



CONSENT IN THE TIME OF BIG DATA



Deeth Williams Wall LLP

Richard Austin
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Agenda

1. Introduction
2. The Big Data Lifecycle
3. Privacy Protection – The Existing Landscape
4. The Appropriate Response?





1. Introduction

“The Future of Big Data Analytics in Canada

Even though Big Data analytics can be challenging to execute, it has great potential for powerful insight. It will continue to grow in popularity as leaders see how it can enhance high-quality decision making. We will continue to see data analytic technology evolve and transform the way we live and do business. Many businesses will be able to create sustainable competitive advantage from Big Data. The insight gained from this will feed the development of valuable artificial intelligence and ways to become more accurate at predicting what will happen next. The financial and utility industries, in particular, have recently promoted how Big Data is being used to develop a much better understanding of their customer segmentation, demographics, customer satisfaction drivers, and even trends that may be able to predict future demand for goods and services. This is taking customer relationship management to a whole new level of sophistication. When integrated with artificial intelligence, systems may be able to know what people want before they know what they want.”

Arthurs, Richard, *The Potential of Big Data Analytics is Significant*,
<http://www.mnp.ca/en/posts/the-potential-of-big-data-analytics-is-significant>



Top Ten Big Data Trends for 2017

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|--|---|
| 1. Big data becomes fast and approachable:
Options expand to speed up Hadoop | 6. Spark and machine learning light up big data |
| 2. Big Data no longer just Hadoop:
Purpose-built tools for Hadoop become obsolete | 7. The convergence of IoT, cloud and big data create new opportunities for self-service analytics |
| 3. Organizations leverage data lakes from the get-go to drive value | 8. Self-service data prep becomes mainstream as end users begin to shape big data |
| 4. Architectures mature to reject one-size-fits all frameworks | 9. Big data grows up: Hadoop adds to enterprise standards |
| 5. Variety, not volume or velocity, drives big-data investments | 10. Rise of metadata catalogs helps people find analysis-worthy big data |

Tableau Software, *Top Ten Big Data Trends for 2017*, <https://www.tableau.com/resource/top-10-big-data-trends-2017>



Power Play: Quebec bets on Data Hubs

Quebec is gaining ground in its push to become one of the world's biggest jurisdictions for data warehousing, tapping its hydro-power surpluses to lure a growing list of companies including Amazon Web Services and Microsoft. ...



Data hosting is growing quickly. Some 2,000 data centres started operation worldwide between 2012 and 2015, according to DCD Intelligence. Annual investments are expected to top \$20 billion (U.S.) by 2020 in the Americas, a separate forecast from London, Britain-based research company Technavio shows.

Van Praet, Nicholas, *The Globe and Mail*, January 23, 2017



“As has already been observed, the computer by itself neither can nor does invade privacy. But it does make more frequent the occasions when this might happen: by permitting the storage and rapid retrieval of vast quantities of data; by encouraging the rapid dissemination of that data over any distances; by facilitating the centralization of data and by making possible the compilation and analysis of extensive tables of statistical information. Although the technology is far from being fully developed computers can already sort and merge large data files to derive individual dossiers based on disparate information.”



Department of Communications and Justice, *Privacy and Computers*, 1972, p. 91



2. The Big Data Lifecycle





Big Data: “extremely large data sets that may be analyzed computationally to reveal patterns, trends, and associations, especially related to human behaviours and interactions”

https://en.oxforddictionaries.com/definition/big_data

New sources of and new and diverse methods to collect data	Unlimited data storage capacity	Better techniques for linking data	Algorithms (often proprietary) that analyze and learn and make predictions from data
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The Big Data Lifecycle – Issues and Challenges

<p style="text-align: center;"><u>Data Collection</u></p> <ul style="list-style-type: none">• Indirect collection of data• Use of data for new/secondary purposes• Anticipation of future, currently undefined uses of the data	<p style="text-align: center;"><u>Data Integration</u></p> <ul style="list-style-type: none">• Obliterates separate uses/ purposes• Creates squishy / fuzzy linkages• Sensitivity of the integrated data
<p style="text-align: center;"><u>Data Mining/Analytics</u></p> <ul style="list-style-type: none">• Inaccurate or poor quality data• Algorithms<ul style="list-style-type: none">○ Poor sample space○ Discriminatory results arising from poor selection of variables○ Proprietary (so opaque and not reviewed)• Correlation is not Causation	<p style="text-align: center;"><u>Use</u></p> <ul style="list-style-type: none">• Integrated and analyzed data constitutes new personal information• Proprietary algorithms leads to non-transparent decision making• Application is automated and arbitrary



3. Privacy Protection – The Existing Landscape

Personal Information Protection and Electronic Documents Act - General Principles

PIPEDA

S. 3	The purpose of this Part is to establish ... rules to govern the collection, use and disclosure of personal information in a manner that recognizes the right of privacy of individuals with respect to their personal information and the need of organizations to collect, use or disclose personal information for purposes that a reasonable person would consider appropriate in the circumstances.
S. 5(3)	An organization may collect, use or disclose personal information only for purposes that a reasonable person would consider are appropriate in the circumstances.
s. 6(1)	... the consent of an individual is only valid if it is reasonable to expect that an individual to whom the organization's activities are directed would understand the nature, purpose and consequences of the collection, use or disclosure of the personal information to which they are consenting.



PIPEDA - General Principles cont'd

PIPEDA, SCHEDULE 1

Principle 4.3	The knowledge and consent of the individual are required for the collection, use, or disclosure of personal information, except where inappropriate.
Principle 4.3.1	Consent is required for the collection of personal information and the subsequent use or disclosure of this information. Typically, an organization will seek consent for the use or disclosure of the information at the time of collection.
Principle 4.3.2	The principle requires “knowledge and consent”. Organizations shall make a reasonable effort to ensure that the individual is advised of the purposes for which the information will be used. To make the consent meaningful, the purposes must be stated in such a manner that the individual can reasonably understand how the information will be used or disclosed.
Principle 4.3.3	An organization shall not, as a condition of the supply of a product or service, require an individual to consent to the collection, use, or disclosure of information beyond that required to fulfil the explicitly specified, and legitimate purposes.
Principle 4.3.4	The form of the consent sought by the organization may vary, depending upon the circumstances and the type of information. In determining the form of consent to use, organizations shall take into account the sensitivity of the information.
Principle 4.3.5	In obtaining consent, the reasonable expectations of the individual are also relevant.
Principle: 4.3.6	The way in which an organization seeks consent may vary, depending on the circumstances and the type of information collected. An organization should generally seek express consent when the information is likely to be considered sensitive. Implied consent would generally be appropriate when the information is less sensitive.
Principle 4.3.8	An individual may withdraw consent at any time, subject to legal or contractual restrictions and reasonable notice. The organization shall inform the individual of the implications of such withdrawal.



PIPEDA - General Principles cont'd

PIPEDA, SCHEDULE 1

Principle 4.5	Personal information shall not be used or disclosed for purposes other than those for which it was collected, except with the consent of the individual or as required by law. Personal information shall be retained only as long as necessary for the fulfilment of those purposes.
Principle 4.5.2	Organizations should develop guidelines and implement procedures with respect to the retention of personal information. These guidelines should include minimum and maximum retention periods. Personal information that has been used to make a decision about an individual shall be retained long enough to allow the individual access to the information after the decision has been made.
Principle 4.5.3	Personal information that is no longer required to fulfil the identified purposes should be destroyed, erased, or made anonymous.
Principle 4.8	An organization shall make readily available to individuals specific information about its policies and practices relating to the management of personal information.
Principle 4.8.1	Organizations shall be open about their policies and practices with respect to the management of personal information. Individuals shall be able to acquire information about an organization's policies and practices without unreasonable effort. This information shall be made available in a form that is generally understandable.
Principle 4.9	Upon request, an individual shall be informed of the existence, use, and disclosure of his or her personal information and shall be given access to that information. An individual shall be able to challenge the accuracy and completeness of the information and have it amended as appropriate.



PIPEDA – Data Collection

PIPEDA, SCHEDULE 1

Principle 4.2	The purposes for which personal information is collected shall be identified by the organization at or before the time the information is collected.
Principle 4.2.3	The identified purposes should be specified at or before the time of collection to the individual from whom the personal information is collected. Depending upon the way in which the information is collected, this can be done orally or in writing. An application form, for example, may give notice of the purposes.
Principle 4.4	The collection of personal information shall be limited to that which is necessary for the purposes identified by the organization. Information shall be collected by fair and lawful means.
Principle 4.41	Organizations shall not collect personal information indiscriminately. Both the amount and the type of information collected shall be limited to that which is necessary to fulfil the purposes identified.



PIPEDA – Use

PIPEDA, SCHEDULE 1

Principle 4.2.4	When personal information that has been collected is to be used for a purpose not previously identified, the new purpose shall be identified prior to use. Unless the new purpose is required by law, the consent of the individual is required before information can be used for that purpose. For an elaboration on consent, please refer to the Consent principle (Clause 4.3).
Principle 4.5.1	Organizations using personal information for a new purpose shall document this purpose (see Clause 4.2.1).
Principle 4.6	Personal information shall be as accurate, complete, and up-to-date as is necessary for the purposes for which it is to be used.
Principle 4.6.1	The extent to which personal information shall be accurate, complete, and up-to-date will depend upon the use of the information, taking into account the interests of the individual. Information shall be sufficiently accurate, complete, and up-to-date to minimize the possibility that inappropriate information may be used to make a decision about the individual.



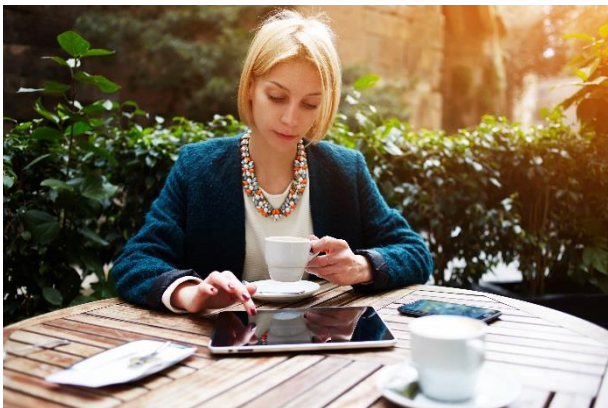
Privacy Policies

“How we use information we collect

We use the information we collect from all of our services to, provide, maintain, protect and improve them, to develop new ones, and to protect Google and other users. We also use this information to offer you tailored content – like giving you more relevant search results and ads. ...

We use information collected from cookies and other technologies, like pixel tags, to improve your user experience and the overall quality of our services. ...

Our automated systems analyze your content (including emails) to provide you personally relevant product features, such as customized search results, tailored advertising, and spam and malware detection.



We may combine personal information from one service with information, including personal information from other Google services – for example to make it easier to share things with people you know. Depending on your account settings, your activity on other sites and apps, may be associated with your personal information in order to improve Google’s services and the ads delivered by Google.”



4. The Appropriate Response?





However, we also want to acknowledge that the current and future technological environments make it increasingly difficult to seek and provide informed consent. In that context, does the solution lie only in giving individuals better information and mechanisms by which to make informed choices, or must we find other ways to protect their interests?

Organizations also face challenges in fulfilling the requirement to obtain meaningful consent from individuals. Their need for innovation would be supported by greater clarity as to acceptable purposes for data processing in the absence of express consent and internal mechanisms that would guide them in balancing benefits to the organization against privacy risks to the individual. The challenge of such mechanisms lies in ensuring that the privacy risks are assessed independently and that the individual's interests are protected.

Consent and Privacy - A discussion paper exploring potential enhancements to consent under the Personal Information Protection and Electronic Documents Act, May 2016, p. 26 at https://www.priv.gc.ca/en/opc-actions-and-decisions/research/explore-privacy-research/2016/consent_201605/



Consent and Privacy – Possible Solutions

Enhance consent	Consent Alternatives	Governance	Enforcement
<ul style="list-style-type: none">• Require greater transparency• Manage privacy preferences across services• Implement (require) technology-specific safeguards• Establish privacy as the default setting including implementation of Privacy by Design	<ul style="list-style-type: none">• Require anonymization / pseudonymization / de-identification• Establish prohibitions and limitations on collection, use or disclosure of data in specific circumstances• Allow appropriate collection, use or disclosure for legitimate business interests	<ul style="list-style-type: none">• Promote / require (sectoral) codes of practice• Enable privacy trust marks• Promote / require advisory or mandatory ethical assessments (Ethics Review Boards)	<ul style="list-style-type: none">• Requirements to demonstrate / report compliance with consent and consent alternative mechanisms• Regulatory audits• Increased penalties• Increased enforcement powers



QUESTIONS?



Richard Austin
Deeth Williams Wall LLP
raustin@dww.com
416 941 8210