HPC transformation – transcend Status Quo and the Future of Business

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Digital Transformation – Technological Opportunities

u **offline services as new business models**

- ❖ Microsoft example: transfer data and processing of documents, calendars, computation,

- ❖ Extrapolation: use cloud services for more complex work and business

- ❖ Further Extrapolation: create your own products in "the cloud"

- ❖ Production optimi

- ❖ What are the implications of actions that competitors may already have taken?

- ❖ Of the many opportunities for investment in information technology, which are the most urgent?

Digital Transformation – Technological Opportunities

u **Production optimisation for business**

  ❖ Product optimisation can happen in many ways

   ❖ Time in production line -> increase of productivity

   ❖ Quality of products -> satisfy customers -> marketing

   ❖ Quality of production -> less failures -> product prices

  ❖ Optimization of products

   ❖ New shapes -> open new markets

   ❖ Different material -> ecological, more precise (e.g. thinner),

   ❖ Statistical simulations -> virtual testing

u **Computational power is needed**

Digital Transformation – HPC

- u **High performance computing tech**
  - ❖ HPC transcends "just cloud"
    - ❖ Highly specialised
    - ❖ Highly performant (fast and can do "a lot")
    - ❖ Highly complex **????**
- u **Tooling**
  - ❖ Tools and help exists
  - ❖ Best way: work with the experts
  - ❖ High initial barrier - large pay-off in the end

The way to HPC

- **Staff**
  - ❖ HPC staff needs to be trained to understand customers
  - ❖ Business intelligence people need to "translate" product requirements to technological issues

- **Industrial Mindset**
  - ❖ Industry must be aware of opportunities (and risk)

- **Political Mindset**
  - ❖ Politics must be directed to the future and create a framework

The way to HPC

u **Organization**

❖ Infrastructure as is must be detached from research

❖ As well small clusters must be able to run commercial tasks

❖ Access must be easy for industry

The way to HPC

- **Example: Gaia-X**
  - ❖ Attempt to create a European Super-Infrastructure
  - ❖ Intended for commercial use, too
  - ❖ The board is open for use cases and ideas
  - ❖ Ready until 2022 (planned)
- **Blueprint for small HPC clusters**
  - ❖ The concept holds for any size
  - ❖ The key is detachment and staff education

The Future of Business

- Key learning from this two-day conference
  - The new world of business demands new business models
    - Remote working
    - Less face-to-face interactions

- Trust and security become even bigger issues than they are today

- How do citizens become less exposed and at the same time receive the positives of the New Information Age ?

The Future of Business

➢ How do we create openness of thought and innovation as opposed to reiterating concepts ?

➢ How do we keep the paradigm of questioning active and open to create new innovations ?

➢ How do we provide scientific facts as opposed to "beliefs" ?

The Future of Business

➢ A major gap in the Future of Business:

  ➢ A balance between economic, societal, social, environmental and technological understandings to address inclusive socio-economic needs

All outputs are available on:

Enabling SMEs to gain **competitive advantage** from the use of HPC

www.smehpc.eu