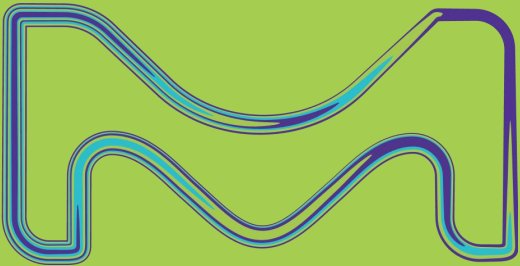


The Electronics business of Merck KGaA, Darmstadt, Germany operates as EMD Electronics in the U.S. and Canada.

NEUROMORPHIC COMPUTING

To the Human Brain and Beyond

John Langan,
CTO, EMD Electronics
August 04, 2022



**EMD
ELECTRONICS**

AT the sweet spot of converging technologies



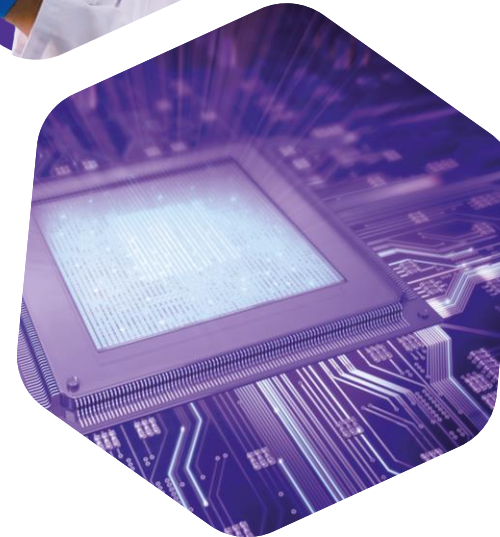
A global specialty innovator in Healthcare

delivering personalized treatments for serious diseases and enable people to achieve their dream of becoming parents.



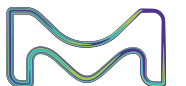
A diversified industry leader in Life Science

providing scientists and researchers with lab materials, technologies and services to make research and biotech production simpler, faster and safer



A leading player in Electronics

uniquely positioned to serve and enable the electronics industry to cater the ongoing data explosion



diverse
competencies
for greater
application
outcomes

Translational
Medicine

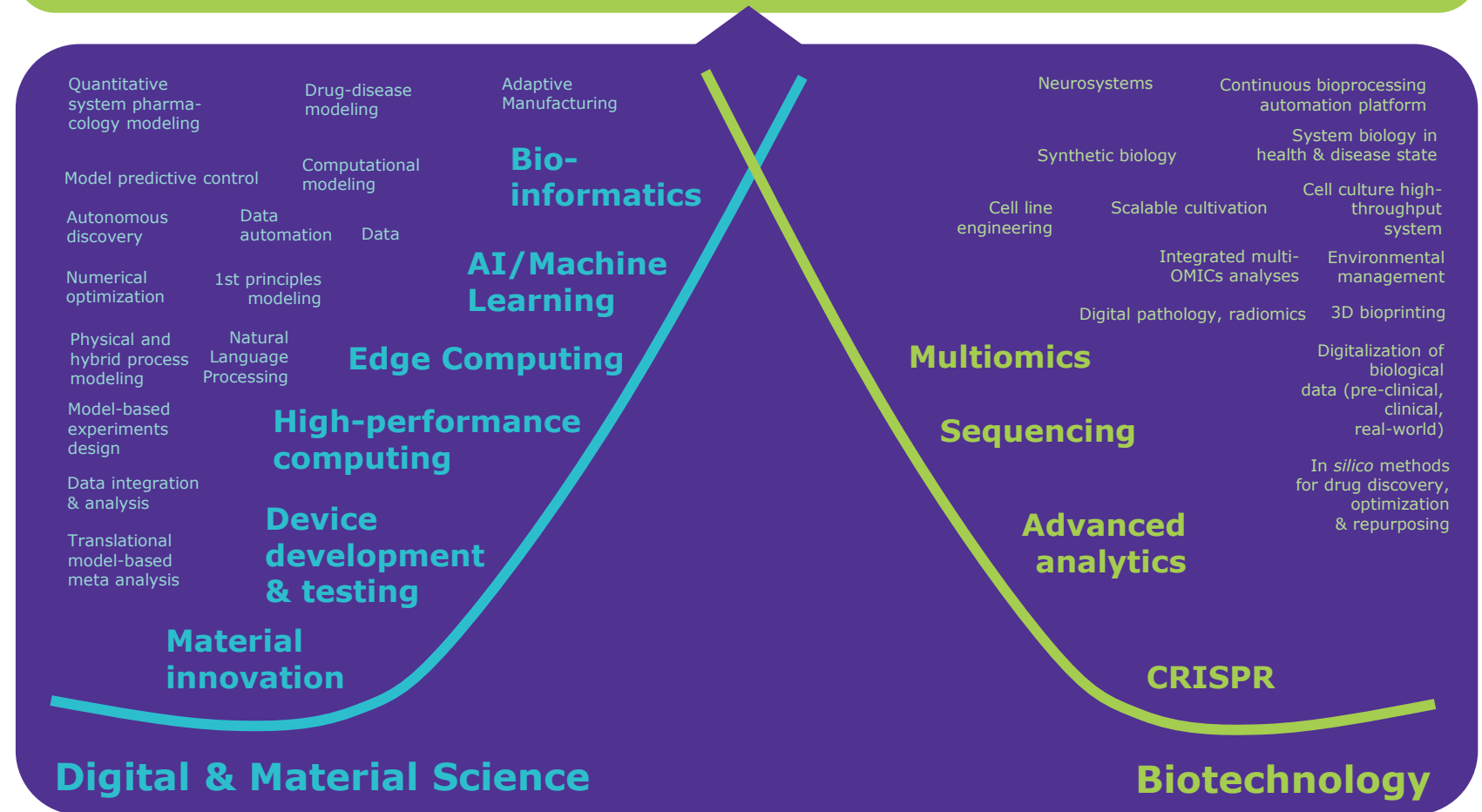
Neuro-
morphic
Computing

Digital
Twins

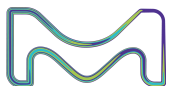
Bioconvergence
Areas for Innovation

Application Outcomes

Speech recognition | Image classification | Medical imaging | Population genomics |
Recommender system | Graph processing | Security | Cryptography | Single-cell analysis

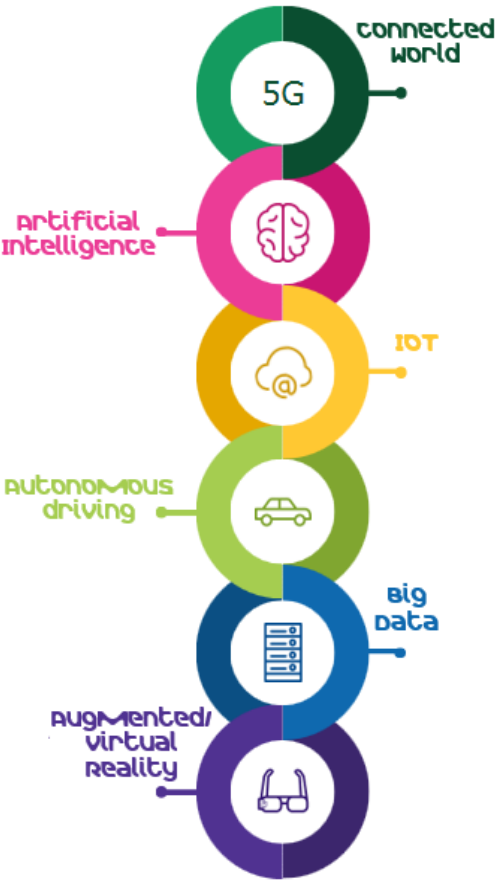


We are ideally suited to address needs of Bioconvergence applications

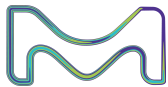


AT EMD, WE DON'T STOP THINKING ABOUT TOMORROW

Electronics Technology Radar 2022

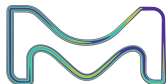
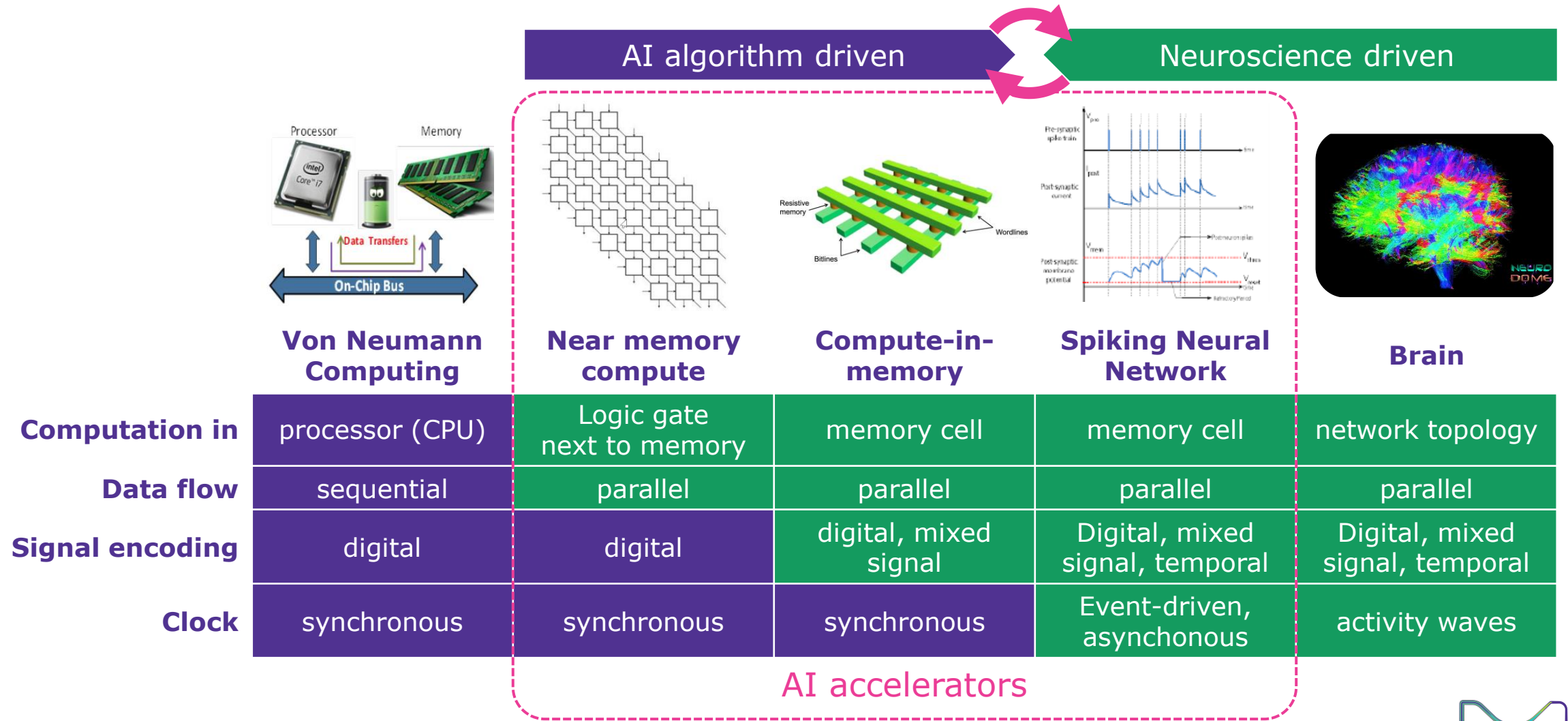


Intel- Neuromorphic processor



Artificial intelligence, energy efficiency are key

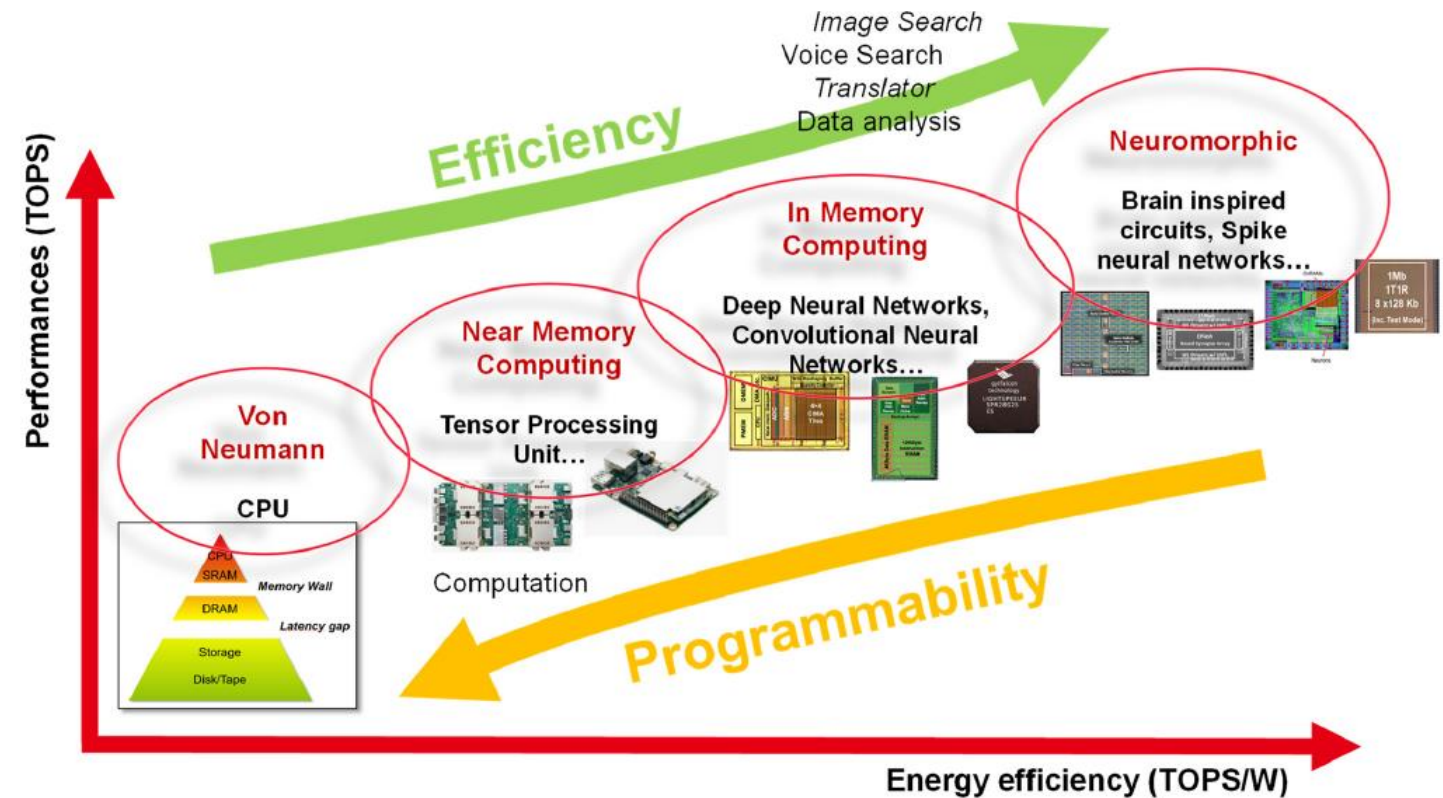
New architectures and devices inspired by the human brain



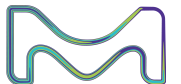
Paradigm Shift in Computing Architectures

System level KPIs will drive the need for new and differentiated memory devices and materials

Performance/Power becomes a key driver



Ref: Applied Science 2021, 11, 11254. <https://doi.org/10.3390/app112311254>



Memory Materials and Device Innovation Methodology

