

***Data, Data Everywhere –
The Need for BIG Privacy –
in a World of Big Data***

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Universal City, California
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Presentation Outline

- 1. Privacy = Personal Control*
- 2. Positive-Sum: The Power of “And”*
- 3. Privacy by Design: The Gold Standard*
- 4. Why Big Data Needs Big Privacy*
- 5. Beware of the Backlash!*
- 6. SmartData: PbD 2.0*
- 7. Concluding Thoughts*

Privacy = Control

Privacy = Personal Control

- **User control is critical**
- **Freedom of choice**
- **Informational self-determination**

Context is key!

Fair Information Practices

- [OECD Guidelines](#) – 1980, revised 2013
Fair Information Practice Principles (FIPPs)
- U.S. Health, Education and Welfare (HEW)
Congressional Advisory Committee – **1973**
First Fair Information Practice Principles

Dept. of Health, Education and Welfare (HEW)

Fair Information Practices

- **1973** – HEW drafted the first code of Fair Information Practices;
- “ ... *there must be a way for an individual to prevent information about him or her obtained for one purpose, from being used or made available for other purposes, without consent.*”

The Decade of *Privacy by Design*



www.privacybydesign.ca



Adoption of “Privacy by Design” as an International Standard

Landmark Resolution Passed to Preserve the Future of Privacy

By Anna Ohlden – October 29th 2010 - http://www.science20.com/newswire/landmark_resolution_passed_preserve_future_privacy

JERUSALEM, October 29, 2010 – A landmark Resolution by Ontario's Information and Privacy Commissioner, Dr. Ann Cavoukian, was approved by international Data Protection and Privacy Commissioners in Jerusalem today at their annual conference. The resolution recognizes Commissioner Cavoukian's concept of Privacy by Design - which ensures that privacy is embedded into new technologies and business practices, right from the outset - as an essential component of fundamental privacy protection.

Full Article:

http://www.science20.com/newswire/landmark_resolution_passed_preserve_future_privacy



Privacy by Design:

Proactive in 36 Languages!

1. English

2. French

3. German

4. Spanish

5. Italian

6. Czech

7. Dutch

8. Estonian

9. Hebrew

10. Hindi

11. Chinese

12. Japanese

13. Arabic

14. Armenian

15. Ukrainian

16. Korean

17. Russian

18. Romanian

19. Portuguese

20. Maltese

21. Greek

22. Macedonian

23. Bulgarian

24. Croatian

25. Polish

26. Turkish

27. Malaysian

28. Indonesian

29. Danish

30. Hungarian

31. Norwegian

32. Serbian

33. Lithuanian

34. Farsi

35. Finnish

36. Albanian



Privacy by Design's Greatest Strength – Positive-Sum: The Power of “And”

***Change the paradigm from
the dated zero-sum (win/lose)
to a “positive-sum” model:
Create a win/win scenario,
not an either/or (vs.)
involving unnecessary trade-offs
and false dichotomies ...
replace “vs.” with “and”***

Privacy by Design: The 7 Foundational Principles

1. **Proactive** not **Reactive**:
Preventative, not Remedial;
2. Privacy as the **Default** setting;
3. Privacy **Embedded** into Design;
4. **Full** Functionality:
Positive-Sum, not Zero-Sum;
5. End-to-End **Security**:
Full Lifecycle Protection;
6. Visibility and Transparency:
Keep it **Open**;
7. Respect for User Privacy:
Keep it **User-Centric**.



Big Data

Big Data

- **90%** of all data was created within the last 2 years;
- **Big Data** analysis and data analytics promise new opportunities to gain valuable insights and benefits – new predictive modes of analysis;
- But, it will also enable **expanded surveillance**, increasing the risk of unauthorized use and disclosure, on a scale previously unimaginable.

First, the Honeymoon Phase:

- Big Data will rule the world!
- Everything else (including privacy) must step aside;
- Forget causality; correlation is enough.

Then, the Honeymoon Ends

Some People are Now Asking: Is Big Data a Big Mistake?

- The Big Data that interests many companies is what we might call “found data” – the digital exhaust of web searches, credit card payments and mobiles pinging the nearest phone mast;
- Such data sets are cheap to collect relative to their size – a messy collage of data-points, collected for disparate purposes;
- So, how good is the data?

— www.ft.com
April 7, 2014



Big Data is moving from its inflated expectations phase to a trough of disillusionment.

— [Gartner Hype Cycle](#),
April, 2014



March Issue of Science

Google Flu Trends: “Under Attack”

- 2009, Google researchers announced “Google Flu” could track the spread of influenza across the United States, faster than the Centers for Disease Control (CDC);
- Google was faster because it was tracking the outbreak by finding correlations between what people searched for online;
- Yet, several years later Google Flu lost its edge – it became less accurate than the CDC at estimating the spread of the flu;
- Google’s engineers weren’t interested in context – they were selecting statistical patterns in the data (***correlation over causation – a common assumption in big data analysis***). — www.ft.com

April 7, 2014



MIT Big Data Expert Calls for Privacy

“MIT Professor Alex Pentland has proposed a ‘New Deal on Data,’ which calls for individuals to own their data and control how it is used and distributed.”

— [Measuring Idea Flows to Accelerate Innovation](#),
New York Times, April 15, 2014.

Quantity Does Not Equal Quality

“But while big data promise much to scientists, entrepreneurs and governments, they are doomed to disappoint us if we ignore some very familiar statistical lessons. There are a lot of small data problems that occur in big data. They don’t disappear because you’ve got lots of the stuff ... they get worse!”

— David Spiegelhalter,
Winton Professor, Cambridge University

— [Big data: are we making a big mistake?](#)
FT Magazine, March 2014.



“Forget Big Data ... what is needed is Good Data”

— Barrie McKenna,
The serious economic cost of Canada's data deficit,
Globe and Mail, May 12, 2014



Context is Key

- Performing data analytics on context-free data will only yield correlations (which at times, will be spurious);
- By adding context as a feature in the analytics, we may be able to impute causality – which has the potential to be invaluable in our analyses.



The Unintended Consequences of Privacy Paternalism



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Don't Be Fooled

“Once businesses have amassed the [personal] information, it can be hard, if not impossible, for individuals to know how it will be used in the future.”

— [A Long Way to Privacy Safeguards](#),
New York Times Editorial,
May 11, 2014.



Beware of the Backlash!



Majority Mask Digital Footprints Online

- **September 2013** – a Pew Research [survey](#) reported that **86%** of Americans had taken steps to remove or mask their digital footprints online;
- **68%** believed current laws are not strong enough to protect them.

— [A Second Front in the Privacy Wars](#),
New York Times Editorial, February 23, 2014.



Financial Implications of NSA Revelations: U.S. Businesses to Lose Billions

*“There are discussions now that the NSA revelations will bring about losses to the U.S. IT industry of upwards of **\$200 billion**. These are major impacts on an industry that is directly traceable to the concerns that non-U.S. citizens, governments, and industry have over whether they can trust U.S.-based companies.”*

— Professor Ron Deibert,
September 13, 2013.

— Reza Akhlaghi,
[*A Candid Discussion with Ron Deibert*](#),
Foreign Policy Association, September 13, 2013.



Target CEO is the Latest Casualty

Forbes ▾

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Clare O'Connor, Forbes Staff

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Target CEO Gregg Steinhafel Resigns In Data Breach Fallout

The Public Wants Privacy

*“More than **60%** of respondents to an Associated-Press poll said they valued their privacy more than anti-terror protections.”*

— Eileen Sullivan,
[AP-GfK poll: Americans value privacy over security](#),
January 27, 2014



The Bottom Line

Privacy should be viewed as a
business issue, not just a
compliance issue

*Think strategically and transform privacy into a
competitive business advantage*



Cost of Taking a Reactive Approach to Privacy Breaches

Proactive



Lawsuits

Damage to Your Brand



Reactive

Loss of Consumer Confidence and Trust

Gain a Privacy Payoff

***When you protect your customers' privacy,
and secure their personal data, you in turn,
gain their trust and protect your brand –
win/win***

Get proactive – Get ahead of the harm!

Here's What's Coming: Innovation

SmartData: Embedding User Control

It's All About Context:

- A new approach to Artificial Intelligence: evolving virtual cognitive agents that can act as your proxy, to protect your personally identifiable data;

Intelligent software agents will be evolved to:

- Protect and secure your personal information;
- Disclose your information only when your personal criteria for release have been met;
- Put the *user* firmly in control –
Big Privacy, Personal Control!



“Too many individuals and organizations are resigned to large-scale computer based surveillance, invasion, and expropriation. The purpose of this paper is to explain why we believe that resignation to be unwarranted.”

— Commissioner Cavoukian

**Freedom and Control:
Engineering a New Paradigm
for the Digital World**



May 8, 2014

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Concluding Thoughts

- Privacy risks are best managed by proactively embedding the principles of *Privacy by Design* – prevent the harm from arising;
- Focus on prevention: It is easier and far more cost-effective to build in privacy, up-front, rather than bolting it on after-the-fact;
- Abandon zero-sum thinking – embrace doubly-enabling win/win systems: Big Data ***and*** Big Privacy;
- Get smart – lead with *Privacy – by Design*, not privacy by chance or, worse, *Privacy by Disaster!*

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