



10<sup>th</sup> European Congress of Chemical Engineering  
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# LIMITATIONS OF CURRENT RISK ASSESSMENT METHODS TO FORESEE EMERGING RISKS : TOWARDS A NEW METHODOLOGY

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# Problem...

- Preliminary Risk Analysis, HAZOP, AMDEC,...  
are of current use in process safety
- BUT can they be used as they stand for  
emerging technologies ?
  - Limited feedback...
  - « Stiff » methodologies...
- Perspectives...

# Emerging technologies...from the past!



# Some practical aspects of common risk analysis methods

- « What if », HAZOP, AMDEC, Fault trees,...
  - Data : description, chemicals, « risks » classes,...



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- « What if », HAZOP, AMDEC, Fault trees,...
  - Technique : tables, keywords,...



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# Improvements ?

- Unexpected scenarios may emerge even from a structured risk analysis provided .
- Just like ... discovering!
- Risk analysis exercise may be the support but more is needed :
  - Observation
  - Curiosity
  - Culture
  - Imagination...

# Ongoing work (i)


- Note : some of the risk analysis methods were designed to work on emerging technologies...safely!
- 1-Successful Risk analysis  $\Leftrightarrow$  discoveries
- 2-How discoveries are made ?



# Ongoing work (ii)



F. Bacon

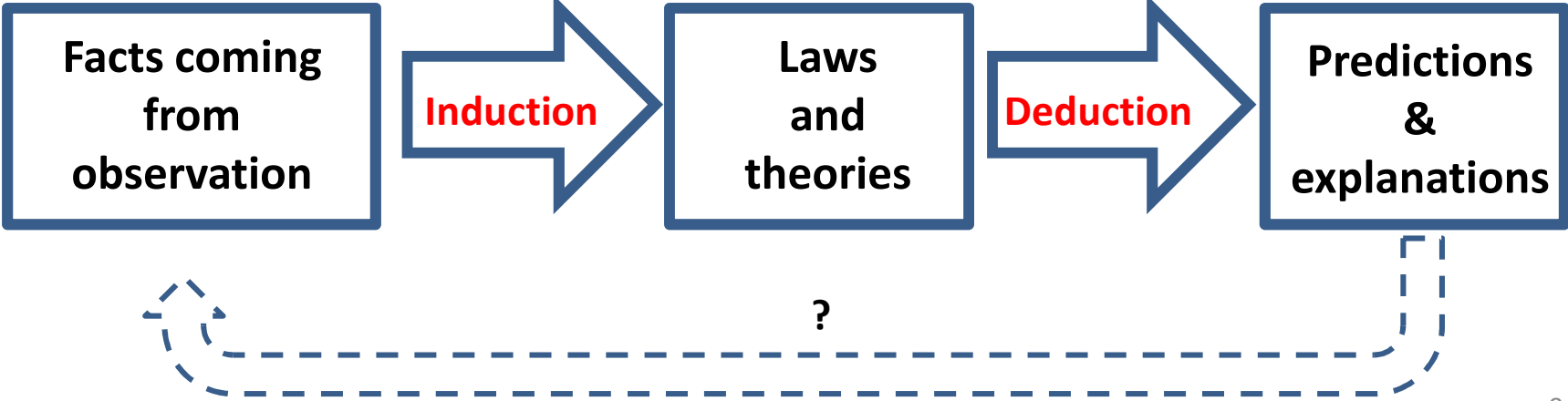
A cartoon illustration of a brown turkey with a red wattle, holding a yellow sign on a stick. The sign says "I am inductive..".

B. Russell « The problems of philosophy »

**Infer a law from de repeted observations**  
(« I am fed every day at 9 h a.m. »)

**Generalize (=>law)**  
(« I **will** be fed every day at 9 h a.m. »)

**BUT can go really wrong**  
(killed the day before Xmas...!)





C.S. Pierce

# Ongoing work (iii)

