

# Wild Machines, Infrastructure and Metabolism

*An Essay on Machine and Living Things  
from a Viewpoint of Travel*

# Introduction

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- *Self introduction*
  - *Area of interest: anthropological study of engineering in Thailand*
  - *Small-scale engineering industry*
  - *Irrigation and hydrological engineering*
- *Aim of the presentation*
  - *Exploring modes of embeddedness of machines and living things*
  - *Taking up robotics as an analytical device*
    - *Capacity to reveal backgrounded relations*
    - *Capacity to present machine-environment relations in the form of analogy with living things*

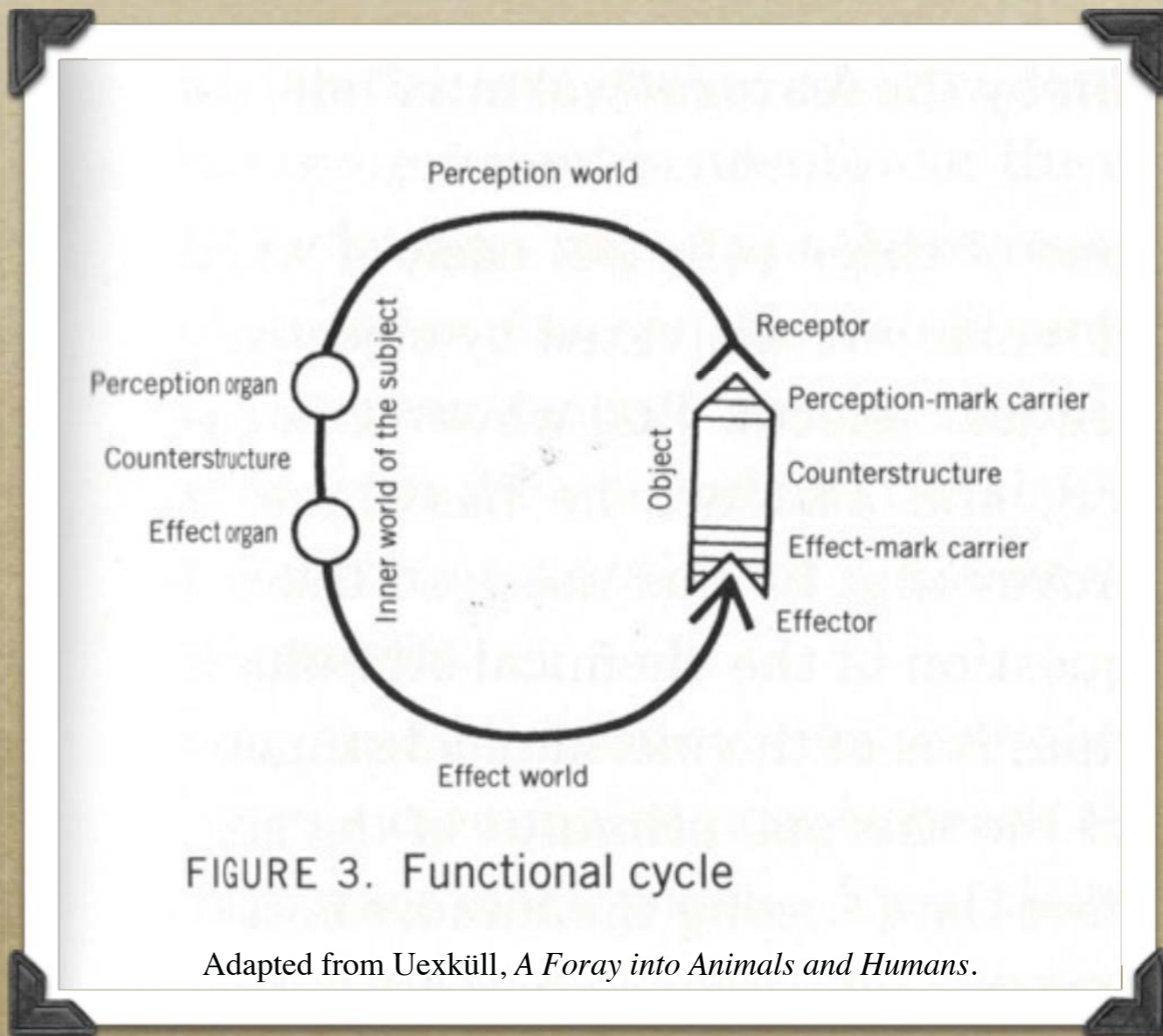
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- *“Infrastructural Inversion” (Bowker 1994): the revelation of backgrounded environmental and social relations*
- *New technologies frequently facing unforeseen problems when they travel to the use environments*
- *Robots’ ambition to travel to uncontrolled environment and their capacity for continuous infrastructural inversion*
- *What is the difference between machine-environment relation and Umwelt?*
- *From a viewpoint of “travel”*

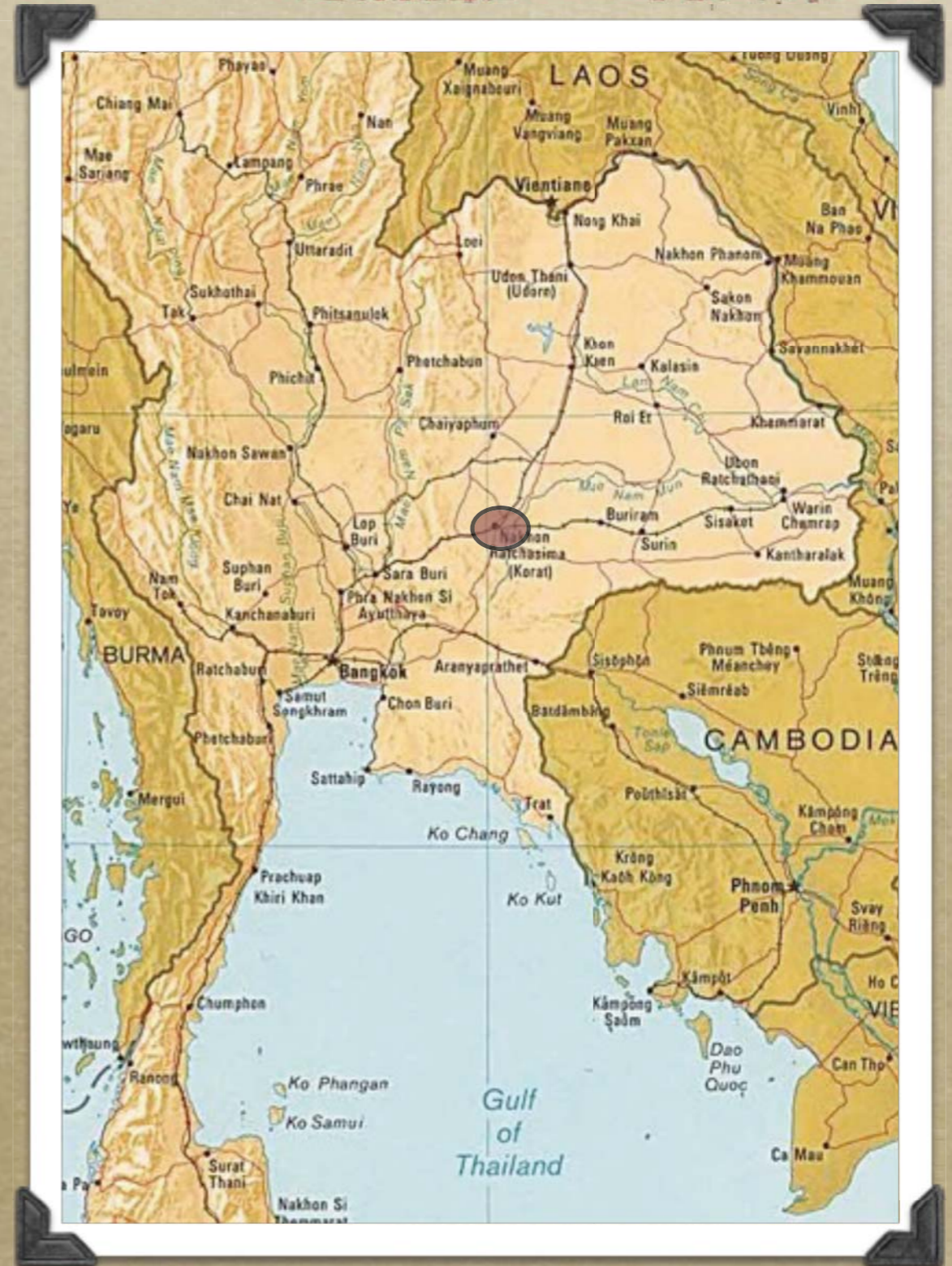
# Umwelt

- *Jacob von Uexküll*
- *A nexus of elements in the environment to which an organism selectively reacts*
- *Mechanical character of simple organisms' Umwelt*
- *Machines' difficulty to mimic the modes of adaptation of living organisms*



# Travel of Rotary Cultivator

- *A factory in Khorat, the largest city in Northeast Thailand*
- *Secondhand Japanese rotary cultivator entangled with weeds*
- *Bending the blades to cut the weeds in the field*
- *Different weeds in Thailand and in Japan*



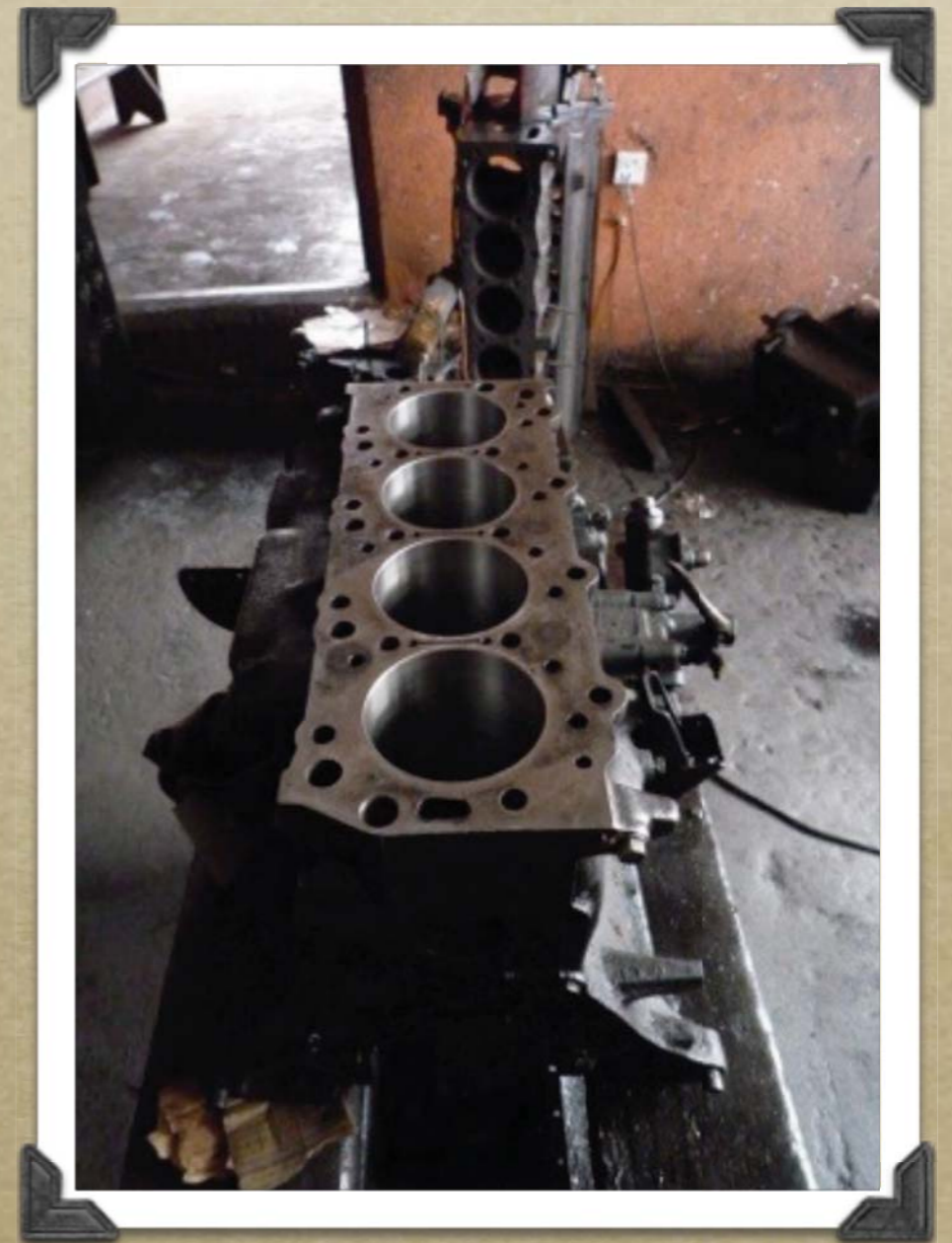
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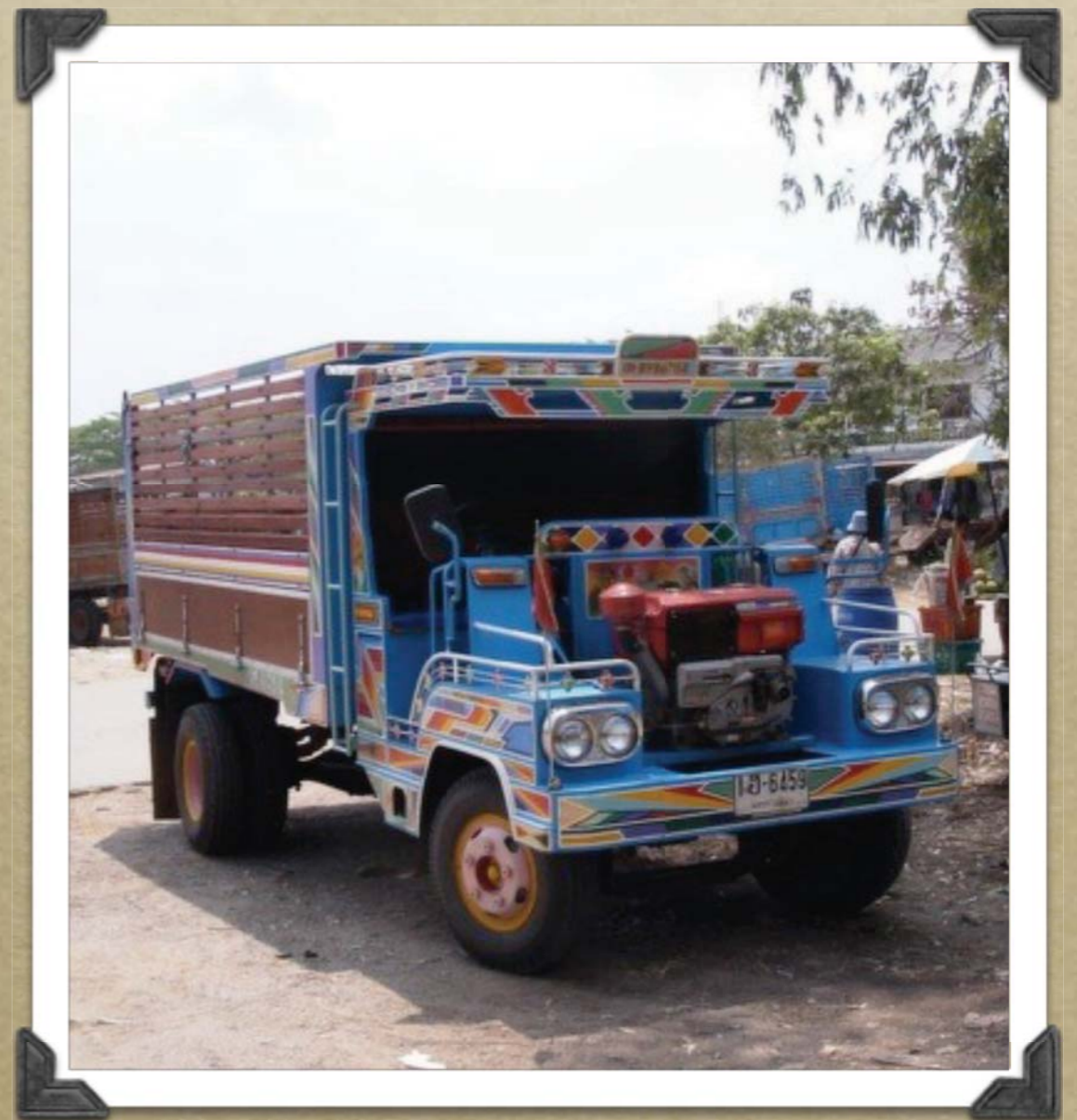
# Machine and Nexus of Environmental Elements

- *Cultivator's function depending on the nexus of elements (the weeds, the soils and the farmers...)*
- *Rigid connections compared with organism-environment relations*
- *Inside-outside distinction blurred: No difference between the relations between parts and those between the machine and outside entities*



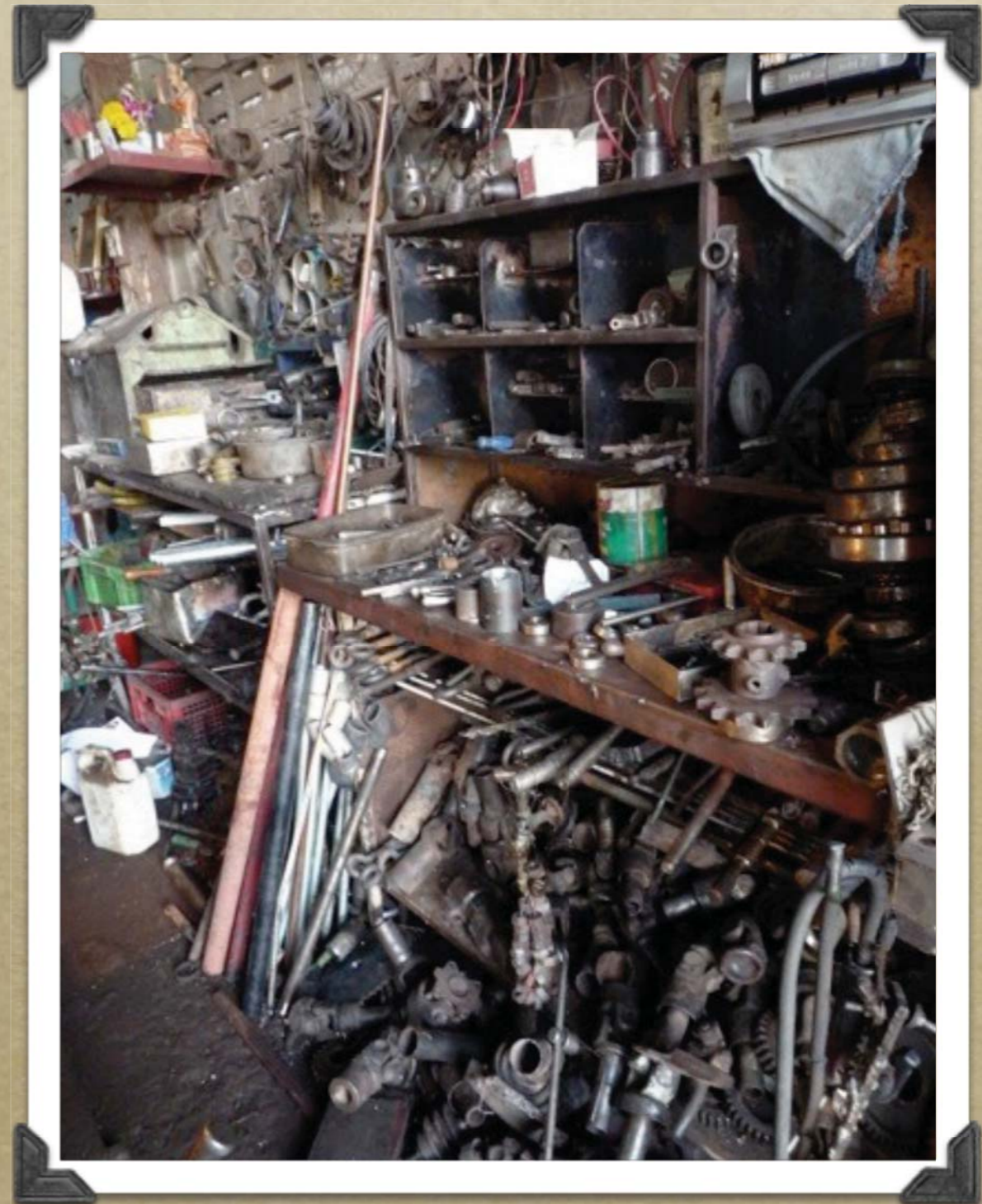
# A Flexible Machine

- *“Itan” : Handmade truck found in rural areas*
- *Built from secondhand parts*
- *Developed outside the reach of foreign automakers*
- *Informal infrastructure of manufacturing and maintenance*
- *Open design: Uncovered functional components*



# Machines' Metabolism

- *Friction and erosion of parts*
- *Constant replacement of parts in order to survive*
- *Strategy of modern engineering: Localizing metabolism within the machine and the authorized maintenance network*
- *Itan's strategy: Distributing metabolic process in wider society*



# Conclusion

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- *Thinking machines from the viewpoint of animal-environment relations*
  - *Machine works in the nexus of elements similar to Umwelt*
  - *Tighter connections: becoming a part of machinic connectivity*
- *Multiple ways of making machine travel further*
  - *Itan and distributed metabolism*
- *Robot as a tool for thinking machines and humans*
  - *Revealing backgrounded processes and creating analogies*