

Quantum Technology in Flexible Job Shop Scheduling? A Field Report Using Digital Annealer

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A Taste of Quantum Already Today

Quantum Tech
A Field Re

Shop Scheduling?

caler

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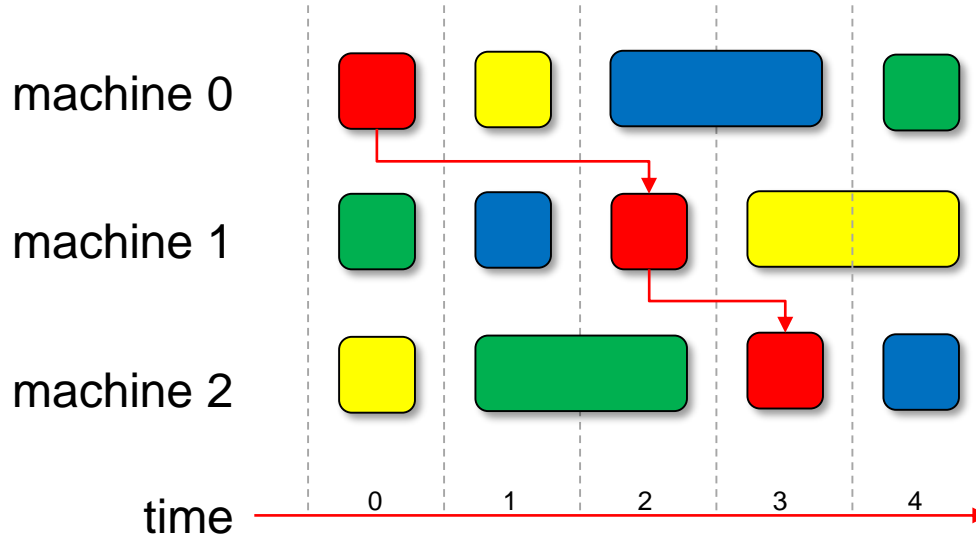


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Rudimentary ↔ Too Complex

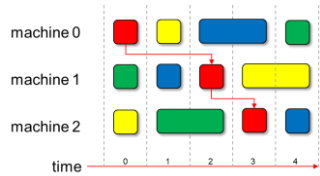
A „Taste“ of Quantum







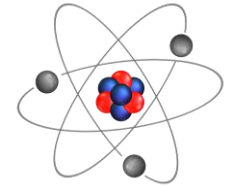
$> 10^{100}$



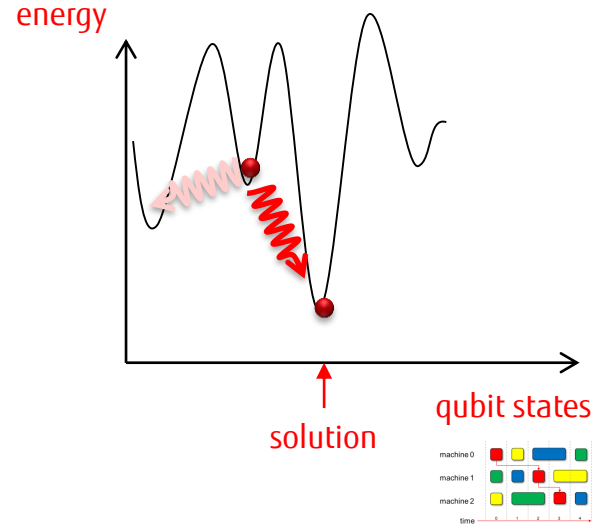
Production Plan



Fingerprint



Qubits



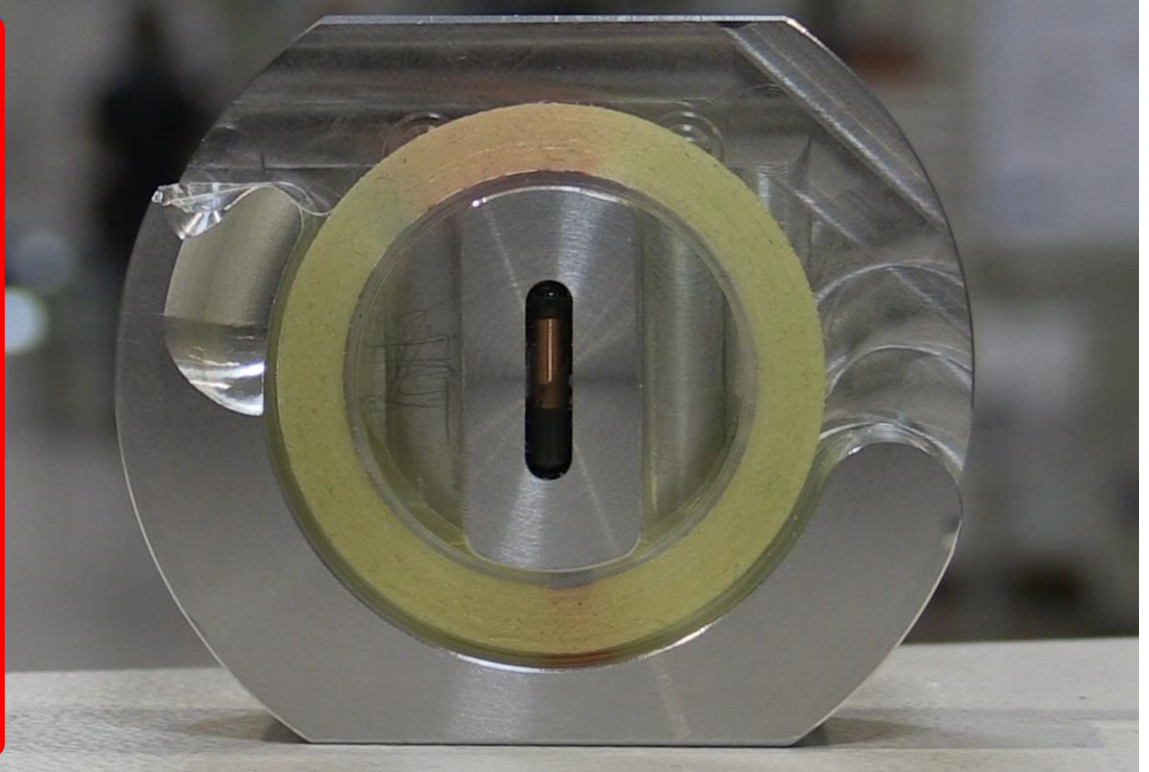
quantum intuition → **quantum intuition** → **massively parallel**

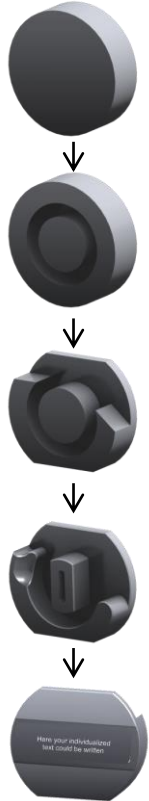


10,000 x faster

60 s vs **166 h**

- Individual configurations
- Automatic production planning
- Lot size 1 production





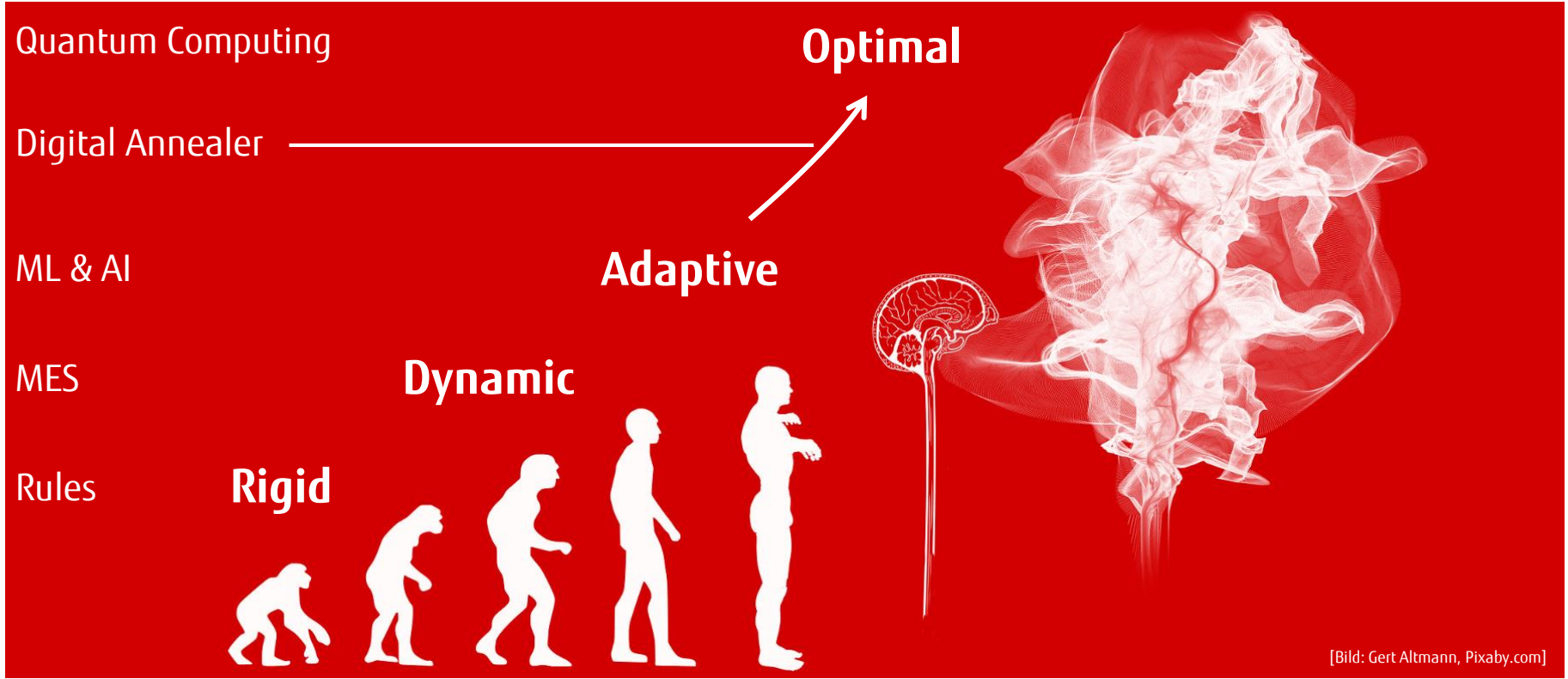
40 jobs

4 operations

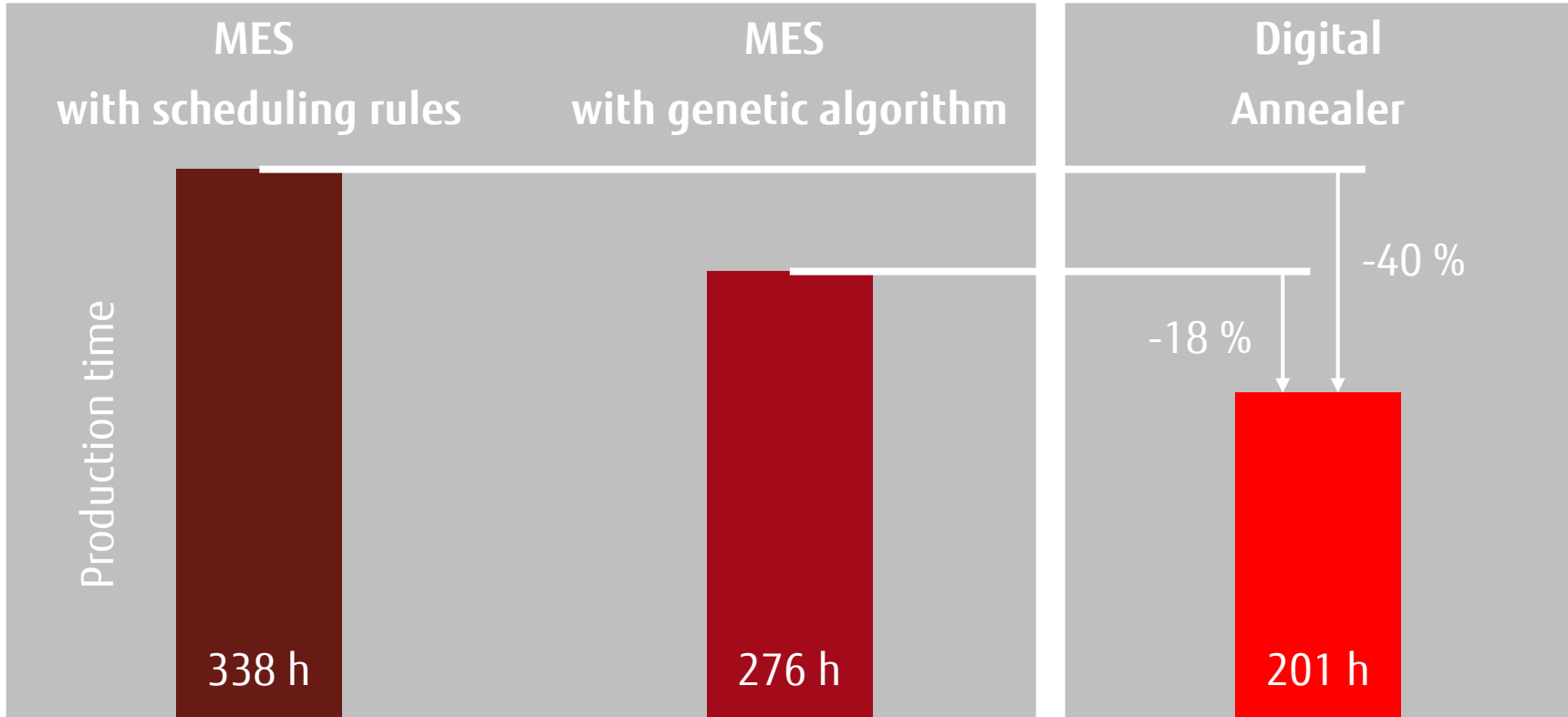
6 machines

2 scheduling decisions

$> 10^{287}$ schedules



[Bild: Gert Altmann, Pixaby.com]



Faster

Better Results

Higher Scalability

Higher Flexibility

Throughput

Delivery Reliability

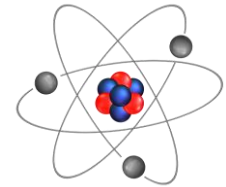
Last Minute Orders

Production Outages

Near optimum sufficient – Digital Annealer
Combinatorial problems



Absolute optimum – Quantum Annealer
Decryption



Moves the boundary of



Quantum Advantage

Proven relevance for Job Shop Scheduling

Wets the appetite for Quantum Advantage