



Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

FEC, Rotorua, New Zealand, 17 April 2018.

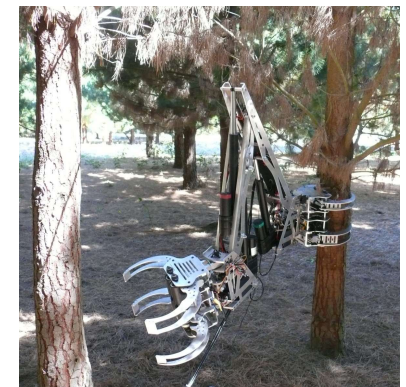
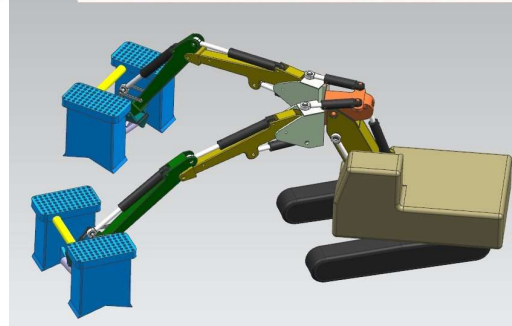
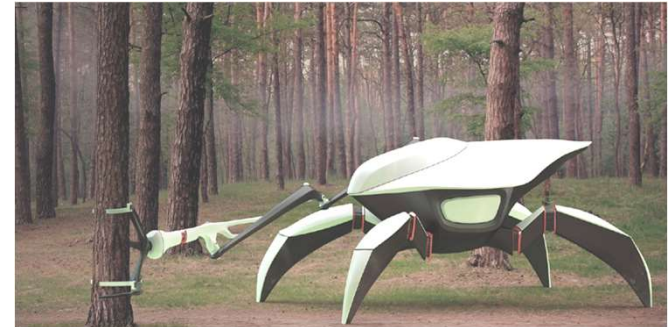
Drivers of Advances in Mechanized Timber Harvesting

Ola Lindroos, Pedro La Hera, Carola Häggström

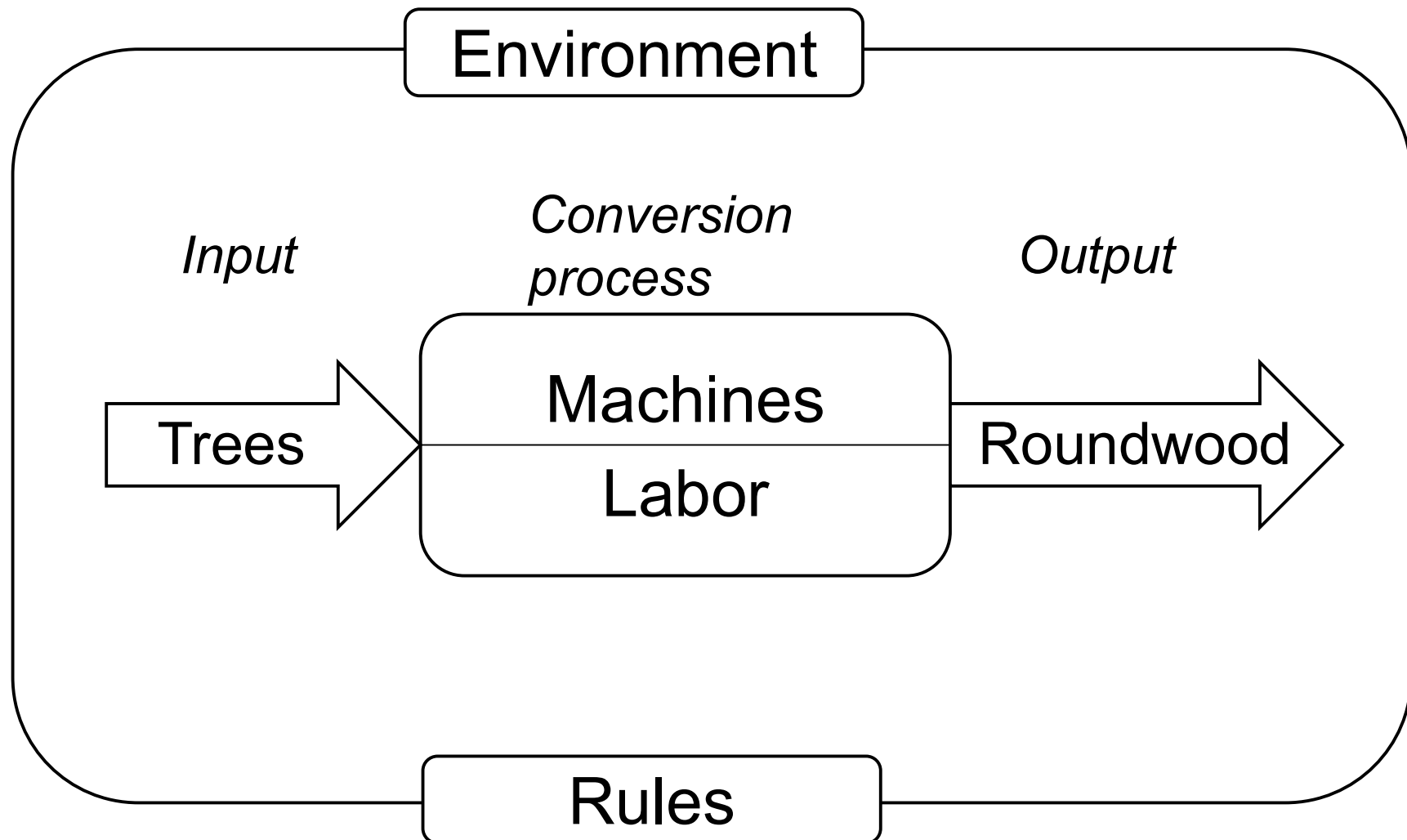
Lindroos, O., Häggström, C. and La Hera, P. (2017). Drivers of advances in mechanized timber harvesting – a selective review of technological innovation. Croatian Journal of Forest Engineering 38(2): 243-258.



Plenty of fantastic ideas – but what drives the desire to change?!



Timber harvesting is a simple process



... but yet, done in so many ways!



Drivers for changes

New technology

To improve current operations

New products

To change operations to (also) produce new products

New rules

To make the same products in a different way



New technology

To improve current operations

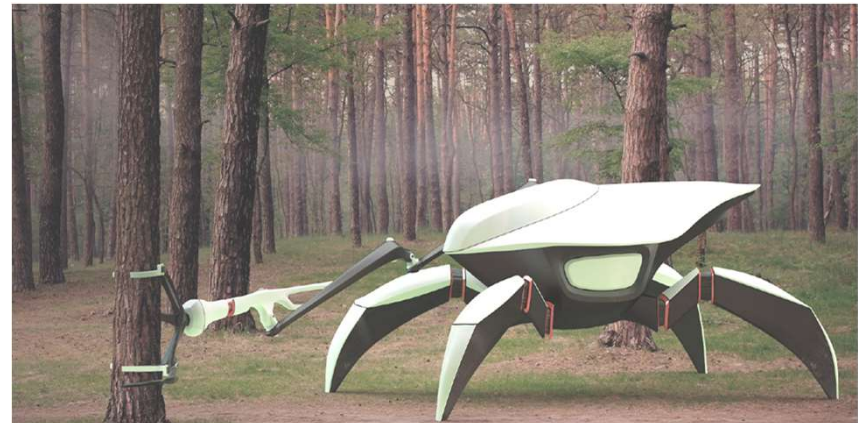
Internal need to improve efficiency (costs, labor, available technology)

Trying to apply general technological advances; *technology push*

Automation, actuators, sensors, big data, UAVs

New technology

Do the same things, but do it better





New products

To change operations to (also) produce new products

External stimuli (market opportunities)
motivate changes to improve value creation

Trying to adapt operations to additional
products; *market pull*

*biorefineries, ecosystem services, bioenergy
assortments*

New products

Change to do new products





New rules

To make the same products in a different way

External stimuli (imposed regulations) force changes, or to shut down operations

Trying to adapt operations to (anticipated) rule changes; *market pull*

multiple uses of forests, work safety, soil damage

New rules

Make the same products in a different way



Change will happen, and should be assisted!

New technology

Is it better than the current option? "Might change"

New products

Will it make the new (and old) product profitably? "Should change"

New rules

*Will it keep forestry in business?
"Must change"*

CAUTION

**THIS MACHINE
HAS NO BRAIN
USE YOUR OWN**

Thank you!

Lindroos, O., Häggström, C. & La Hera, P. (2017). Drivers of advances in mechanized timber harvesting – a selective review of technological innovation. *Croatian Journal of Forest Engineering* 38(2): 243-258.

Häggström, C. & Lindroos, O. (2016). Human, technology, organization and environment - a human factors perspective on performance in forest harvesting. *International Journal of Forest Engineering* 27(2): 67-78

ola.lindroos@slu.se