Understanding the Strategic Values of Privacy Practices in Organizations

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We study companies' decision-making about how to balance between information privacy and data-intensive innovation.

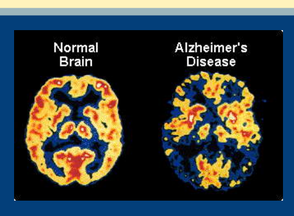
The objective of this project is to help companies make strategically valuable and socially responsible decisions about privacy practices.

Challenge:

- Privacy harms are inflicted by violations of data subjects' privacy, when sensitive data are misused, inaccurate or false.
- Privacy harms are emergent in that the harms arise as consequences of intended and unintended use of data.
- For instance, deep data integration in developing precision medicine increases the risk of subject de-identification, potentially causing privacy harms as tangible as insurance and employment discrimination.

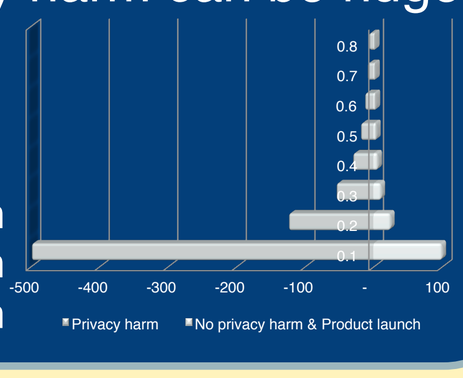
How much risk to take with what shape of risk-return distribution is **a company's risk strategy**.

Research Question:
Would a company change its choice if the risk-return distribution suggests that the impact size of privacy harm may be huge?

Companies go for long shots to gain competitive strength, even when the risk-return distribution suggests that the impact size of privacy harm can be huge.

Huge negative impact on competitive strength associated with privacy harm



Approach

Intense competition between companies

- Companies compete on collecting personal data in increasingly larger quantity and mining the data more deeply.
- Privacy harms can damage company reputation and subjects' willingness to share personal data.

Novelty

- We examine how sensitive the companies' choices are to the shape of the risk-return distributions.
- We explore how the penalties imposed by government regulations affect companies' choices.

Solution:

- The framework we develop provides the first risk-based analysis on a company's decision-making about privacy practices.
- It is also among the first to analyze the strategic values of privacy practices and how such practices affect the relative performance of competing companies.

Broader Impact:

- Our framework leads to new methodologies for companies to evaluate their privacy practices and better position themselves in a competitive environment in a socially responsible way.
- It helps policy makers understand the trade-offs faced by companies when government regulations are proposed to balance innovation and privacy.

Decision-making is driven by the gap in competitive strengths between companies:

Each company chooses the risk-return in developing its competitive strength C_i.

$$C_i = \begin{cases} C + \frac{x}{p_i^a} \text{ with probability } p_i & \text{Positive outcome} \\ C - \frac{x}{sp_i^a} \text{ with probability } sp_i & \text{Negative outcome} \\ C \text{ with probability } [1-(s+1)p_i] & \text{Neutral outcome} \end{cases}$$

A company's choice—risk strategy:

- We analyze with game theory modeling how a company chooses its risk strategy, assuming no company would have an incentive to change its strategy given other companies' choices.
- Relative competitive strength is assumed to be the key in winner-takes-all contests.

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