New idea, model, algorithm, library, hardware
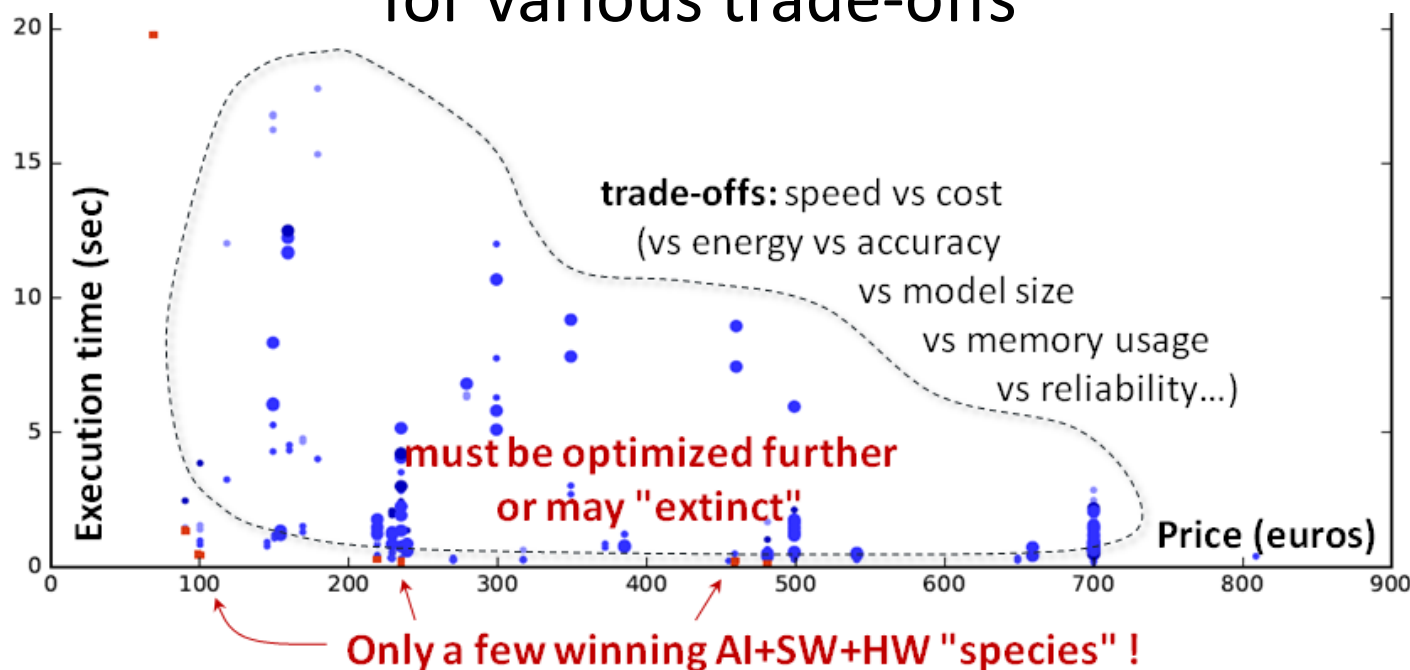
Assemble portable and customizable Collective Knowledge workflows targeting CPU,GPU,DSP,NN …

CK JSON API → CK JSON API → CK JSON API

Run and optimize across diverse models, data sets and platforms with GPU,DSP,NN accelerators …

Select winning/surviving configurations (species) for various trade-offs

Execution time (sec)

20

15

10

5

0   100   200   300   400   500   600   700   800   900

trade-offs: speed vs cost
(vs energy vs accuracy
vs model size
vs memory usage
vs reliability…)

must be optimized further or may "extinct"

Price (euros)

Only a few winning AI+SW+HW "species" !

Share winning artifacts and workflows
Reproduce, extend and build upon past research
Accelerate knowledge discovery, reduce R&D costs
Enable innovative and efficient systems

Collective Knowledge repository of reusable artifacts
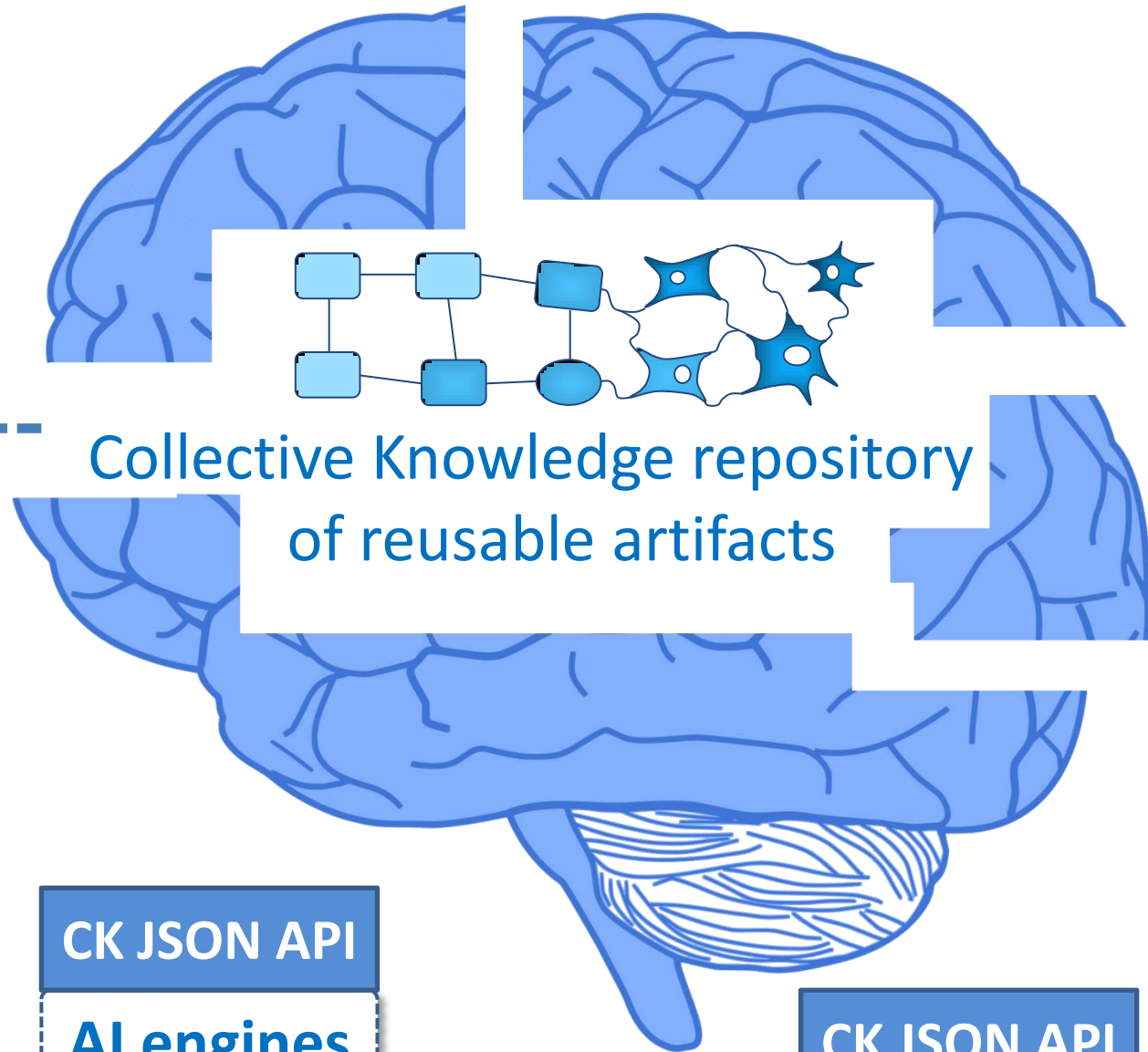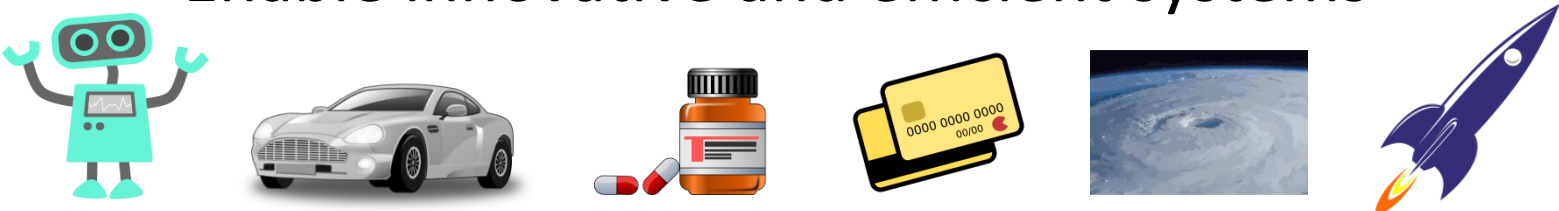
CK JSON API

AI engines

- TensorFlow
- Caffe
- Caffe2
- CNTK
- Torch
- MXNet
- …

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Models

- AlexNet
- GoogleNet
- VGG
- ResNet
- SqueezeNet
- SqueezeDet
- SSD
- MobileNets
- …

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Libraries

- OpenBLAS
- ViennaCL
- clBLAS
- CLBlast
- cuBLAS
- cuDNN
- Eigen
- gemmlowp
- ARMCL
- …

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Datasets

- KITTI
- COCO
- VOC
- ImageNet
- Real data
- …

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Targets

- Linux
- Windows
- MacOS
- Android
- …