



*IGF 2019
Best Practice Forum on*

Internet of Thing (IoT), Big Data, Artificial Intelligence (AI)

“Best Practices (for policy and business) to enhance justified trust in IoT, Big Data, AI applications and to stimulate their use to address societal challenges that otherwise would be more difficult to address.”

Executive Summary

Introduction

The IGF *Best Practice Forums (BPFs)* provide a platform for experts and stakeholders to exchange and discuss best practices in addressing Internet policy issues in a collaborative, bottom-up manner. BPFs prepare their work in a series of intersessional discussions that culminate in a workshop at the annual meeting of the *Internet Governance Forum (IGF)*. BPFs intend to contribute to an understanding of global good practice, inform policy discussions, standards development, business decisions, as well as public understanding, awareness, and discourse.

The *BPF on Internet of Things (IoT), Big Data and Artificial Intelligence (AI)* focusses on where these technologies meet in an internet context, and how Internet governance can stimulate their development and widespread use, as well as help to avoid unintended negative side-effects.

Building on the IGF2018 BPF IoT, Big Data, AI

The IGF2019 BPF IoT, Big Data, AI can build on the work done in 2018. The [IGF2018 BPF IoT, Big Data, AI](#) compiled a set of best practices to facilitate the stakeholder dialogue on issues pertaining to the application of the new technologies in an internet context.

IoT, Big Data, AI to address societal challenges - endless opportunities

IoT, Big Data, AI have an enormous potential and already play an increasing role in addressing societal challenges. The new technologies may improve existing solutions, make them more efficient, or make it possible to approach issues in a totally new and more effective way. IoT, Big Data, AI applications can also empower people who today, for a variety of reasons, may have limited possibilities to act or influence. The examples showcased in the BPF report are only a snapshot of an endless and growing range of opportunities and applications.

In almost every facet of today's world, there are examples of how the new technologies are or can be used. IoT, Big Data, AI applications can be enablers to make progress in different, in almost all, SDG areas. Using IoT, Big Data, AI can improve cybersecurity, e.g. by making use of records of previous data attacks to recognise suspicious activity faster. IoT, Big Data, AI applications can empower internet users to manage their own lives the way they want them. Other examples are the use of IoT, Big Data, AI for civil protection, smart cities, health, etc.

IoT, Big Data, AI to address societal challenges - policy challenges

From policy and decision makers is expected that they face current and future challenges. They should guide us by dealing with a series of pertinent policy questions and providing future proof answers that address today's concerns but remain relevant for applications of the IoT, Big Data, AI that are yet to be discovered.

The BPF identified identified three clusters of policy challenges: **trust** in the technologies and applications, their **use and uptake** and concerns related to the collection, management and use of **data**.

- Policy Challenge 1 - Enhancing justified trust in IoT, Big Data, AI, to stimulate their use to address societal challenges that otherwise would be difficult to address.
- Policy Challenge 2 - Stimulating the uptake and use of IoT, Big Data, AI applications to achieve positive policy outcomes to address societal challenges.
- Policy Challenge 3 - The collection and use of data generated, collected and analysed by IoT, Big Data, AI applications.

In its discussions the BPF further refined the three broad policy challenges to come to a better understanding of what positive actions are needed and what concerns need to be addressed, and collected examples of best practices and relevant initiatives.

Enhancing justified trust in IoT, Big Data, AI

Trust in IoT, Big Data, AI is important for the development and uptake of new and improved solutions that are based on applications of these technologies to address societal challenges. This trust, however, is a multi-layered concept, and establishing the right balance between the different dimensions can up to a certain degree be influenced by policy choices. The BPF called this balance: *“correct (and justified) trust” : that is, neither too little trust (preventing benefits from being realised) nor too much trust (exposing unsuspecting users to undesired risk).*

The policy challenge ‘enhancing trust in IoT, Big Data, AI can be formulated as follows:

1. Be aware of the importance of trust and of its multi-layered character,
2. Understand the balances and trade-offs between different layers,
3. Based on 1 & 2 make policy choices and take initiatives to enhance trust.

Stimulating the use and uptake of IoT, Big Data, AI

IoT, Big Data, AI and their applications have a huge potential when it comes to contributing to solving day to day societal challenges. Policy and decision makers therefore need to reflect on what actions and initiatives can be taken to support the new technologies, but also, what concerns need to be addressed. The BPF identified the following:

1. Stimulating the development of IoT, Big Data, AI applications;
2. Stimulating the use and uptake of IoT, Big Data, AI applications;

Concerns:

3. Algorithms may possess a bias towards the past;
4. Algorithms may reinforce views and biases of the developers;
5. Unequal access to the benefits of IoT, Big Data, AI;
6. Distribution of risks;
7. Ethics and Fundamental Rights.

Collection and use of data, generated, collected and analysed by IoT, Big Data, AI applications

The increase of computing power makes that unseen quantities of data can be analysed in ever shorter time and at lower cost. The growth of the internet, the polarity of social platforms, and the roll-out of the IoT make that enormous quantities of data are generated. This data, often combined data from different sources, are analysed using AI technologies to gain insight, draft conclusions and take decisions. One step further, systems based on AI technology are fed with large amounts of data to train them in machine learning and automated decision making.

There's a wide range of policy issues and concerns directly linked to the collection, management, and use of data in an IoT, Big Data, AI context.

The BPF identified following:

1. Data quality;
2. Impact of legislation on data quality and accuracy;
3. Respecting privacy;
4. Data ownership;
5. Data availability and digital data divides;
6. Data sharing and the free flow of data.

Links and resources

IGF2019 BPF IoT, Big Data, AI

[Webpage](#)

IGF2019 BPF IoT, Big Data, AI workshop

[Agenda and report](#)

[Recording](#)

IGF2019 BPF IoT, Big Data, AI Survey

[Compilation survey feedback](#)