 979 at pp 1008-1009.

[76] Equality is embodied, *inter alia*, in the *Canadian Charter of Rights and Freedoms*, *Freedoms*, s 15, Part 1 of the *Constitution Act*, 1982, being Schedule B to the *Canada Act 1982* (UK), 1982, c 11., which guarantees: "Every individual is equal before and under the law and has the right to the equal protection and equal benefit of the law without discrimination and, in particular, without discrimination based on race, national or ethnic origin, colour, religion, sex, age or mental or physical disability."

[77] The ethical guidance for federally appointed judges posits: "Equality according to law is fundamental to justice and is strongly linked to judicial impartiality. Judges cannot reach correct results if they engage in stereotyping. Acting in this way compromises impartiality, real or perceived."

historically resulted in "a heavy burden on a party who seeks to rebut this presumption."[78] Judicial analytics tools have the potential to ease this burden. Notwithstanding the presumption of impartiality, the relevant test does not focus on actual proof of bias but rather on reasonable perceptions.[79] What happens, then, when litigant B and her lawyer enter a courtroom armed with statistical reports from judicial analytics tools showing that the judge presiding over the case has a verifiable record of disproportionately disfavouring litigants similar to litigant B? Although, as Sean Rehaag has observed, "[c]ourts have regularly held that statistical differences in outcomes are not sufficient on their own to ground a finding of reasonable apprehension of bias", we also agree with his conclusion that "there are…exceptional circumstances where statistical evidence is so overwhelming that it meets the test for a reasonable apprehension of bias."[80] Moreover, we believe that the amount and nature of evidence that may be possible to marshal via mainstreamed judicial analytics tools is likely to fundamentally impact how reasonable apprehension of bias applications are approached and decided.

At a more systemic level, mainstreamed judicial analytics tools may change the kind and quantity of critique of judges and the justice system. Both the impartiality and competence of judges are potential targets.

In general terms, judicial impartiality "refers to a state of mind or attitude of the tribunal in relation to the issues and the parties in a particular case" and "connotes absence of bias, actual or perceived."[81] It is understood to be an essential feature of the proper functioning of our justice system and a core ethical obligation of judges.[82] Judicial impartiality – both what it means and whether it can be or should be achieved – has been the subject of serious questions and critiques. Courts have grappled with articulating the relationship between judicial impartiality and neutrality.[83] Legal scholars have canvassed the "unending difficulties in applying the theoretical demands for impartiality and disengagement" required of judges and have offered compelling critiques of the desirability of impartiality as a judicial ideal.[84] Yet judicial impartiality, at least as an aspirational ideal, operates both rhetorically and doctrinally as a

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[78] *Carby-Samuels II v. Carby-Samuels,* 2018 ONCA 664 at para. 4.

[79] *Yukon Francophone School Board, Education Area #23 v. Yukon (Attorney General),* 2015 SCC 25, [2015] 2 SCR 282 at 25. In *Wewaykum Indian Band v Canada*, 2003 SCC 45 at para 66, the Supreme Court confirmed "the relevant inquiry is not whether there was <u>in fact</u> either conscious or unconscious bias on the part of the judge, but whether a reasonable person properly informed would apprehend that there was."

[80] Sean Rehaag, "Judicial Review of Refugee Determinations: The Luck of the Draw" (2012) 38:1 Queens LJ 1, n 125.

[81] *Valente v The Queen*, [1985] 2 SCR 673 at 685.

[82] According to former Chief Justice McLachlin, "[j]udges must maintain the appearance and reality of impartiality. It is impartiality that distinguishes us from the other branches of government, and impartiality that gives us our legitimacy." The Right Honourable Beverley McLachlin, *The Role of Judges in Modern Society,* Remarks at the Fourth Worldwide Common Law Judiciary Conference (5 May 2001), online: < https://www.scc-csc.ca/judges-juges/spe-dis/bm-2001-05-05-eng.aspx>. The ethical guidelines for federally appointed judges in Canada state, for example, that "judges must be and appear to be impartial in their performance of judicial duties." Canadian Judicial Council, *Ethical Principles for Judges* (Ottawa: Canadian Judicial Council), online: <https://www.cjc-ccm.gc.ca/cmslib/general/news_pub_judicialconduct_Principles_en.pdf>

[83] See eg *R v S(RD)*, [1997] 3 SCR 484 at paras 34-35.

[84] Judith Resnik, "On the Bias: Feminist Reconsiderations of the Aspirations for Our Judges" (1988) 61:6 S Cal L Rev 1877 at 1879. Feminist scholars have called attention to the fact that because "the masculine in law has been universalized and appears under the guise of impartiality and neutrality means that women's perspectives are understood not as equally universal, but as particular, biased, special interests, not providing the degree of objectivity required for authoritative judgement": Rosemary Hunter, "Contesting the Dominant Paradigm: Feminist Critiques of Liberal Legalism" in Vanessa E Munro, *The Ashgate Research Companion to Feminist Legal Theory* (Taylor & Francis, 2016) 13 at 15. See also Jeffrey M. Shaman, "The Impartial Judge: Detachment or Passion?" (1995-1996) 45 DePaul L Rev 605.

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necessary condition for the proper functioning of our justice system. To provide two concrete examples: the principle of judicial impartiality is constitutionally mandated in the criminal context and is included as a requirement of procedural fairness in administrative contexts.[85]

What happens, then, if judicial analytics tools make ubiquitous information that calls judicial impartiality into question? What if a judicial analytics tool demonstrates statistically significant disparities in the way that Judge C – or indeed, judges throughout the justice system – grants bail to racialized accused or sentences racialized persons convicted of a certain crime, compared to non-racialized persons who are similarly situated? To be sure, such revelations will not be fundamentally new. Academic studies have demonstrated the impacts on judicial decision-making of factors like race[86] and gender.[87] Members of racialized and other equity seeking groups know from years of lived experience that the legal system cannot be relied upon for fair and equal treatment.[88] What will be new, however, in a world of mainstreamed judicial analytics, is that statistical information about judging and the differences in decision-making trends between judges will be widely and easily available to anyone, anywhere.

It is also possible that judicial analytics tools will provide meaningful information about extra-legal external factors that influence a particular judge's decision-making. Studies have tracked the influence of factors including the weather, when a judge had their last snack break or even football game outcomes on judicial decision-making.[89] If judicial analytics tools routinely provide reports showing that such

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[85] The principle of judicial impartiality is embodied *inter alia*, in: section 11(d) of the *Canadian Charter of Rights and Freedoms*, s 15, Part I of the *Constitution Act, 1982*, being Schedule B to the Canada Act 1982 (UK), 1982, c 11 at s. 11(d), which provides that any person charged with a criminal offence has the right to "a fair and public hearing by an independent and impartial tribunal." For an administrative law example, see *Imperial Oil Ltd v Quebec (Minister of the Environment),* 2003 SCC 58 (CanLII), [2003] 2 SCR 624.

[86] There are numerous empirical studies from various jurisdictions that confirm that racialized persons experience worse outcomes at virtually every moment of the criminal justice process when compared to non-racialized offenders. See eg David Lammy, *The Lammy Review: An independent review into the treatment of, and outcomes for, Black, Asian and Minority Ethnic individuals in the Criminal Justice System* (United Kingdom, 2017), online: <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/643001/lammy-review-final-report.pdf>; United States Sentencing Commission, *Demographic Differences in Sentencing: An Update to the 2012 Booker Report* (Washington: United States Sentencing Commission, 2017), online: < https://www.ussc.gov/sites/default/files/pdf/research-and-publications/research-publications/2017/20171114_Demographics.pdf>; *Report of the Aboriginal Justice Inquiry of Manitoba* (Government of Manitoba, 1991), online: < http://www.ajic.mb.ca/volumeI/toc.html>. See also Katy M. Colon, Philip R. Kavanaugh, Don Hummer & Eileen M. Ahlin (2018) "The impact of race and extra-legal factors in charging defendants with serious sexual assault: Findings from a five-year study of one Pennsylvania court jurisdiction" (2018) 16:2 Journal of Ethnicity in Criminal Justice 99-116.

[87] See eg Andrea L. Miller, "Expertise Fails to Attenuate Gendered Biases in Judicial Decision-Making" (2018) 10:2 Social Psychological and Personality Science 227.

[88] See, for example, the discussion in Akwasi Owusu-Bempah & Scot Wortley, "Race, Crime and Criminal Justice in Canada" in Sandra Bucerius & Michael Tonry, eds, *The Oxford Handbook of Ethnicity, Crime, and Immigration* (New York: Oxford University Press, 2014).

[89] See, for example, Shai Danziger, Jonathan Levav & Liora Avnaim-Pesso, (2011). Extraneous factors in judicial decisions (2011) 108:17 *Proceedings of the National Academy of Sciences of the United States of America* 6889, testing the legal realist trope that "justice is what the judge ate for breakfast" in the context of judges making sequential parole decisions in Israeli courts, and concluding at 6890 that "the likelihood of a favorable ruling is greater at the very beginning of the work day or after a food break than later in the sequence of cases." For additional discussion of some of these studies, see Daniel L. Chen, "Machine Learning and the Rule of Law" in Michael A. Livermore and Daniel N. Rockmore, eds., *Law as Data: Computation, Text and the Future of Legal Analysis* (The SFI Press Seminar Series, 2019) available at: SSRN <https://ssrn.com/abstract=3302507>.

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factors meaningful impact decision-making, it will be difficult for a justice system committed to judicial impartiality and equality before the law to simply ignore this information.

Public perceptions of judicial competence may also be impacted. A judge is not required to have exhaustive, in-depth understanding of every area of law or every discipline relevant to each case he or she hears, but a certain level of competence is part of their professional obligations.[90] What if, for example, a judicial analytics tool performs an analysis of the language used in Judge D's reasons and reveals that Judge D tends to rely on a particular legal test which, although not technically overturned, is not the leading legal test used by other judges in the jurisdiction? How about a tool that shows that in one region of Ontario, judicially determined reasonable notice periods in wrongful dismissal cases are on average 50% lower than in another jurisdiction, for similar cases? It is not clear that such results reveal, in fact, a lack of judicial competence. Judicial independence and the common law system accommodate a range of approaches. However, the public, upon having ready access to this type of information across a multitude of data points, might become skeptical about whether the legal system is yielding legally correct or fair decisions.

To the extent that mainstreamed judicial analytics tools reveal significant and regular disparities in judicial practices such revelations will be in tension with concepts of judicial impartiality, equality before the law and judicial competence. All of these ideals are core concepts in our justice system. A powerful set of narratives – and, indeed, case law – is built on the idea that the justice system, when operating ideally, provides similar results in similar cases: we are all to be treated equally under the law. If judicial analytics tools provide ubiquitous information about how case outcomes are influenced by a litigant's race or gender, external issues like weather, or a judge's idiosyncratic interpretation of the law, the justice system will be forced to respond to a questioning public.

It is not clear what responses may be triggered but there are a number of interesting possibilities. Will increased transparency into the work of judges result in wide-spread reforms that respond to what becomes known about judicial behaviour? Will the justice system have to reconsider its deeply held commitments to judicial integrity and adopt a new ideal of the judicial role? Will emerging concerns about human fallibility be used to justify increased use of automated decision-making in judicial contexts? Will easy access to data about judges simply result in what Langdon Winner has termed the "triumph of instrumentation" – that is, "virtuosity in measuring and comparing quantifiable variables...rather than an earnest effort to advance our understanding" about judicial behaviour?"[91]

Finally, it is important to acknowledge that increased transparency is not a given result of greater access to judicial analytics tools. Whether mainstreamed judicial analytics tools will lead to better public insight

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[90] *In the Matter of an Inquiry Pursuant to s. 63(1) of the Judges Act Regarding the Honourable Justice Robin Camp: Report and Recommendation of the Inquiry Committee to the Canadian Judicial Council* (29 November 2016), online: Canadian Judicial Council < https://www.cjc-ccm.gc.ca/cmslib/general/Camp_Docs/2016-11-29%20CJC%20Camp%20Inquiry%20Committee%20Report.pdf> at para 165, the committee opined, "[j]udges cannot reasonably be expected to have expertise in every discipline…which is precisely why expert witnesses are often called to assist the judicial reasoning process." See also Alice Woolley, "When Judicial Decisions Go from Wrong to Wrongful – How Should the Legal System Respond?" (3 November 2015), online: *ABlawg.ca* <https://ablawg.ca/2015/11/03/when-judicial-decisions-go-from-wrong-to-wrongful-how-should-the-legal-system-respond/>.

[91] Langdon Winner, *Autonomous Technology: Technics-out-of-Control as a Theme in Political Thought* (Massachusetts: MIT Press, 1978) at 7.

about judging depends on both: (1) the quality of the information that the tools output; and (2) the literacy of judicial analytics users.

Here, we can think of "quality" in several different respects. One facet of quality is the quality of data that is inputted into the tools. Above, we noted the ways that the current data set used by judicial analytics tools may be incomplete and, in some cases, contain errors. However, even if the highest quality data is *inputted* into the tools, this does not guarantee that the information *outputted* by such tools is high quality. Stated simply, it is possible for judicial analytics tools to be based on poorly or incorrectly written code. If the numbers aren't "crunched" correctly, then the information reported by an analytics tool to the public about judicial behaviour may be inaccurate. To date, the issue of quality has not been prominent in the conversation about judicial analytics. High barriers to entry into the market have generally meant that only serious and well-funded actors are able to produce and provide such tools.[92] However, if judicial analytics tools become mainstreamed, as we predict, and are cheaper to create and deliver, there is more risk of poorly developed tools.

An additional issue involving both quality and literacy arises in relation to outputs. Even if the best data is inputted and analyzed correctly, user misunderstandings can still result if statistical information is not presented with sufficient context. For example, a judicial analytics tool could report that Judge E has a record of denying bail to racialized individuals accused of crimes in 80% of cases, in contrast to her colleagues who deny bail to racialized individuals in a range between 50% to 60% of cases. If a member of the public is simply given these two numbers, that person might be concerned about the fairness of Judge E adjudicating bail decisions involving racialized individuals. But these two numbers do not tell the whole story. Proper interpretation of statistics depends on knowing the full context including, for example, whether Judge E is newly appointed and has only presided over five bail hearings versus her colleagues, who have presided over an average of 300 hearings each.

Similarly, an analytics tool may show that Judge F has a higher rate of dissent than his colleagues at the same court or level of court. Absent further context, and without a clear understanding of the meaning of judicial dissent and its role in our judicial system, a member of the public may interpret this to mean that Judge F is aberrant, or incompetent, when in fact we know that dissent plays a critical role in our justice system and is by no means a reflection of the fitness of a dissenting judge.[93] When patterns about judicial behaviour are presented by academics, they are likely to be accompanied with pages of explanatory text and context for the statistics presented.[94] The challenge with analytics tools meant for public use is that there is much more incentive to present users with a quickly digestible "bottom-line" statistical percentage or other numerical value, without necessary context.

To summarize, a key potential benefit for the public of mainstreamed judicial analytics tools is increased transparency about judicial behaviour, but this is neither a guaranteed nor uncomplicated benefit. Issues of information quality and user literacy exist. To the extent that those practical issues can be addressed, the resulting transparency about the work of judges is likely to generate systemic challenges to the legal

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[92] The providers of some of the most prominent tools – LexisNexis, Westlaw and Bloomberg – are all very large companies.
[93] On the role and importance of dissent see eg Peter W Hogg & Ravi Amarnath, "Why Judges Should Dissent" (2017) 67:2 UTLJ 126; Claire L'Heureux-Dubé, "The Dissenting Opinion: Voice of the Future?" (2000) 38:3 Osgoode Hall LJ 495.
[94] See, for example, Sean Rehaag, "Judicial Review of Refugee Determinations (II): Revisiting the Luck of the Draw" Queen's LJ (forthcoming) (available online at: <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3249723>) and Sean Rehaag, *"Judicial Review of Refugee Determinations: The Luck of the Draw?"* (2012) 38:1 Queen's LJ *1*

system's commitments to judicial impartiality, equality before the law, and judicial competence. If the legal system cannot rise to these challenges, the public's confidence in the administration of the justice may suffer. On the flip side, the disruption that judicial analytics tools may invite to entrenched notions and presumptions in relation to the work of judging could provide new and profound avenues to improve our processes and our understanding of the judicial role with a view to better ensuring fair and equal justice to those appearing before Canadian courts.

B. The Judiciary

Increased transparency about judicial behaviour is also likely to have direct impacts on judges themselves and on the work of judging. In this section, we explore opportunities for judicial education as a potential benefit but also caution that increased attention to the details of judicial behaviour may impact the work of judging and the well-being of judges in unintended ways and may have disparate impacts on certain judges.

Just as mainstreamed judicial analytics tools may provide better information to the public about judicial practices, they may also provide useful insights to judges themselves, about themselves. Reports from judicial analytics tools have the potential to reveal patterns and practices in a judge's work about which that judge might be otherwise unaware.[95] Judges can use this information for self-reflection and seek to improve on their practices. Indeed, the *European ethical Charter on the use of Artificial Intelligence in judicial systems and their environment* recognizes that judicial analytics tools could be beneficial to the extent that they "offer[] judges a more detailed quantitative and qualitative assessment of their activities…with a purely informative aim of assisting in decision-making."[96] Of course, whether such benefits result from mainstreamed judicial analytics will depend again on the quality of the reports produced by judicial analytics tools and the ability of judges to translate the information presented in reports into meaningful and positive changes in their professional practices. Additionally, whether behavioural changes will actually occur depends on how receptive judges are to the information that is available to them.

Not all of the changes in judicial practices that analytics tools might motivate are positive. It seems possible, for example, that judges could try to "game the system" in order to "improve" their analytics scores. While we might want a judge to change their behaviour if confronted with material evidence of bias in their decisions, what about other types of behavioural changes? Studies have demonstrated that in the United States, "federal judges adapt their behavior to specific audiences" and alter their judicial decision-making in the name of advancing their careers.[97] What if judges injected their decisions with a

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[95] For further discussion on using judicial analytics to educate judges, see, for example, Daniel L. Chen, "Machine Learning and the Rule of Law" in Michael A. Livermore and Daniel N. Rockmore, eds., "Law as Data: Computation, Text and the Future of Legal Analysis" (The SFI Press Seminar Series, 2019) at 7-8, available at: SSRN <https://ssrn.com/abstract=3302507>.

[96] European Commission for the Efficiency of Justice, *European ethical Charter on the use of Artificial Intelligence in judicial systems and their environment*, Adopted at the 31st plenary meeting of the CEPEJ, Strasbourg, 3-4 December 2018 (Strasbourg, Council of Europe: 2019) at 66, online: <https://rm.coe.int/ethical-charter-en-for-publication-4-december-2018/16808f699c>.

[97] Ryan C. Black & Ryan J. Owens, "Courting the President: How Circuit Court Judges Alter their Behavior for Promotion to the Supreme Court" (2016) 60:1 *American Journal of Political Science* 30 show that when there is a vacancy on the United States Supreme Court, judges contending for elevation to the Supreme Court are more likely to "vote consistently with the president's preferences, to rule in favor of the United States and to write dissenting opinions" when compared to judges who are not contenders for promotion to the Supreme Court.

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search engine optimization (SEO)-like strategy where specific words, phrases or cases are used for the sole purpose of producing a decision that would be viewed more favourably in a judicial analytics report? This kind of strategizing could seriously undermine the integrity of judicial decision-making.

Beyond cynical concerns about judges modifying their behaviour for career advancement or improved analytics stats, there is the subtler – and more likely – risk that where a judicial analytics tools indicates that Judge G's record is "abnormal" in some regard in comparison to her colleagues, Judge G will consciously or unconsciously be moved to change course and render decisions more in line with her colleagues. Although judges are insulated by judicial independence, the desire to conform can be a powerful influence on behaviour.[98] Whether conformity in any given case is a "good" or "bad" thing is a complicated question that depends on the facts of a case, the nature of the law at issue and one's view of the proper role of judging in a common law system. Our point here is simply that the information produced by judicial analytics tools may impact the judicial decision-making process in myriad ways.

Another perspective through which to consider the impact of judicial analytics tools on judges is as a new form of workplace surveillance. To be sure, judges in Canada are no strangers to scrutiny of their work – appellate courts, the press and the academy routinely review and critique judicial decisions. To the extent, however, that the inputs into judicial analytics tools are increased to include video and audio of court proceedings, a more intense level of scrutiny may well result. Statistical analyses of judges' in-court behaviour have been performed before, primarily by academics and with the use of significant resources. For example, in 1978, two academics conducted a study of judges' non-verbal behaviour in courtrooms; specifically, they recorded the number of times judges gazed for more or less than two seconds at defendants, civilian witnesses, and police witnesses by having observers sit in court and observe 138 witnesses over a two-month period.[99] Much of the resulting analysis focused on differences in how long black and white judges looked at certain classes of witnesses.[100]

Mainstreamed judicial analytics tools could someday have the potential to produce this kind of behavioural information routinely and with little cost. If so, judges will be entering a new world of surveillance – arguably a world of hyper-surveillance – much different than they have experienced before.[101] Recent commentary and studies have emphasized how increased workplace surveillance can lead to negative effects on workers' subjective sense of wellbeing and can lead to unintended behaviours such as attempts to hide one's work from the surveillance system where possible.[102] How such effects

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[98] Cass R Sunstein, "Conformity and Dissent" (University of Chicago Public Law & Legal Theory Working Paper No. 34, 2002) at 14 (citations omitted), online:
<https://chicagounbound.uchicago.edu/cgi/viewcontent.cgi?article=1067&context=public_law_and_legal_theory>.

[99] Edwina Dorch & Gary Fontaine, "Rate of Judges' Gaze at Different Types of Witnesses" (1978) 46:3 Perceptual and Motor Skills 1103.

[100] Ibid. The researchers reported their results "indicate: (1) a main effect for judges' race with a higher rate of gaze from white judges than black judges, (2) a main effect for type of witness with defendants receiving the highest rate of gaze followed by civilian, then police, witnesses, (3) an interaction of judges' race by type of witness with white judges gazing at the highest rate at police and black judges gazing at the lowest rate at police, (4) an interaction of judges' race by witnesses' race with black judges gazing at the highest rate at white witnesses and white judges at the highest rate at black witnesses, (5) a positive correlation of 0.48 between the rate of gaze at the defendant and the fine received if found guilty."

[101] Sarah Griffiths, "Hyper-surveillance" (21 July 2019), online: *Worklife 101* <
https://www.bbc.com/worklife/article/20190718-hyper-surveillance>.

[102] Anna Borg, "Impact of electronic surveillance in the workplace" (31 July 2014), online: *Eurofound* <https://www.eurofound.europa.eu/publications/article/2014/impact-of-electronic-surveillance-in-the-workplace>.

might manifest in relation to surveilling judges' work in the courtroom is hard to predict, but it seems reasonable to be concerned about the risk of unintended and potentially negative effects.

Framing judicial analytics tools as a form of surveillance highlights another risk: that scrutiny facilitated by judicial analytics tools will be used in a disproportionately punitive fashion against racialized and other "outsider judges."[103] In the social sciences, there is a rich literature demonstrating the many ways that "people are exposed differently to the dangers of surveillance."[104] In the context of the judiciary, it is easy to find examples, particularly in relation to Black judges, of intense scrutiny of racialized judges who reference or challenge racism in the legal system.[105] Might new judicial surveillance technologies (i.e. judicial analytics tools) be "weaponized" in a way that results in disproportionately negative impacts on racialized and other "outsider judges"? This possibility demands our attention.

A final consideration in relation to impacts on the judiciary relates to competence. If information produced by judicial analytics tools is increasingly used as evidence in legal proceedings – for example, if parties begin to bring judicial disqualification motions on the basis of reports produced by judicial analytics tools – will this impose new competence requirements on judges? What level of understanding will judges need to have about these tools – what they do, the pitfalls of analytics, etc. – in order to preside over such motions? Even if evidence created by judicial analytics tools is submitted through experts, judges will need to have a basic degree of familiarity with analytics tools in order to meaningfully assess the evidence. Some commentators have argued that judges should be subject to a duty of technological competence.[106] Indeed, proposed revisions to the Canadian Judicial Council's *Ethical Principles for Judges* state that "judges should develop and maintain some proficiency with technology related to the nature and performance of judicial duties."[107] The ability of judges to scrutinize statistics

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[103] The authors thank Professor Jane Bailey for raising the issue explored in this paragraph. The idea of "outsider" judges draws on the work of Mari J. Matsuda, "Public Response to Racist Speech: Considering the Victim's Story" (1989) 87 Mich. L. Rev. 2320 at 2323, who uses the phrase "outsider jurisprudence" to describe the academic work of feminist and racialized scholars, and from Natasha Bakht, Kim Brooks, Gillian Calder, Jennifer Koshan, Sonia Lawrence, Carissima Mathen & Debra Parkes, "Counting Outsiders: A Critical Exploration of Outsider Course Enrollment in Canadian Legal Education" (2007) 45:4 Osgoode Hall LJ 667 at 672, who use the term "…outsider to describe those who are members of groups that have historically lacked power in society or have traditionally been outside the realms of fashioning, teaching, and adjudicating the law." With respect to historical scrutiny, see, for example, the allegation of reasonable apprehension of bias against African-Canadian Judge Corinne Sparks in *R v S(RD),* [1997] 3 SCR 484 and associated commentary, Sherene Razack, "*RDS v Her Majesty the Queen*: A Case About Home" (1998) 9:3 Constitutional Forum; and Richard F. Devlin, "We Can't Go on Together with Suspicious Minds: Judicial Bias and Racialized Perspective in *R. v. R.D.S.*: (1995) 18 Dalhousie L.J. 408.

[104] Ruha Benjamin, *Race After Technology: Abolitionist Tools for the New Jim Code* (Cambridge: Polity Press, 2019).[104]

[105] For a Canadian example, see the allegation of reasonable apprehension of bias against African-Canadian Judge Corinne Sparks in *R v S(RD),* [1997] 3 SCR 484 and associated commentary, Sherene Razack, "*RDS v Her Majesty the Queen*: A Case About Home" (1998) 9:3 Constitutional Forum; and Richard F. Devlin, "We Can't Go on Together with Suspicious Minds: Judicial Bias and Racialized Perspective in *R. v. R.D.S.*: (1995) 18 Dalhousie L.J. 408. A more recent example from the U.K. can be found here: https://www.independent.co.uk/news/uk/home-news/uk-justice-system-racist-ethnic-minority-judges-peter-herbert-lutfur-rahman-tower-hamlets-a7518176.html.

[106] See eg Amy Salyzyn, "Modern Courts and the Need for Judicial Technological Competence" (18 June 2019), online: *Slaw.ca* <http://www.slaw.ca/2019/06/18/modern-courts-and-the-need-for-judicial-technological-competence/>; and Robert Ambrogi, "It's Time to Extend the Duty of Tech Competence to Judges" (6 May 2019), online: *Above the Law* <https://abovethelaw.com/2019/05/it-is-time-to-extend-the-duty-of-tech-competence-to-judges/>.

[107] Canadian Judicial Council, draft revised *Ethical Principles for Judges* (available online: https://cjc-ccm.ca/en/news/update-ethical-principles-judges) at 3.C.4.

and conclusions generated by judicial analytics tools seems particularly important given that, as noted above, this information is prone to being misunderstood or taken out of context.

Just as mainstreamed judicial analytics is likely to alter how the public sees the work of judging, this technology is also poised to impact how judges themselves see the work that they do. A key potential benefit for judges is educative; with better information about judicial behaviours, judges can work to address undesirable behaviours, like implicit bias, for example. At the same time, this increased insight also carries risks that judges might intentionally or unintentionally alter their behaviours in undesirable ways. Additionally, the surveillance necessary to produce analytics-generated insights could have negative impacts on the well-being of judges or be disproportionately deployed against certain groups. If and how these effects might manifest in a world of mainstreamed judicial analytics is uncertain. Clearer is the fact that judges will unlikely be able to ignore this technology completely, as it also becomes more routinely referenced on matters that they must adjudicate.

C. Lawyers

Likewise, lawyers – or at least litigators – will not be able to ignore judicial analytics tools if and when this technology becomes mainstreamed. This section focuses on how judicial analytics tools may engage lawyers' professional obligations.

The potential impacts on lawyers relate primarily to competence. The Federation of Law Societies of Canada's *Model Code of Professional Conduct* includes commentary noting that a lawyer's duty of competence requires "an understanding of, and ability to use, technology relevant to the nature and area of the lawyer's practice and responsibilities."[108] There is no detailed list of the kinds of technology a lawyer must use competently to fulfill this obligation. Rather, the duty is expressly contextual, with the relevant commentary referring only to an obligation to use such technology that is "relevant to the nature and area of the lawyer's practice and responsibilities" and which is "reasonably available."[109] This language echoes the well-settled standard of care in a negligence action against a lawyer, which is that of the "reasonably competent" lawyer.[110]

If clients are in a situation where they have the ability to choose their judge or bring a motion to have an assigned judge disqualified, and judicial analytics tools can produce relevant information, then the use of judicial analytics has a clear benefit to these clients. As judicial analytics tools become ubiquitous, they will presumably become "relevant" and "reasonably available" to litigators such that there is an obligation to use such tools, pursuant to both professional codes of conduct and common law standards of care.

An analogy can be drawn to using electronic databases to conduct legal research. Several decades ago, it was accepted practice for lawyers to rely on print case reporters; now, however, a failure to use electronic databases to conduct legal research can amount to lawyer incompetence.[111] The tools that lawyers are

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[108] Federation of Law Societies of Canada, *Model Code of Professional Conduct* at Rule 3.1-2, Commentary 4A, online: https://flsc.ca/interactivecode/.
[109] *Ibid* at Commentary 4B.
[110] See *Central Trust Co v Rafuse,* [1986] 2 SCR 147 at para 58.
[111] A trial court in Alberta described the shift in the following terms:

expected to use in order to provide competent client representation evolve as the available technologies expand and become more widely used. Although clients and courts do not now expect lawyers to employ judicial analytics tools, this may well change in future.[112]

A related question concerns the kinds of ethical obligations, if any, lawyers might have in relying on or presenting statistics about an individual judge in court. Current rules impose a duty on lawyers to "encourage public respect for and try to improve the administration of justice."[113] Commentary to this duty explicitly notes that "proceedings and decisions of courts and tribunals are properly subject to scrutiny and criticism by all members of the public, including lawyers" while also cautioning lawyers to "avoid criticism that is petty, intemperate or unsupported by a bona fide belief in its real merit."[114] This rule and its commentary were drafted without judicial analytics tools in mind. Does the rise of analytics tools generate new or unique tensions with lawyers' ethical obligations? For example, should there be a certain standard that a judicial analytics tool must meet before information from that tool can be presented as evidence in open court (and, thus made part of the public record)?

Similarly, should there be any restraints on how lawyers refer to information from such tools in speaking with the media? Lawyers are permitted under current rules to speak to the media about a client's case if it is "in the best interests of the client and in the scope of the retainer" and does not otherwise interfere with a party's right to a fair trial or hearing.[115] Could a defence lawyer hold a press conference after her client is convicted and sentenced in a criminal matter, in which she refers to information from a judicial analytics tool that suggests that the trial judge has a history of bias against individuals belonging to the same community as the lawyer's client? Assuming that the lawyer's tone was professional, such comments would not necessarily be "petty, intemperate or unsupported by a bona fide belief in its real merit" and thus discouraged by the current rule requiring lawyers to encourage public respect for the administration of justice.[116] Can judicial analytics now become part of a lawyer's media strategy?

As was the case with the public and the judiciary, the legal profession will face specific opportunities and challenges when judicial analytics tools become mainstreamed. Most importantly, lawyers will have to understand how to use these tools to benefit clients in way that is consistent with their professional obligations in relation to the administration of justice.

…I think that the view of computerized legal research as a mere alternative is no longer consonant with the reality of current legal practice. Such research is now expected of counsel, both by their clients, who look to counsel to put forth the best possible case, and by the courts, who rely upon counsel to present the most relevant authorities. Indeed, it might be argued that a lawyer who chooses to forgo computerized legal research is negligent in doing so….The practice of law has evolved to the point where computerized legal research is no longer a matter of choice

Aram Systems Ltd. v NovAtel Inc., 2010 ABQB 152 at para 23 (CanLII).

[112] As Ed Walters writes: "It may be that "many lawyers are just learning about [new artificial intelligence tools available to lawyers, including judicial analytics tools] for the first time, but if they are not yet the state of the art in legal-service delivery, it is clear that they soon will be the "standard of competent practitioners." Ed Walters, "The Model Rules of Autonomous Conduct: Ethical Responsibilities of Lawyers and Artificial Intelligence" (2019) 35 Ga St U L Rev 1073 at 1078, citing in part James Summers, *"Professional and Ethical Traps for Technophobes and Technoweenies"* (January 2004), online: (pdf) Mem B Ass'n J <http://www.allensummers.com/sites/396/uploaded/files/Professional_Traps_Jan_2004.pdf>.

[113] Model Code, *supra* note 108 at r. 5.6-1.

[114] *Ibid* at r. 5.6-1, Commentary [3].

[115] Model Code, *supra* note 108 at r. 7.5-1 and r. 7.5-2

[116] *Ibid.*

V. Responses to Judicial Analytics

The above discussion details a variety of potential impacts of mainstreamed judicial analytics. Potential benefits of mainstreamed judicial analytics include increased transparency about judicial behaviour and new opportunities for judicial education. Risks associated with the mainstreaming of judicial analytics include the development of poor-quality tools and negative effects on judges or certain groups of judges as a result of increased surveillance.

This final part briefly explores possible responses to these potential impacts from a policy standpoint. We frame this discussion through two questions: (1) should judicial analytics tools be regulated? and (2) how should judicial regulators respond to mainstreamed judicial analytics?

A. Should Judicial Analytics Tools be Regulated?

As noted in the introduction, we do not believe that a French-style ban would be appropriate in Canada: the public should be able to analyze public information. Canadian researchers would rightfully sound the alarm if the government prohibited them from analyzing patterns in judicial decisions using conventional (ie: non-analytics-based) methods; the fact that such analyses may be easier to do with judicial analytics tools does not change the essential nature of the task, it just makes it faster and potentially yields additional insights. There is also the question of the legality of banning analytics, since prohibiting the publication of patterns in otherwise public information would seem to run afoul of the freedom of expression guarantee in the *Charter*.[117]

In addition to these normative and legal reasons against a ban, there are also reasons why we might want to encourage the development and use of judicial analytics tools. As discussed in Part IV, above, judicial analytics tools have the potential to facilitate unprecedented transparency about the work of judging in Canada, which is undoubtedly a good worth pursuing.

So, if not a ban on judicial analytics, is some type of regulatory response prudent? Given that the potential development of poor-quality tools is one risk identified above, one reason to regulate judicial analytics tool could be to provide some type of quality assurance. If judicial analytics are mainstreamed and the public has easy access, it will be important that the information that the public receives is accurate and otherwise trustworthy, which requires that the tools the produce analytics reports are reliable.

There are several reasons however, that a regulatory regime may not be the best vehicle for addressing quality assurance issues. First, it is not clear *who* the regulator of judicial analytics should be. There is an ongoing debate about whether lawyer regulators – law societies, in Canada – have jurisdiction to regulate legal technology products.[118] Historically, this debate has been framed in terms of whether a technology tool simply provides legal information (and thus is not within the jurisdictional ambit of lawyer regulators) or whether it provides a legal service or provides advice that amounts to the practice of law (such that lawyer regulators do have the authority to regulate). Given that judicial analytics tools, which amalgamate and report statistical information about a judge's past decisions, are not providing

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[117] *Charter, supra* note 76 at s2(b).

[118] See, for example, the discussion in Teresa Scassa, Amy Salyzyn, Jena McGill and Suzanne Bouclin, "Developing Privacy Best Practices for Direct-to-Public Legal Apps: Observations and Lessons Learned, (2020) 18(1) CJLT (*forthcoming*).

legal services, answering legal questions, or acting as "robot lawyers" before a court or tribunal, law societies do not have a strong jurisdictional claim to regulate judicial analytics tools.

What about the government, then? Existing consumer protection laws might provide some defense against particularly egregious issues arising out of poor-quality analytics tools but are not well placed to facilitate proactive measures of quality assurance.[119] Another option might be for legislators to pass a new, targeted law tailored to the specifics of judicial analytics. In July 2019, California passed a law requiring "chatbots" to disclose that they are not human.[120] Rather than create a new regulator, the California law allows the Attorney General to enforce and seek civil penalties under existing consumer protection laws.[121] However, regulating the quality of diverse judicial analytics tools is doubtless a more complicated endeavour than simply requiring a disclosure notice, as with the California chatbot law. The complexity involved raises questions about whether government regulation is sufficiently nimble and appropriately informed about judicial analytics to be effective.

Additionally, questions about constitutionality linger in the government regulation space, even if such regulation does not amount to a full ban. As emphasized above, the function of judicial analytics tools is to provide descriptive analyses of publicly available data; once the data is made public through the publication of judicial decisions and other court records, it seems like government overreach to try to control the specifics of how that information can be used.

Finally, even if a proportionate government regime passed constitutional scrutiny, it is not clear that there would be government appetite to enter the regulatory fray. Judicial analytics tools – even if they are "mainstreamed", as we predict – are still a niche technological market, unlike, for example, new technologies with broader reach, like drones or autonomous vehicles, which are much more likely to attract government attention.

One quality assurance option outside of the regulatory landscape that is often discussed in the context of legal technologies is voluntary third-party certification.[122] This method would convene a group of experts to develop appropriate standards and procedures to evaluate the quality of judicial analytics tools. Providers of judicial analytics tools could be incentivized to participate in the certification process with the promise of being able to use a trustmark if they meet the required standards. The value of a trustmark to legal technology providers is the ability to easily signal to the public that they are providing a high-quality tool. The public would also benefit from this signalling: they could quickly distinguish which judicial analytics tools have met certain standards and which have not.

Although not commonly employed in the legal sector, the concept of industry standards and private certification is well developed in other fields. The International Organization for Standardization ("ISO") for example, "has published 23037 international standards and related documents, covering almost every

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[119] For example, s. 9(1) of Ontario's *Consumer Protection Act, 2002,* S.O. 2002, c. 30, Sched. A, a supplier "is deemed to warrant that the services supplied under a consumer agreement are of a reasonably acceptable quality."

[120] For more details, see Renee DiResta, "A New Law Makes Bots Identify Themselves—That's the Problem" (24 July 2019), online: *Wired.com* <https://www.wired.com/story/law-makes-bots-identify-themselves/>.

[121] *Ibid.*

[122] See, for example, discussion in Susan Saab Fortney, "Online Legal Document Providers and the Public Interest: Using a Certification Approach to Balance Access to Justice and Public Protection" (2019) 72 Oklahoma L. Rev. 91; and Teresa Scassa, Amy Salyzyn, Jena McGill and Suzanne Bouclin, "Developing   Privacy Best Practices for Direct-to-Public Legal Apps: Observations and Lessons Learned, (2020) 18(1) CJLT (forthcoming).

industry, from technology, to food safety, to agriculture and healthcare."[123] In the area of technology, the Institute of Electrical and Electronics Engineers (IEEE) Standards Association is also active, with a "portfolio of over 1,900 active standards and over 650 standards under development."[124]

A major downside to the case for private certification is cost. Although the market in judicial analytics tools is likely to grow, it is not a large market, relatively speaking. Whether a private certification model, specifically tailored for judicial analytics tools, would be economically sustainable is a live question. If certification is high on a per-provider basis, it may not make economic sense for a provider to pursue a trustmark. Likewise, if only providers of high-end, expensive tools can afford certification, then it may only be lawyers or institutional users who will benefit from this model of quality assurance, as opposed to the general public.

We tend to favour a public model: a non-profit legal organization should develop high quality, free judicial analytics tools for public use. In Canada, we have precedent for this model in the contexts of both legal documents and legal information. With respect to legal documents, there have long been commercial providers who marketed electronic legal forms to the public with a view to making the forms more accessible and user friendly.[125] Increasingly, however, non-profit organizations and courts are developing their own free versions of electronic, interactive legal documents.[126] Regarding legal information, although Canadians have access to commercial legal research databases like Westlaw and LexisNexis, we also benefit from CanLII, the Canadian Legal Information Institute, which is funded by Canadian lawyers and notaries and provides free, public access to Canadian jurisprudence and legislation.[127]

The benefits of a public model include delinking quality assurance from commercial incentives and the provision of a free, trusted option that is available to everyone. The degree to which this might be a realistic approach for judicial analytics tools depends on whether, in future, the creation of such tools becomes less resource-intensive. Currently, the cost of developing or maintaining a public judicial analytics tool may be too high to be appealing or even possible to pursue. If costs were reduced, however, a public option is an interesting possibility.

B. How should Judicial Regulators Respond to Mainstreamed Judicial Analytics?

Concerns about judicial impartiality and competence arising from mainstreamed judicial analytics may also engage judicial regulators. Judicial regulators could play an important role in helping to harness the potential educative benefits of judicial analytics tools and protecting judges from some of the negative impacts of increased scrutiny.

As detailed in Part IV above, concerns about judicial impartiality can be addressed within individual legal cases when a party makes a motion to have a judge disqualified for a reasonable apprehension of

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[123] "About ISO", online: *The International Organization for Standardization* < https://www.iso.org/about-us.html>

[124] The IEEE Global Initiative on Ethics of Autonomous and Intelligent Systems, *Ethically Aligned Design: A Vision for Prioritizing Human Well-being with Autonomous and Intelligent Systems* (First Edition, 2019), online: <https://ethicsinaction.ieee.org/> at 287.

[125] See, for example, *Law Depot,* < https://www.lawdepot.ca/>.

[126] See, for example, *CLEO Family Law Guided Pathways*, < https://stepstojustice.ca/family-law-guided-pathways/about> and *Legal Info Nova Scotia Wills App,* < https://www.legalinfo.org/apps/welcome-to-our-last-will-and-testament-app>.

[127] "What's CanLII?", *CanLII*, online: <https://www.canlii.org/en/info/about.html>

bias. But judicial councils in Canada also play an important role in addressing public concerns about judicial impartiality and judicial competence. More particularly, these councils are authorized "to receive and investigate complaints against judges, to hold discipline hearings, and recommend or impose discipline on judges."[128] How should this authority be exercised if judicial councils receive complaints about judges based on a pattern of bias or incompetence gleaned from a judicial analytics tool?

In certain respects, addressing complaints based on data from judicial analytics tools need not be any different than addressing other types of complaints. An initial step is to determine the validity of the information contained in the complaint. In the case of complaints based on information from judicial analytics tools, this requires the regulator to be able to assess the veracity of that information. Assuming that the regulator can be assured of the quality of the information generated by the tool – whether through regulatory standards, a certification regime, a trusted public source or its own independent assessment – then the question becomes how should a regulator react when judicial analytics tools reveal patterns suggesting judicial bias or incompetence?

Doing nothing is indefensible: if a judicial analytics tool provides credible information about problematic judging, a response is required to maintain public confidence in the judicial system. The fact that the information comes from a judicial analytics tool does not justify the regulator putting its head in the sand. At the same time, it will be important that judicial regulators react proportionately to such information. In many cases, it may be too extreme to remove a judge from the bench even if there are "real" problems in relation to the particular judge; targeted educational measures may be a more effective and fairer response.[129] Indeed, Daniel Chen has suggested that where judicial analytics tools demonstrate that a judge appears "unmoved by legally relevant circumstances" in certain cases (i.e. has a tendency to pre-decide) or is unduly influenced by extra-legal factors (e.g. time of day, weather, etc.), the judge could be offered targeted training programs "either with the goal of de-biasing or to help them learn how to use the hearing process to better advantage."[130] Chen also notes that "simply alerting judges to the fact that their behavior is highly predictable in ways that may indicate unfairness may be sufficient to change their behavior."[131]

In addition to interventions targeting individual judges, judicial councils or established judicial education institutions, like the National Judicial Institute,[132] might undertake more proactive, general educative activities using information obtained from judicial analytics tools. For example, Chen suggests that

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[128] Richard Devlin & Adam Dodek, "'Fighting Words': Regulating judges in Canada" in Richard Devlin & Adam Dodek, eds., *Regulating Judges: Beyond Independence and Accountability* (Massachusetts: Edwards Elgar Publishing, 2016) 76 at 89.

[129] We recognize that not all judicial regulators in Canada have the authority to order this type of sanction. For example, the Canadian Judicial Council, which has authority over federally-appointed judges in Canada, is currently limited to recommending to the federal Minister of Justice that the judge be removed (*Judges Act* R.S.C., 1985, c. J-1, s. 65(2)). That said, it has been argued that, in the case of the Canadian Judicial Council, the range of sanctions for misconduct short of removal should be expanded and hopefully we will see this type of reform in the near future. Moreover, some provincial judicial regulators of judges already have the power to order educational measures (*Courts of Justice Act,* R.S.O. 1990, Ch. C.43 at s. 51.11).

[130] Daniel L. Chen, "Machine Learning and the Rule of Law" in Michael A. Livermore & Daniel N. Rockmore, eds., *Law as Data: Computation, Text and the Future of Legal Analysis* (The SFI Press Seminar Series, 2019) at 5 available at: SSRN <https://ssrn.com/abstract=3302507>.

[131] *Ibid.*

[132] "About the NJI", online: *National Judicial Institute* < https://www.nji-inm.ca/index.cfm/about/about-the-nji/>.

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judicial education could be used "to expose judges to findings concerning the effects of legally relevant and legally irrelevant factors on decisions, with the goal of general rather than specific debiasing."[133]

Once again, any educational benefit inspired by a judicial analytics tool depends to a significant degree on how receptive a judge is to the insights offered by analytics. However, if this type of information is routinely included as part of judicial education efforts, it may be possible to engender more "buy-in" from individual judges. Such educative efforts could be directed not only to informing judges about insights generated by judicial analytics tool but also educate judges about the tools themselves so that they are more knowledgeable and comfortable if and when results from judicial analytics tools are presented as evidence in court.

In addition to education, are there other proactive ways for judicial regulators to address problems revealed by judicial analytics tools? One option might be to conduct performance evaluations informed, at least in part, by information provided by a judicial analytics tool. Judges are not subject to any formal evaluations in Canada,[134] although in some cases, there is explicit statutory authority to do so.[135] As Adam Dodek and Richard Devlin note in their review of the regulation of judges in Canada, performance evaluations can raise concerns about judicial independence, but "such objections would be significantly reduced – although not eliminated – if the evaluation was internal and confidential, ie: performed by the Chief Justice or the Associate Chief Justice of the court."[136]

Finally, we might consider the role that judges, collectively, could play in addressing some of the potentially negative impacts of judicial analytics tools. For example, to mitigate concerns about decontextualized statistics, the judiciary could amplify its public education efforts on the practice of judging and the role of the courts, so that certain types of statistics (for example, the rate at which an appellate judge dissents) are understood by the public in their proper context.[137] Similarly, as a way of guarding against undue pressures to conform, judicial bodies could enhance their existing efforts to educate the public about the importance of judicial independence in our legal system.[138]

More challenging questions arise in relation to how judicial regulators might mitigate any negative impacts on the well-being of judges resulting from their being subjected to new and potentially invasive surveillance or guard against the "weaponizing" of judicial analytics tools to target racialized and other "outsider" judges. Being aware of these risks and educating judges about their potential is surely a good first step. Depending on the degree to which these risks manifest themselves, judicial regulators and other judicial bodies – like judges' associations – may need to take steps to defend judges' privacy and equality

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[133] *Ibid.* at 7.

[134] See Dodek & Devlin, *supra* note 128 at 94, concluding, "[w]e are unaware of any formal evaluation processes of judges in Canada, at any level."

[135] For example, in Ontario, the *Courts of Justice Act,* RSO 1990, c C.43 at s. 51.11 (1) provides: "The Chief Justice of the Ontario Court of Justice may establish a program of performance evaluation for provincial judges, and may implement the program when it has been reviewed and approved by the Judicial Council."

[136] Dodek & Devlin, *supra* note 128 at 94.

[137] An example of a current initiative is the "Judges in Canada" Youtube Channel which is maintained by the Canadian Superior Courts Judges Association, online: YouTube < https://www.youtube.com/channel/UCmZ-ODLaJDDQjXmqWLKuu_Q/about>.

[138] See, for example, "Judicial Independence", online: *Canadian Judicial Council* <https://cjc-ccm.ca/en/what-we-do/judicial-independence>

interests, even where doing so surfaces tensions with commitments to open courts and judicial transparency.

Conclusion

Judicial analytics tools should not be banned in Canada. Prohibiting analysis of public information about judges is overbroad and inconsistent with our commitments to open courts and freedom of expression. Moreover, to the extent that analytics can encourage more transparency about the work of judging, the technology may contribute to improving the work of judges, democratizing information about judges and courts, and increase civic engagement with the legal system. Yet, as with any new technology, there are likely to be unintended consequences that accompany the rise of judicial analytics. These necessitate careful attention and response.

In this article, we presented a preliminary exploration of some of the likely impacts of judicial analytics for the public, lawyers and the judiciary. We also considered responses that might mitigate concerns related to the quality of judicial analytics tools, once mainstreamed, and queried how judicial regulators might use information from these tools in their work. While only time will tell exactly how the rise of judicial analytics will impact the legal system and its stakeholders, what is certain is that analytics will continue to influence the delivery of legal services, the work of judges and the public's interaction with the legal system in myriad ways. As we have argued in this article, this inevitability necessitates ongoing attention and analysis.

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