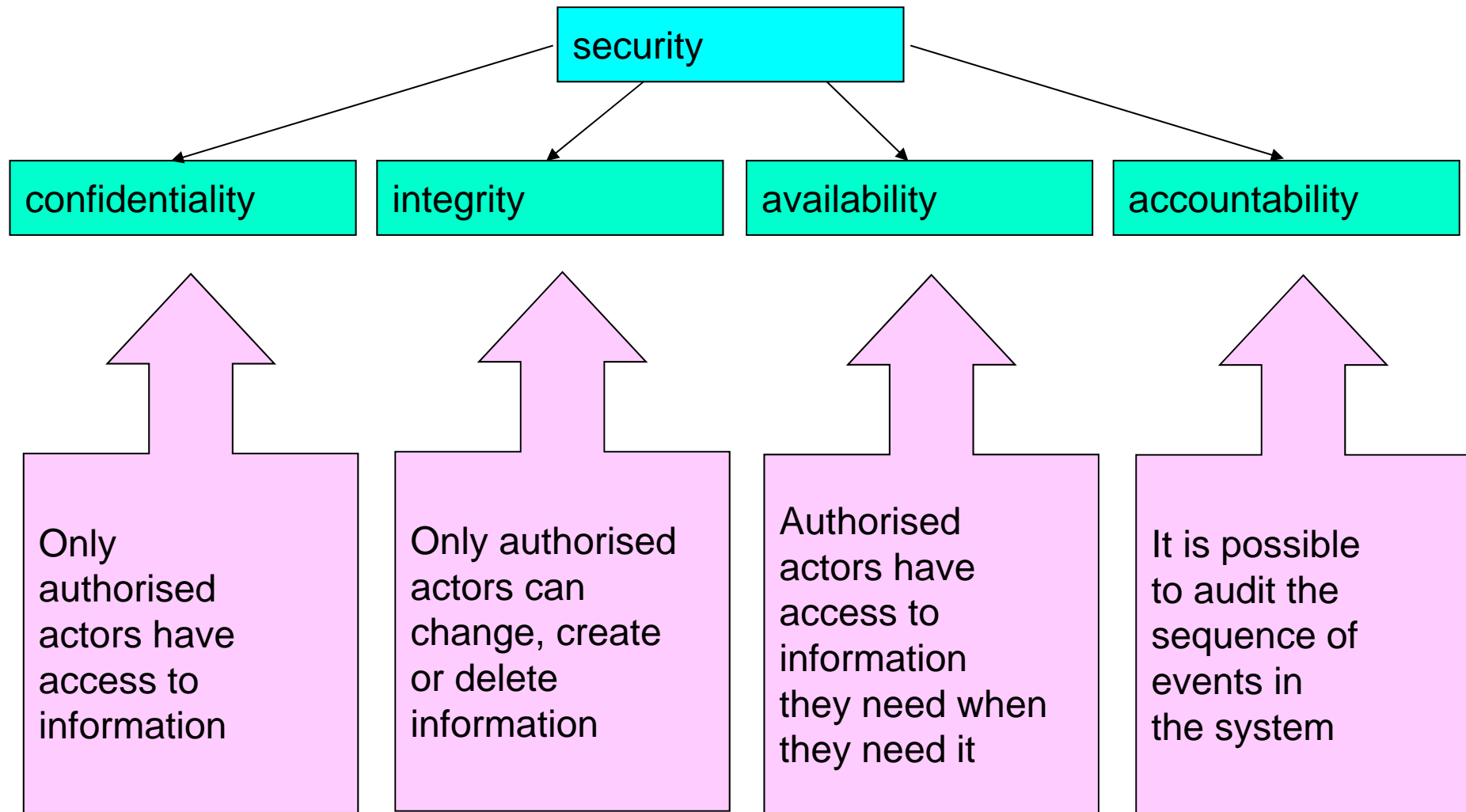


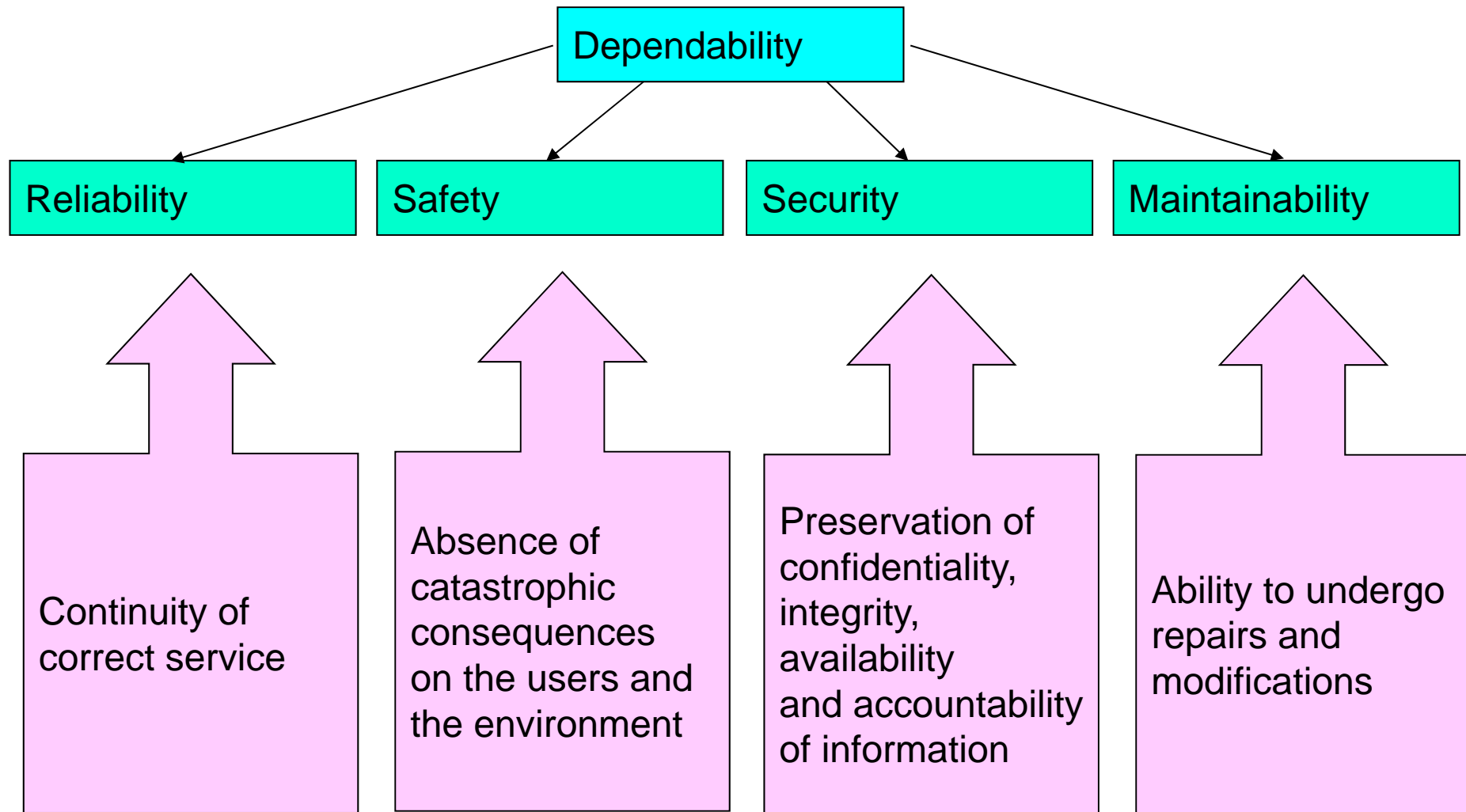
# In what way is “Security” related to

- Safety (Trygghet)
- Reliability (Funksjonsstabilitet)
- Dependability (Pålitelighet)
- Maintainability (Vedlikeholdbarhet)

# Security



# Dependability



# In what way is “Security” related to

- Data Protection (Personvern)
- Privacy (Privatlivets fred)

# Data protection and Privacy

- Data Protection: laws and regulations that make it illegal to store or share some types of information about people without their knowledge or permission
- Privacy: the state of being free from intrusion or disturbance in one's private life or affairs

# Personvern i følge Paragraf 102 i Grunnloven

**Enhver har rett til respekt for sitt  
privatliv og familieliv, sitt hjem og sin  
kommunikasjon**

**Husransakelse må ikke finne sted,  
unntatt i kriminelle tilfeller**

**Statens myndigheter skal sikre et vern  
om den personlige integritet**



# In what way is “Security” related to

- Trustworthy (Tillitsverdig)
- Trust (Tillit)
- Public Key Infrastructure (PKI)

# Trust is more than dependability

“although businesses and consumers may consider underlying systems to be completely dependable in the traditional sense, they may not trust these systems with their business or personal interests unless there is a suitable legal framework they can fall back on, should problems arise”

Jones et al, 2000



# Trust

- Trust is a relationship between two entities
  - Trustor (the trusting party)
  - Trustee (the trusted party)
- Trust (or, symmetrically, distrust) is the subjective probability with which the trustor expects that the trustee performs a given action on which its welfare depends

# Trust versus Risk

- In case the trustee performs as expected it may have a positive effect on the welfare of the trustor, otherwise it may have a negative effect
- The positive and negative outcomes corresponds to opportunity and risk
- There is always a possibility of deception or betrayal, which means that there is an inevitable relation between trust and risk
- Trust is always related to opportunity; the trustor may be willing to accept the risk considering the involved opportunities

# Trustworthiness

- *Trust* (or, symmetrically, distrust) is the *subjective* probability by which the trustor expects that the trustee performs a given action on which its welfare depends
- *Trustworthiness* is the *objective* (or factual) probability by which the trustee performs a given action on which the welfare of the trustor depends
- *Well-founded trust*: The trustor knows the trustworthiness of the trustee, i.e.  $\text{trust} = \text{trustworthiness}$

# Public-Key Infrastructure (PKI)

A public-key infrastructure is a set of hardware, software, people, policies, and procedures needed to create, manage, distribute, use, store, and revoke digital certificates.

# In what way is “Security” related to

- Authentication (Autentisering)
- Authorization (Autorisering)

# Authentication

The process of determining whether someone or something is, in fact, who or what it is declared to be

# Authorization

The process of giving someone permission to do or have something

# Further Reading

- A. Avižienis, J.-C. Laprie, and B. Randell. Fundamental Concepts of Dependability, In Proceedings of Third Information Survivability Workshop – ISW-2000, Boston, Massachusetts, October, 2000.
- S. Jones, M. Wilikens, P. Morris, M. Masera. Trust requirements in e-business. CACM, 43 (12), pp. 81-87, 2000.
- Norges Offentlige Utredninger. Et bedre personvern – forslag til lov om behandling av personopplysninger. NOU 19, 1997.
- B. Solhaug, D. Elgesem, K. Stølen. Why trust is not proportional to risk. In Proc. 2nd International Conference on Availability, Reliability and Security (AREs'2007), pages 11-18, 2007.
- B. Solhaug, K. Stølen. Uncertainty, subjectivity, trust and risk – how it all fits together. In Proc. 7th International Workshop on Security and Trust Management (STM'11). LNCS 7170, pages 1–5, 2012.
- The last two may be downloaded from:  
<http://heim.ifi.uio.no/~ketils/kst/scientific-publications.htm>