



**FUSION
FOR
ENERGY**

BRINGING
THE **POWER**
OF THE **SUN**
TO **EARTH**

Moving Industry From ITER to DEMO

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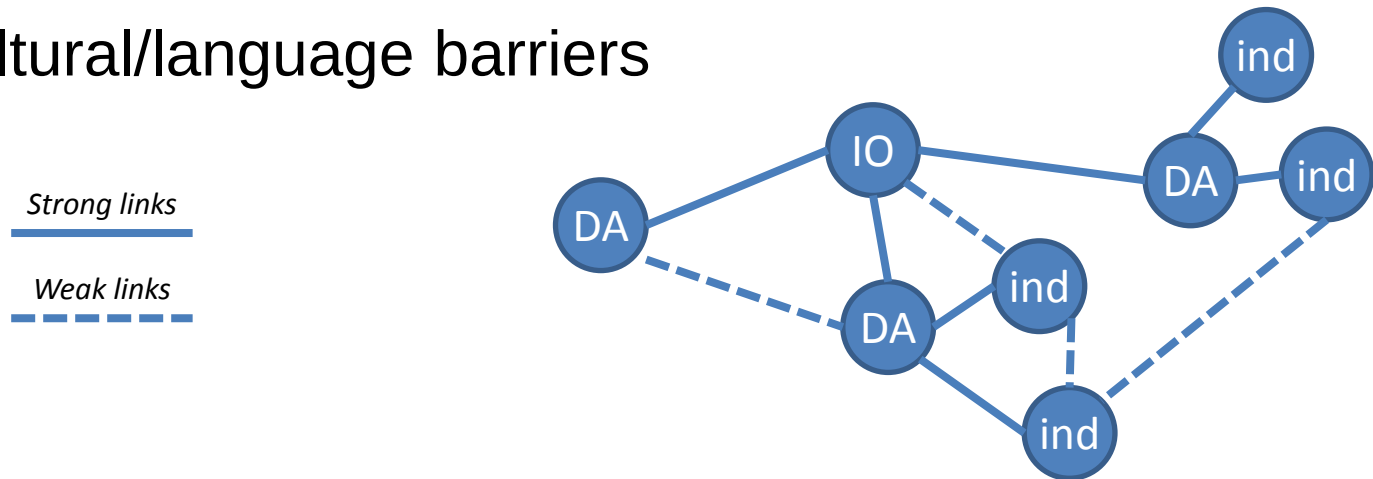
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- Bootstrapping industrial, qualified supply chain for ITER proved challenging
- Transition and time-gap between ITER and DEMO construction offers both challenges (-) and opportunities (+)
- Some important elements to be addressed for successfully exploiting ITER technological know-how:
 - Capture (today)
 - Transfer
 - Grow

- Huge effort on ITER, large amount of know-how and experience produced
 - Worldwide dispersed, loosely-connected supply chain
 - Cultural/language barriers



- How to **capture** this know-how in usable and transmittable format? (-)
- Urgent actions needed, knowledge produced (and lost) today

- Knowledge **retention and transfer**
- Time-gap between ITER and DEMO construction
- Support to preserve key industrial capabilities, supply-chain
 - Maintaining s-c for products/technologies already industrialized for ITER – synergy with other markets (fission, big science, space, ...) **(-)**
 - Scaling up s-c for immature ITER products/technologies (e.g. TBM) **(+)**
 - Developing s-c for DEMO-specific technologies **(+)**

- 4 key “a-bilities” for mature technologies
 - **Stability** – it allows for medium-long term industrial acquisition and development plans
 - **Manufacturability** – it can be repeatedly produced according to normal industry practice
 - **Estimability** – it can be priced with an acceptable level of risk
 - **Qualifiability** – it can be qualified to a level satisfying regulating authorities (nuclear and non-nuclear)

- Early application of system approach to plant design → *stability*
 - Well understood (see Eurofusion's presentation) (+)
- Early industrial engagement → *manufacturability*
 - Stronger strategic view necessary (-)
- Collecting and sharing cost information → *estimability* (-)
- *Qualifiability* as ultimate requirement:
 - Implies *stability, manufacturability, estimability*

- Which additional ingredient for *qualifiability*?
 - Development of Fusion Codes & Standards
- Translates collective know-how into applicable and actionable data
 - Combines knowledge capture, retention, transfer
- Identification and drafting to be started during ITER construction
 - RCCMR-X good example, broader scope needed
 - collaboration among IO, DAs and regulators (+)