

# AI for the benefit of the green transition

Marcus Liwicki

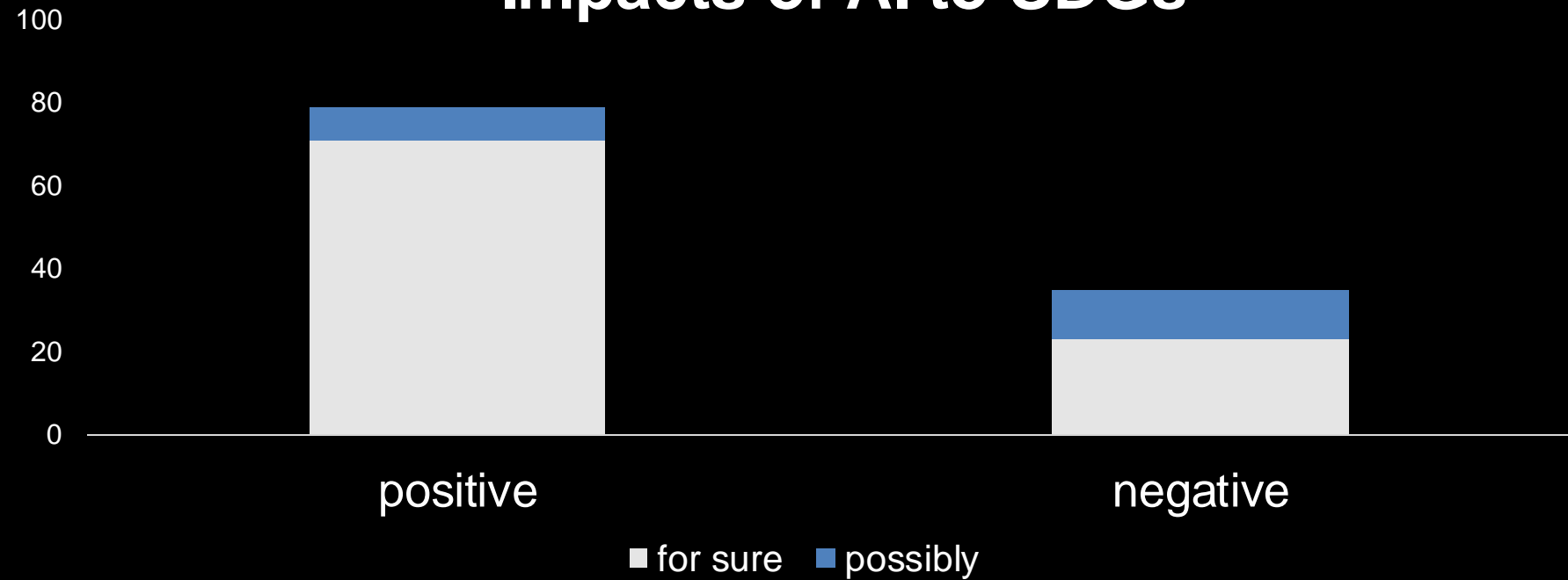
Vice-rector AI

Chair, machine learning

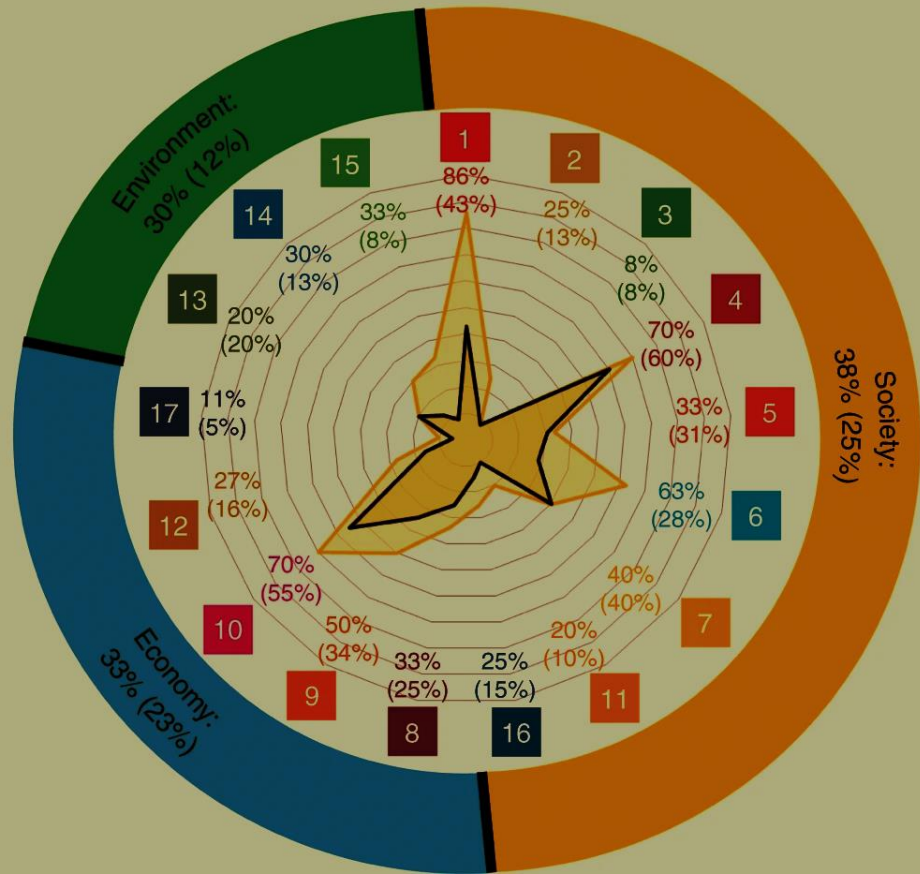
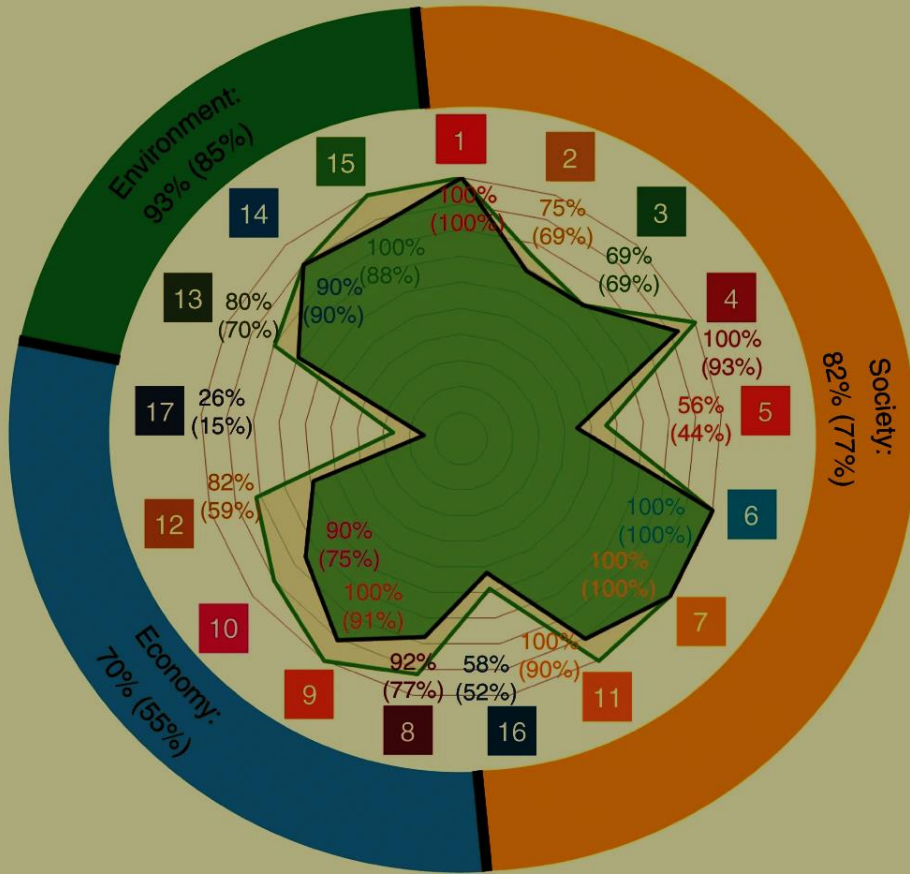
Luleå University of Technology

**can AI benefit the sustainability goals ?**

# Impacts of AI to SDGs



**a** Positive impacts of AI: 79% (71%) **b** Negative impacts of AI: 35% (23%)



# green transition in LTU's future areas





Creaternity  
sustainable material use in a  
connected and circular economy





SUN – natural resources for  
sustainability transitions



**PRECISE – innovative Precision Health**



**and we are gender-balanced**

# equity in the machine learning group



Marcus



Pedro



Konstantina



Gustav



Fotini



Christian



Kanjar



Vibha



Fredrik



Priyamvada



György



Saleha



Rajkumar



Oluwatosin



Homam



Mattias



Nosheen



Sana



Ali



András



Richa



Karl



Carl



Prakash



Lama



Elisa



Notice  
something?  
Almost 40%  
**woman**

# machine learning for the welfare of society

**active  
collaboration with  
US is ongoing**

<b>LTU - Division</b>	<b>Nr. of docs.</b>
srt-div space technology	73
srt-div computer science	47
etks-div business administration and industrial engineering	42
tvm-div material science	35
sbn-div geosciences and environmental engineering	33
sbn-div operation maintenance and acoustics	33
sbn-div chemical engineering	28
sbn-div mining and geotechnical engineering	22
tvm-div machine elements	22
tvm-div energy science	18
srt-div signals and systems	16
etks-div social sciences	15
srt-div eislabs	13
hlt-div health medicine and rehabilitation	12
sbn-div architecture and water	8
sbn-div structural and fire engineering	8
hlt-div nursing and medical technology	7
tvm-div mathematical science	7
etks-div humans and technology	5

## **Tangible results**

**20 % more efficiency in processIT**

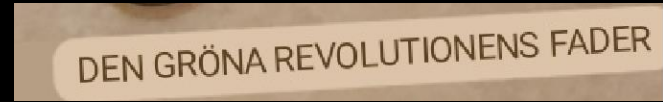
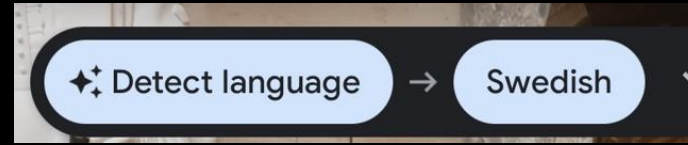
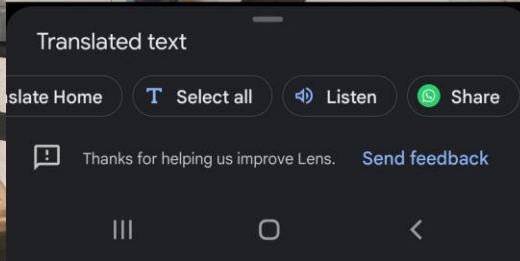
**1000 x more energy efficient**

**50 % workload reduction**

**100 miles with one liter (0.26 gallon)**







who will get  
the Nobel  
prize in green  
transition?

# Research between Sweden and USA can boost the innovation further

Marcus Liwicki,  
Luleå University of Technology, Sweden,  
\*headline

ChatGPT  
openAI  
\*wrote text, added references

Sweden and the United States have long been strong partners in innovation and research (Holmberg & Lundvall, 2017). This partnership has been mutually beneficial, with the US benefiting from Sweden's rich scientific and engineering heritage (Gibbons et al., 2014), while Sweden has gained access to the US's advanced research and technology (Forsberg et al., 2015). In recent years, the two countries have increased their collaboration in areas such as healthcare (Svensson & Jansson, 2016), clean energy (Brennan et al., 2017), and cybersecurity (Tengberg et al., 2018).

One way to further boost the innovation partnership between Sweden and the US is to increase the number of joint research projects (Frykman et al., 2017). This could include funding projects that look into areas such as artificial intelligence (Deng et al., 2017), the Internet of Things (Holm et al., 2018), renewable energy (Goudarzi et al., 2018), and other areas where the two countries have strong expertise (Kjellén et al., 2016). By pooling resources and expertise, the two countries would be able to create more innovative solutions and technologies that benefit both countries (Granqvist et al., 2019).

In addition, Sweden and the US should also explore opportunities for joint venture investments (Dahlberg & Carlsson, 2018). By investing in cutting-edge technology companies, both countries could benefit from increased innovation and economic growth (Kallenberg et al., 2016).

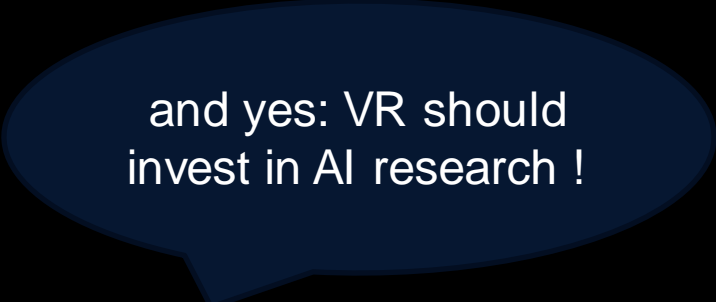
Finally, Sweden and the US should also consider creating a joint innovation center (Persson et al., 2017). This center could be used to host workshops, seminars, and other events that bring together experts from both countries to share ideas and collaborate on projects (Hansson et al., 2019). Such a center would also be a great opportunity to showcase the best of both countries' innovation ecosystems (Svensson et al., 2018).

**how can we ensure that AI will benefit us all**

**equally**

**free**

**unbiased**



and yes: VR should  
invest in AI research !

