

# On economic, societal, and political aspects in ICN

Pouyan Fotouhi Tehrani<sup>1</sup>, Jochen Schiller<sup>2</sup>, Thomas C. Schmidt<sup>3</sup>, Matthias Wählisch<sup>2</sup>

<sup>1</sup>Weizenbaum Institut / Fraunhofer FOKUS <sup>2</sup>Freie Universität Berlin <sup>3</sup>Hamburg University of Applied Sciences

September 30, 2020



weizenbaum  
institut



# Information-centric Networking

A paradigm shift

## **The basic premise of ICN:**

1. Internet's primary use is de facto content distribution.

# Information-centric Networking

A paradigm shift

## **The basic premise of ICN:**

1. Internet's primary use is de facto content distribution.
2. Users are only interested in content and barely care about its location within the network (what vs where).

# Information-centric Networking

A paradigm shift

## **The basic premise of ICN:**

1. Internet's primary use is de facto content distribution.
2. Users are only interested in content and barely care about its location within the network (what vs where).

# Information-centric Networking

A paradigm shift

## **The basic premise of ICN:**

1. Internet's primary use is de facto content distribution.
2. Users are only interested in content and barely care about its location within the network (what vs where).

## **Fundamental bindings:**

**Name to topology:** maps a name to a topological position where data is available.

# Information-centric Networking

A paradigm shift

## **The basic premise of ICN:**

1. Internet's primary use is de facto content distribution.
2. Users are only interested in content and barely care about its location within the network (what vs where).

## **Fundamental bindings:**

**Name to topology:** maps a name to a topological position where data is available.

**Name to data:** maps a name to actual bits.

# Information-centric Networking

A paradigm shift

## **The basic premise of ICN:**

1. Internet's primary use is de facto content distribution.
2. Users are only interested in content and barely care about its location within the network (what vs where).

## **Fundamental bindings:**

**Name to topology:** maps a name to a topological position where data is available.

**Name to data:** maps a name to actual bits.

**Name to owner:** maps a name to an authorized producer.

# Information-centric Networking

A paradigm shift

## The basic premise of ICN:

1. Internet's primary use is de facto content distribution.

What are the non-technical impacts of these newly introduced bindings?

**Name to data:** maps a name to actual bits.

**Name to owner:** maps a name to an authorized producer.



# ICN implications beyond network layer

Names as commodity
Power structures in ICN
Information-centric trust
Accountability in ICN
Private communication in ICN

Requires attention to:

1. An emerging market for popular names
2. Fair namespace management
3. Mechanisms of conflict/dispute resolution\*

\* **The Missing Piece: On Namespace Management in NDN and How DNSSEC Might Help**

ICN '19: Proceedings of the 6th ACM Conference on Information-Centric Networking · September 2019 · Pages 37–43

<https://doi.org/10.1145/3357150.3357401>

# ICN implications beyond network layer

Names as commodity
<b>Power structures in ICN</b>
Information-centric trust
Accountability in ICN
Private communication in ICN

Requires attention to:

1. Power over data retrieval
2. Power over data naming
3. Power over name ownership

## ICN implications beyond network layer

Names as commodity
Power structures in ICN
<b>Information-centric trust</b>
Accountability in ICN
Private communication in ICN

Requires attention to:

1. Trustworthy data discovery and delivery
2. Trustworthy data provision
3. Trustworthy namespace management

## ICN implications beyond network layer

Names as commodity
Power structures in ICN
Information-centric trust
<b>Accountability in ICN</b>
Private communication in ICN

Requires attention to:

1. Accountability in data discovery and delivery
2. Accountability in data inquiry and provision
3. Accountability in namespace and name allocation

# ICN implications beyond network layer

Names as commodity
Power structures in ICN
Information-centric trust
Accountability in ICN
<b>Private communication in ICN</b>

Requires attention to:

1. Private as restricted
2. Private as confidential
3. Private as covert

## Conclusion

Surely users care about data, **but** they also care about **trust**, **accountability**, **private communication**, **legal certainty**, and everything else that the current Internet provides beside mere content!

## Conclusion

Surely users care about data, **but** they also care about **trust**, **accountability**, **private communication**, **legal certainty**, and everything else that the current Internet provides beside mere content!

Question, critique, cooperation? [pft@acm.org](mailto:pft@acm.org)

