

Welcome to Morgan Creek Digital's digital asset update. It is comprised of a thought piece from our team. We hope you find this content interesting. Please let us know if you have any comments or questions or if you would like to speak to a member of the [Morgan Creek Digital team](#).

PETs

In this newsletter, we will discuss the topic of Privacy Enhancing Technologies (PETs). In later articles, we plan to discuss a key PET solution such as Fully Homomorphic Encryption (FHE) and Zero Knowledge Proofs (ZKPs). We plan to also provide a brief summary of other PET solutions.

Privacy and Artificial Intelligence (AI): information is a highly valuable resource or commodity for many industries in our present information age. Some enterprises seek information about the rest of the world as it helps them maintain or advance their competitive advantage relative to their present and prospective peers. For other enterprises the situation is inverted – for them it is paramount that proprietary information remains protected and is only used in a manner that the firm deems appropriate and legitimate – they wish to know more from the data they own but will go to great lengths to prevent others from knowing.

With this context, one can think of information as the “new oil” of our present age. Expanding on this metaphor, computation is the engine that takes information as input and then transforms it into more succinct information that can be used to make decisions regarding tactics and strategy.

This succinct or summarized information is obtained with some difficulty as it involves the detection of patterns by processing large amounts of data. This pattern recognition is done largely through AI algorithms. Thus, firms that wish to process information will be users of AI algorithms, and those that seek to protect their information will be users of techniques that prevent adversarial parties from accessing the information and maintain its privacy. One way to preserve privacy of information is to lock it away and not use it or use it very infrequently. But this solution immediately diminishes, and in most situations destroys the value of the information. Information is only valuable if it can be used or, in other words, computed on. Computation requires transmission and processing of the information. Typically, the transmission will be to specialized computation facilities, or data centers, where the equipment is placed proximate to cheaper energy sources, and cooling can be done with more ease. PETs are techniques that give confidence to owners of information that the transmitted information was used and processed only in a way that the owners deem legitimate.

AI algorithms and PETs can be seen as two opposing forces – each trying to gain an

advantage on the other. AI algorithms involve detection of patterns while PETs involve the shielding of patterns, the argument being that information and patterns are somewhat synonymous.

Definition of PETs: So what are PETs?

The Federal Reserve of San Francisco offers the following definition¹:

“Privacy enhancing technologies are a group of systems, processes, and techniques that enable processing to derive value from data, while minimizing the privacy and security risk to individuals.”

The locus of this definition is the individual and it is true that protection of confidential health or financial data is important. Yet, it misses the broader application in an enterprise setting where large volumes of data, containing insights into potential trails of growth or potential crevices of risk can be used with equal force by the owner of the data and by adversarial parties.

In an “unclassified” document, the Organization of Economic Co-operation and Development (OECD) provides the following definition²:

“Privacy enhancing technologies (PETs) commonly refer to a wide range of technologies that help protect personal privacy.”

This definition also solely considers the individual and disregards the firm.

It is claimed³ that the acronym PET can be traced back to a study by the Information and Privacy Commissioner of Ontario and the Dutch Data Protection Authority. In this study⁴, its authors describe “privacy technologies” as:

“We use the term “privacy technologies” to refer to a variety of technologies that safeguard personal privacy by minimizing or eliminating the collection of identifiable data.”

The authors then introduce the term “privacy-enhancing technologies” without a definition:

“The public must be made aware of the availability and benefits of privacy-enhancing technologies so that they will be better positioned to make informed choices.”

At this point, one might see no clear definition of PETs. This makes sense since the notion of information processing and privacy is evolving.

In a forthcoming newsletter we will discuss the taxonomy of PETs and discussed FHE at greater length.

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Show Description:

This podcast highlights the rapid pace of change in the digital age and the potential for value creation despite a decline in overall tech investment. Tech investments are typically cyclical, and innovation potential can be heightened during periods of economic dislocation. Hosts Xavier Segura and Mark Yusko discuss Morgan Creek Digital's journey including investment strategies and opportunities within a dynamic landscape. In honor of the fourth of July holiday, they devote some time to thinking big and share the "ABCDs of the Digital Age," which encompasses four pillars: AI, blockchain, computing infrastructure (chips), and big data. Morgan Creek Digital seeks investment prospects at the intersection of these pillars. Through their experience and insightful conversations, Xavier and Mark highlight how the combination and advancement of ABCD may change how our world functions.

To learn more, visit us on the web at <https://www.morgancreekcip.com/morgan-creek-digital/>. To speak to a member of our team or sign up for other content, please email mcdigital@morgancreekcip.com.

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¹<https://www.frbsf.org/banking/publications/fintech-edge/2021/june/privacy-enhancing-technologies>

²[https://one.oecd.org/document/DSTI/ICCP/REG\(2001\)1/FINAL/en/pdf](https://one.oecd.org/document/DSTI/ICCP/REG(2001)1/FINAL/en/pdf)

³<https://www.adalovelaceinstitute.org/blog/privacy-enhancing-technologies-not-always-our-friends/>

⁴<https://collections.ola.org/mon/10000/184530.pdf>

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