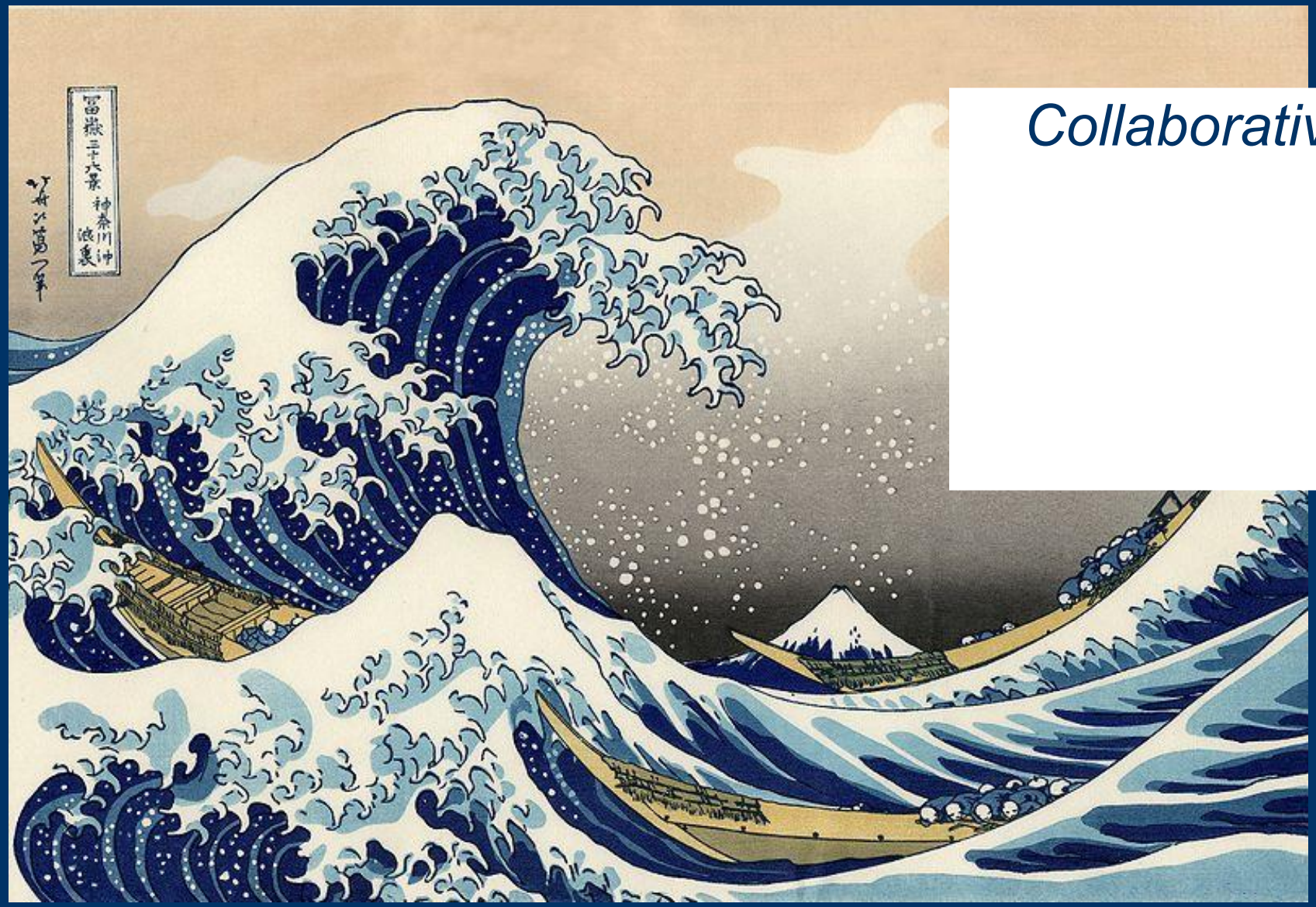

Collaborative Process Innovation for Optimizing Production and Smart Maintenance

Henk Akkermans

Prof. SCM Tilburg University &
director World Class Maintenance foundation

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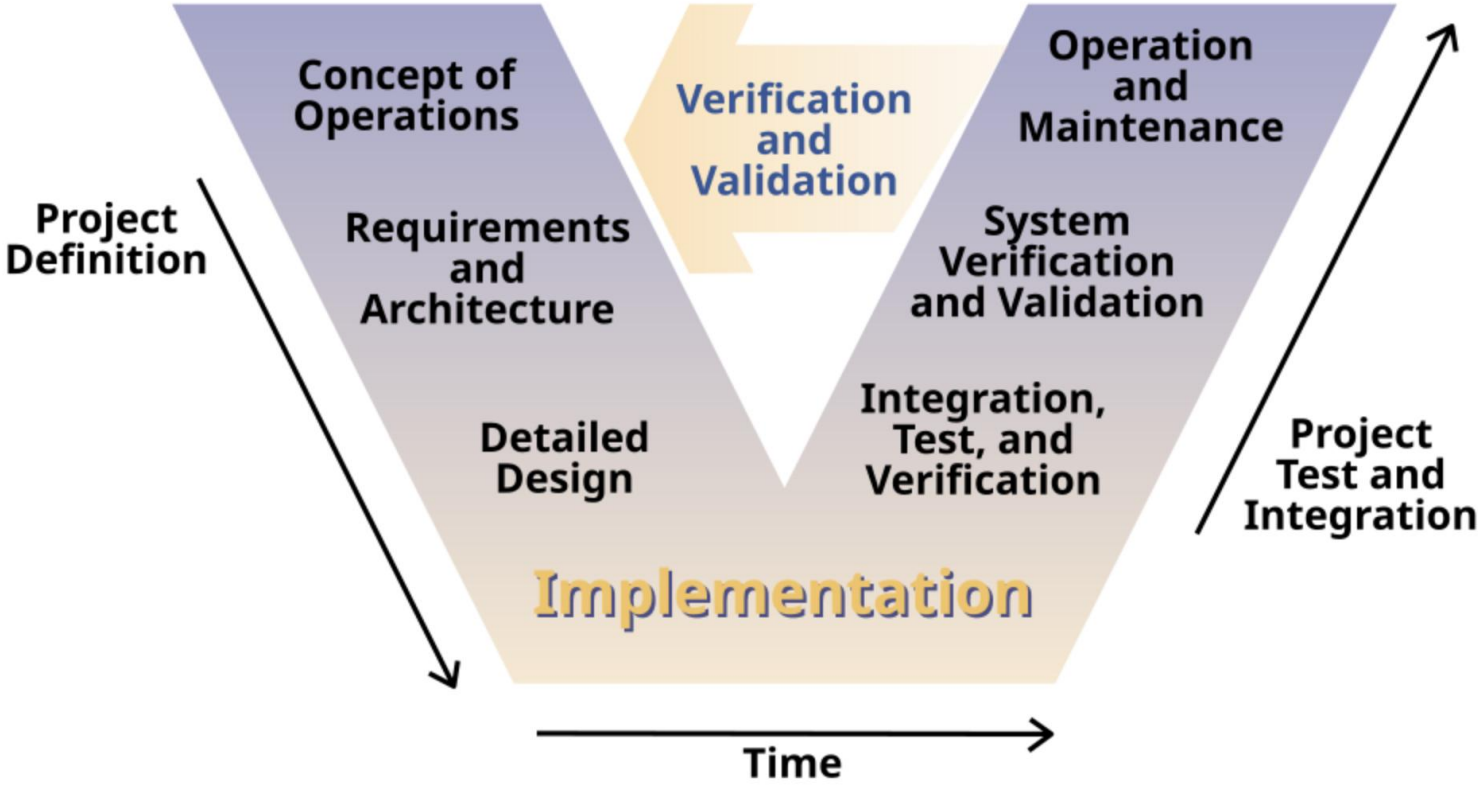
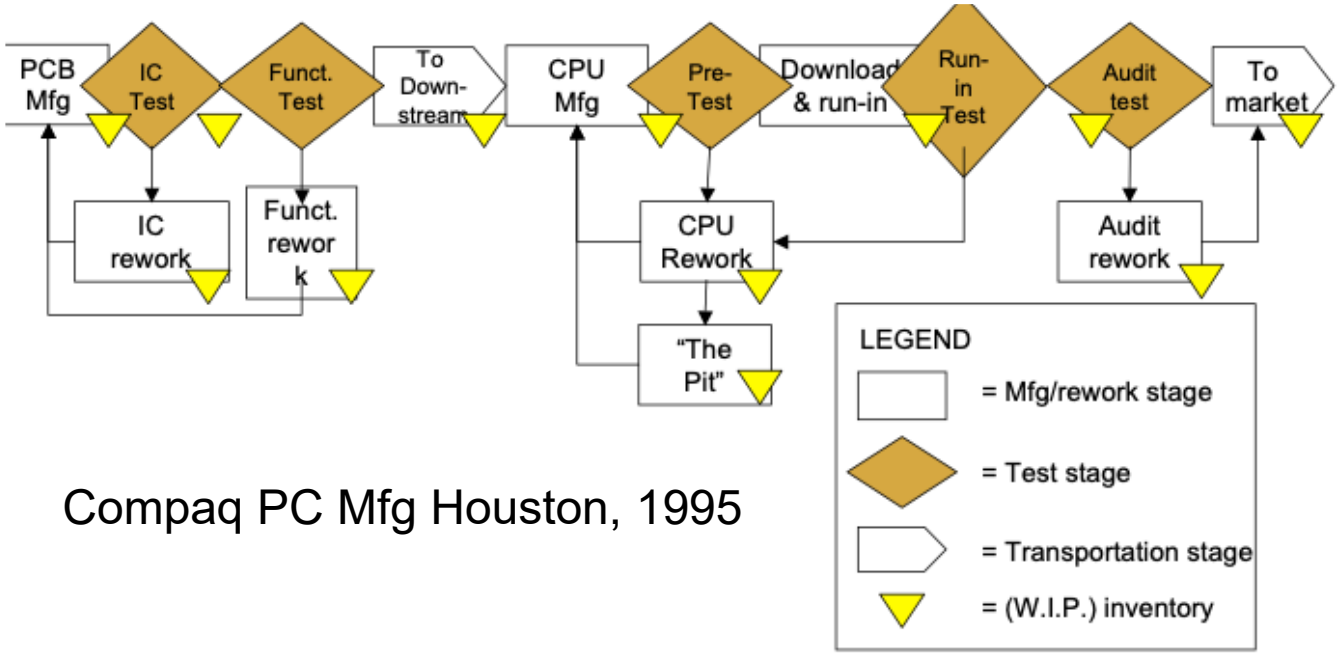
The core challenge: Feeding back performance information from downstream back to upstream during ramp-ups

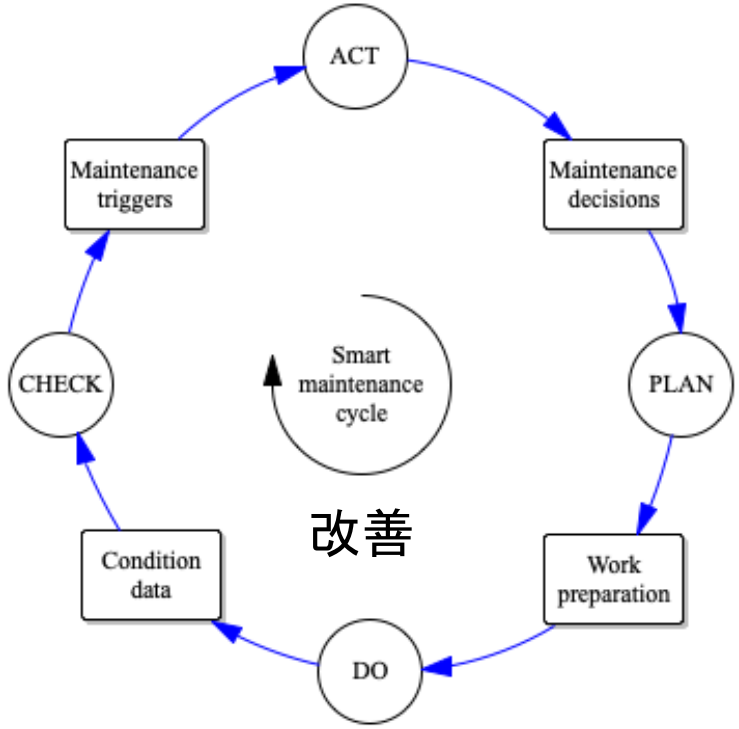
The “V” of System Engineering



In manufacturing: from fallout & rework & buffer stocks to *kaizen*



Compaq PC Mfg Houston, 1995



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*: Source: Akkermans (2008), Akkermans et al. (20024a)

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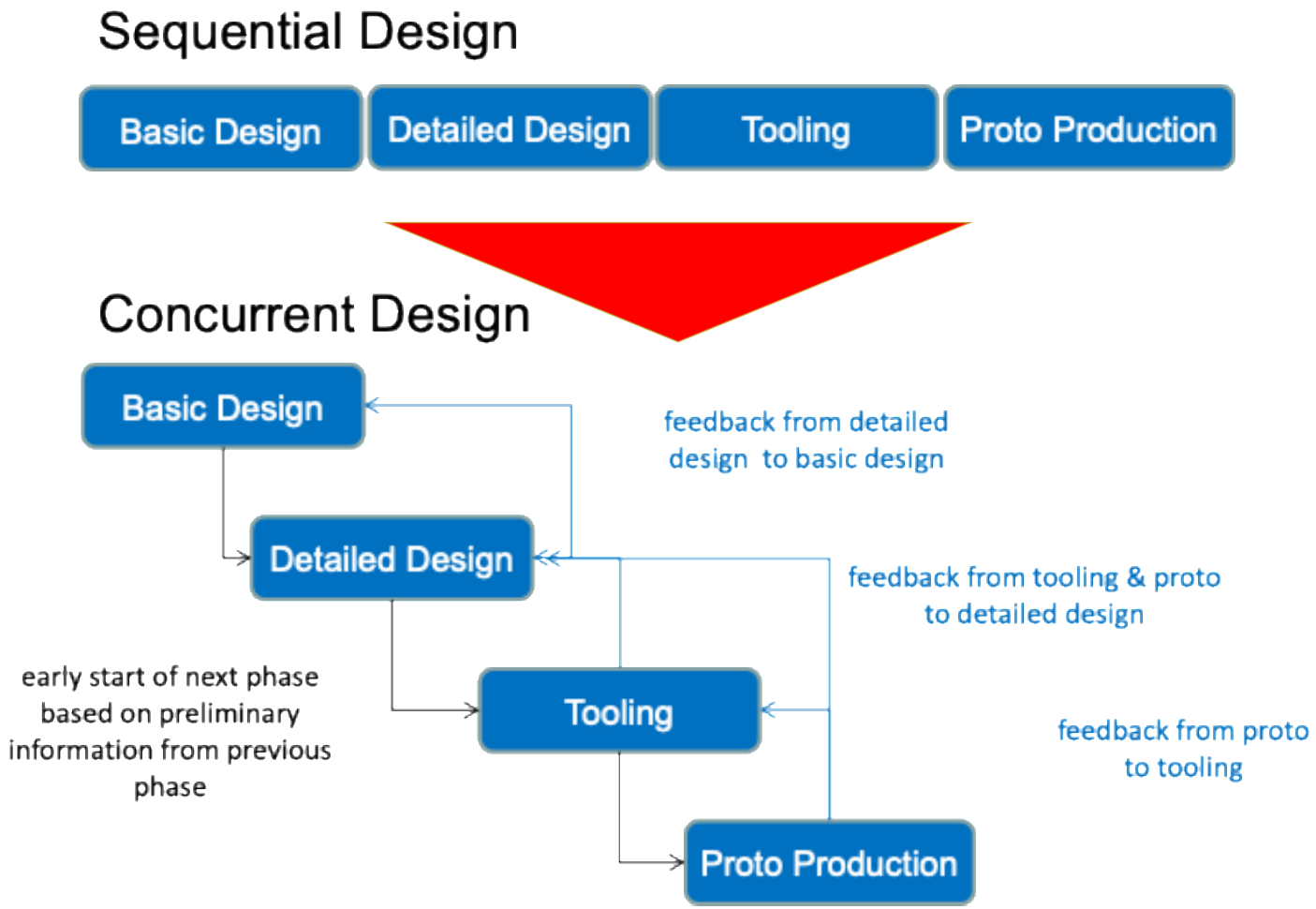
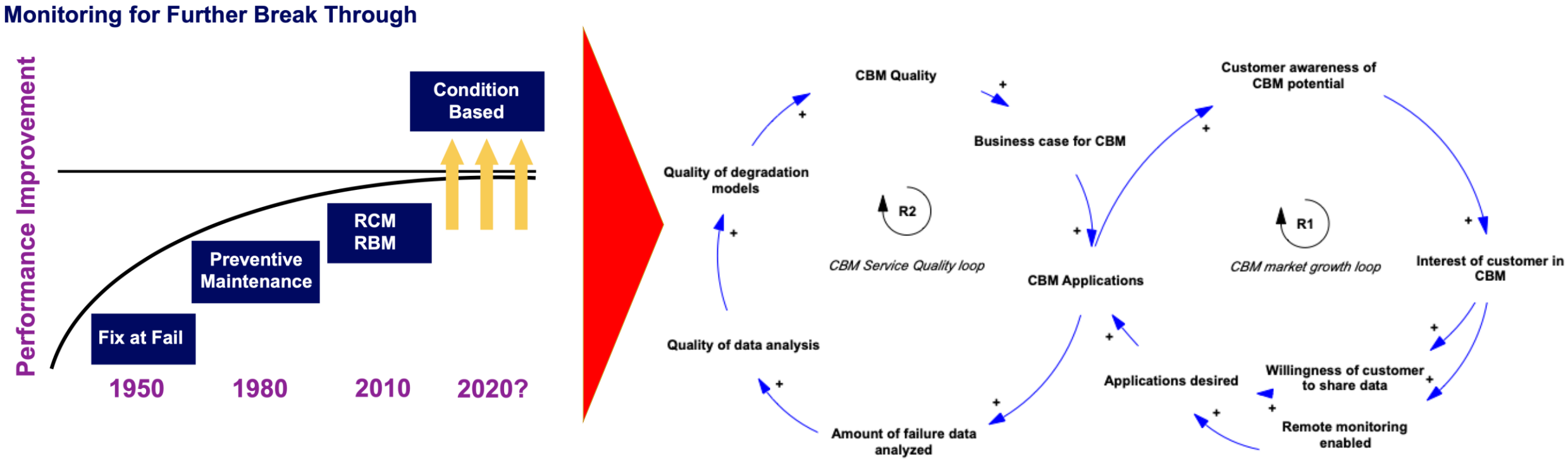
In product development: from sequential to concurrent engineering



Fokker Aerospace, 2002-2005

Source: Akkermans & van Oorschot (2016)

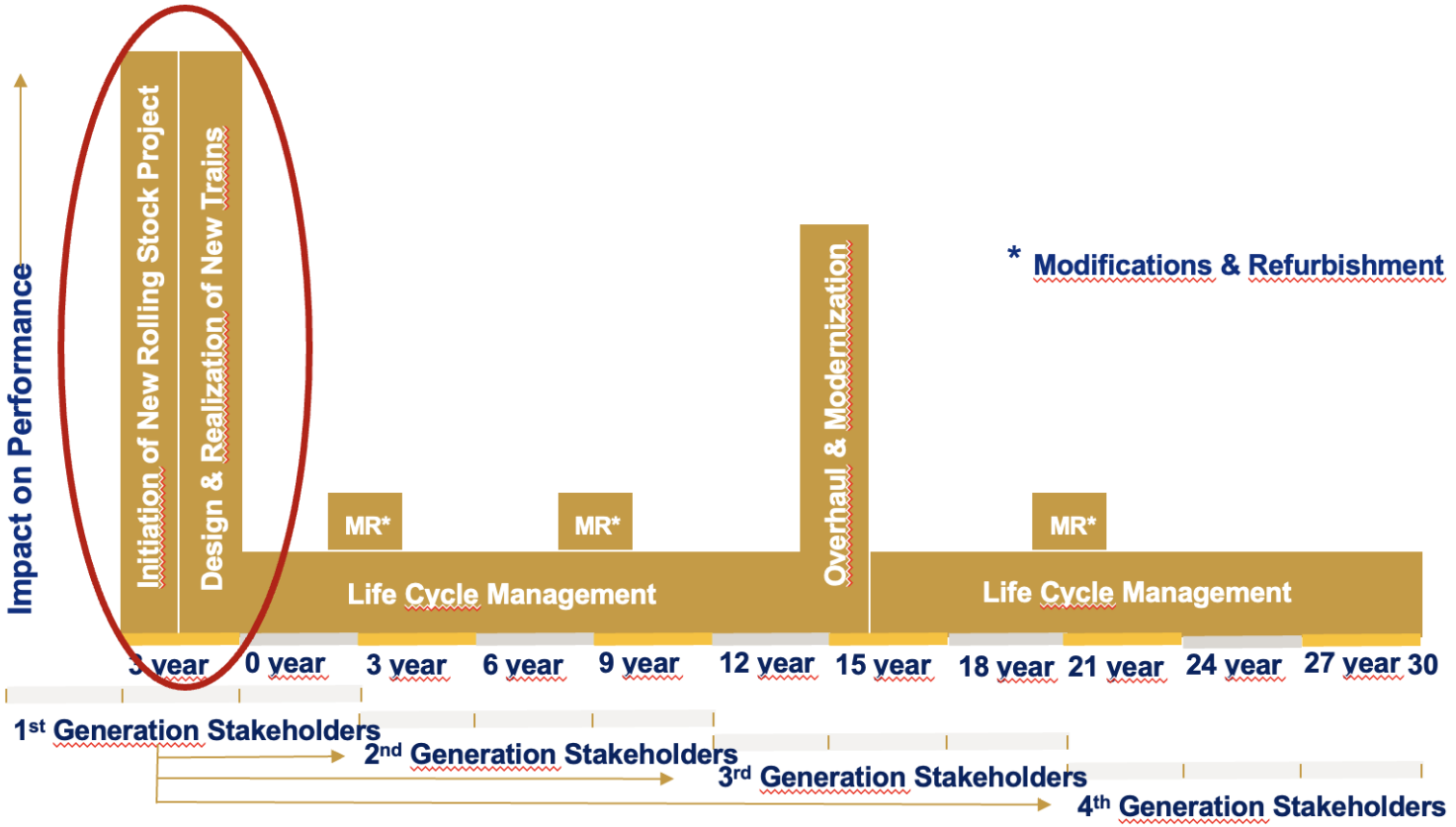
In maintenance: from periodic, corrective and risk-based maintenance to Condition-Based Maintenance



Van Dongen, 2011

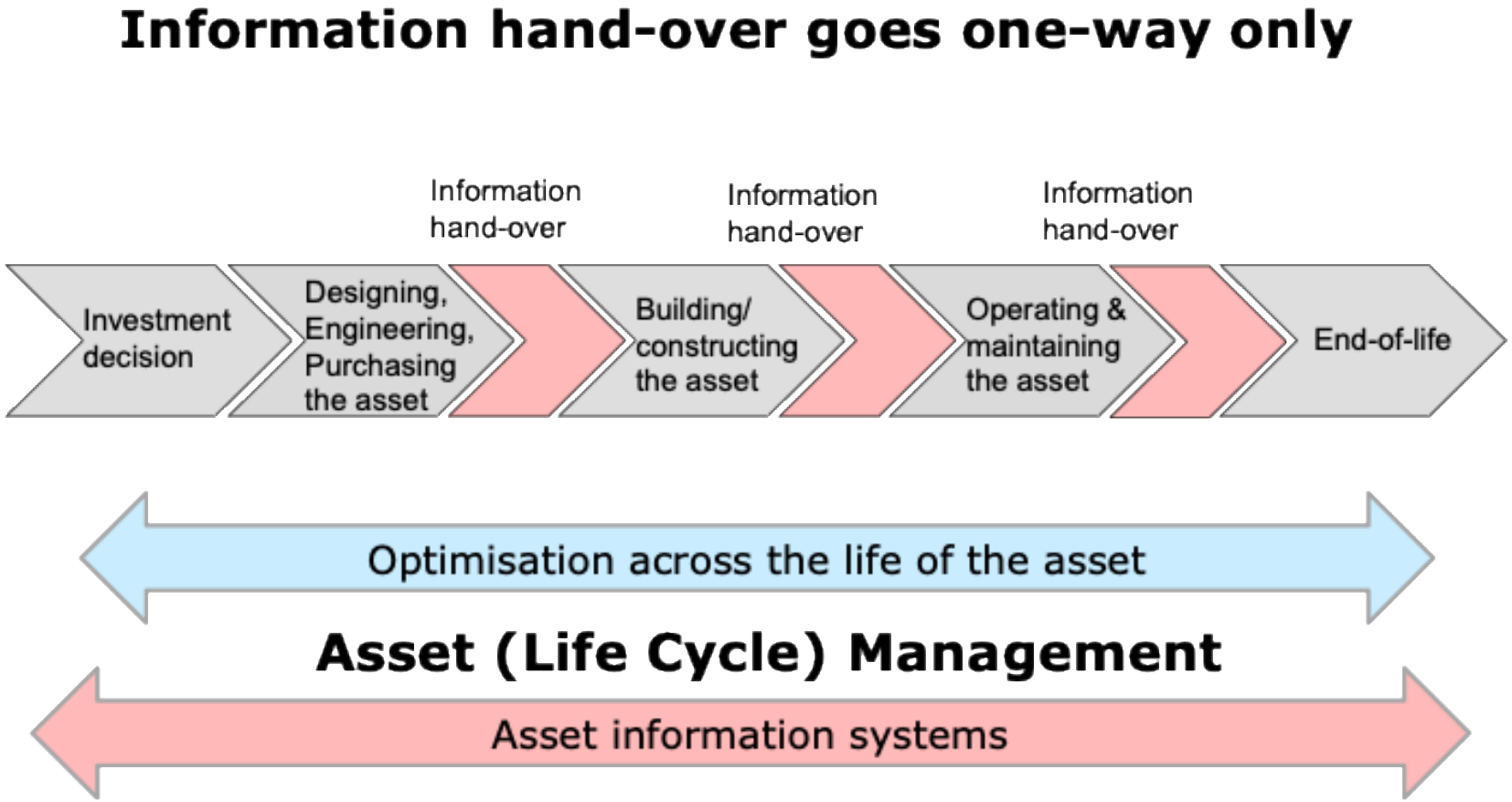
Source: Akkermans et al (2024b)

Complication 1: Really long service lifetimes of assets



Source: Leo van Dongen, Inaugural lecture U Twente, 2011

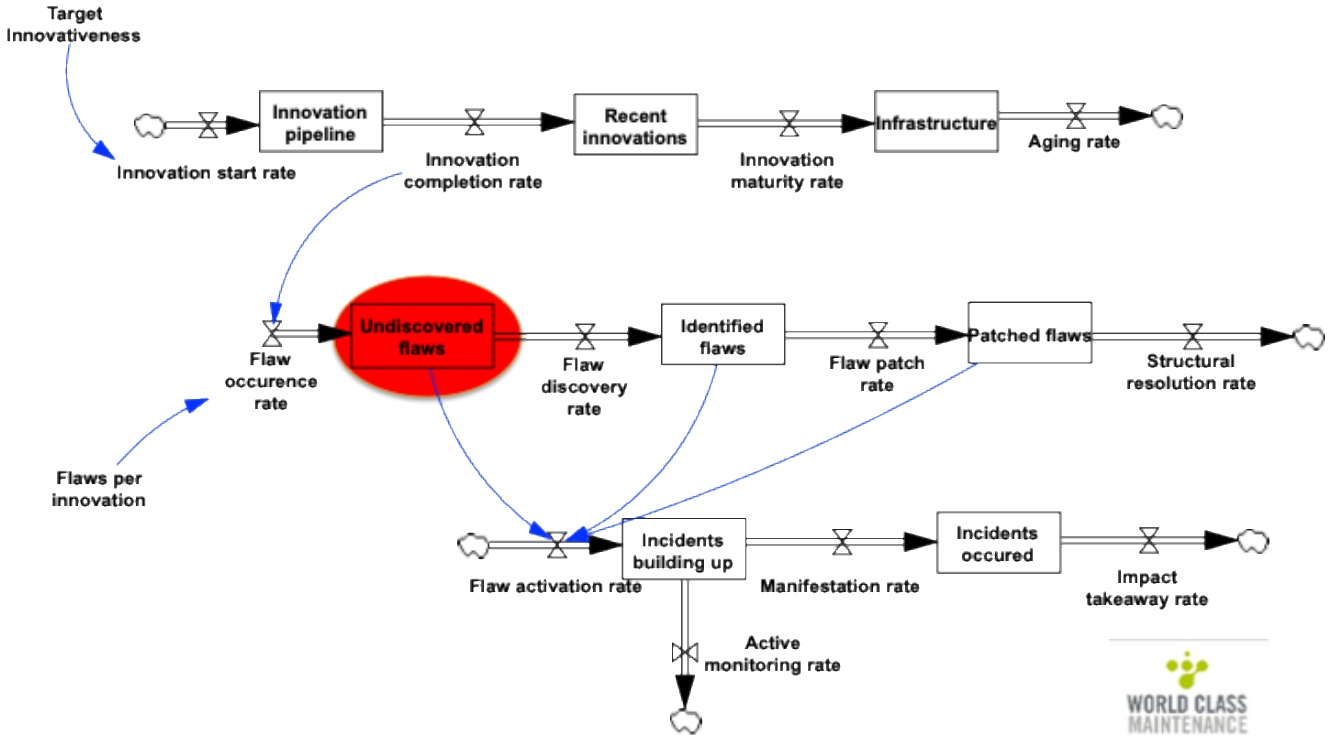
Complication 2:
Across the asset life cycle, information only flows downstream



Source: Hans Wortmann, *Asset Management*, WCM Summerschool 2018

Complication 3:In ICT: upgrades and changes all the time

from ITIL to condition-monitoring



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Soruce: Akkermans & van Oorschot, 2023

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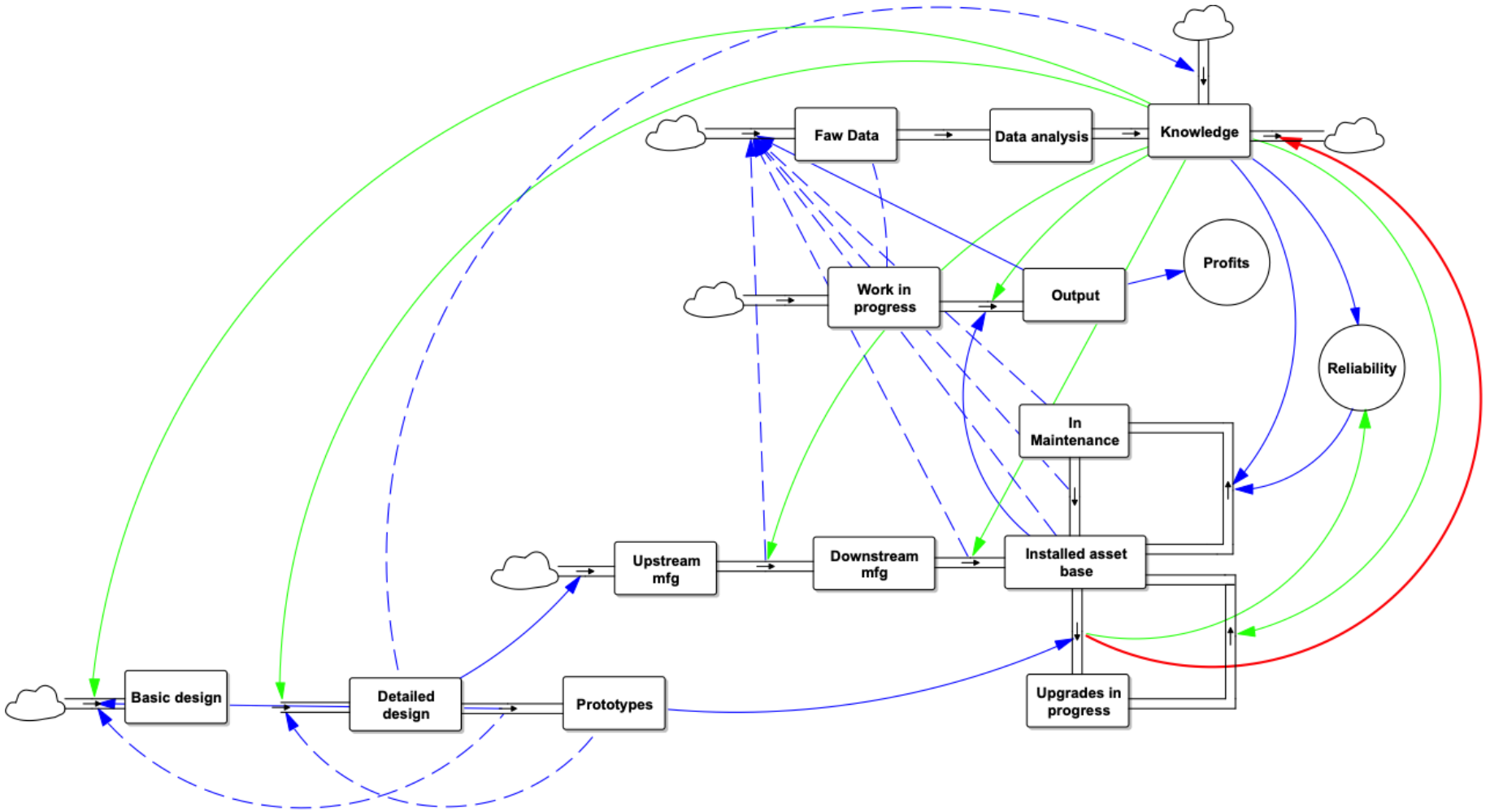
The solution (1): feedback from downstream to upstream wherever / whenever



Continuous feedback on performance from Ops and Service back to Design & Engineering, Mfg & Ops is required.

But how to organize this?

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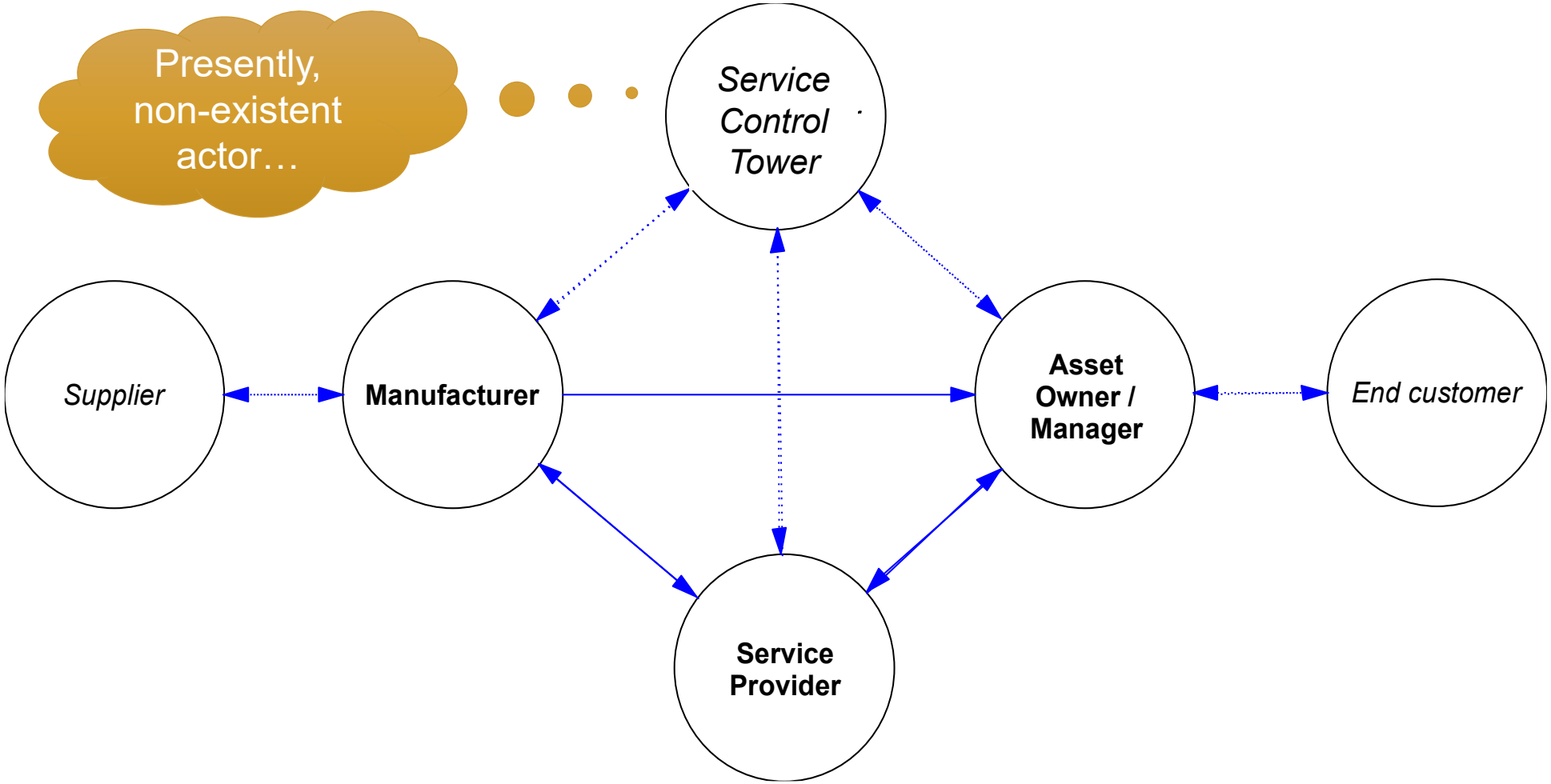
The solution (2):
Sharing of data and knowledge within the supply chain



The solution (3): Collaborative process innovation for optimizing production & Smart Maintenance

see joint information sharing and process innovation as creating beauty together, as a Renga [連歌] session

illustration by Yosa Buson (1716-1784) in his hand-written scroll from *Oku no Hosomichi*, with permission from the Kyoto National Museum (Akkermans & Boot 2025)

Thank you for your attention

Detail of *Rakushisha*, dwelling in Kyoto where Matsuo Bashō [松尾芭蕉, 1644-1694) liked to stay and write (picture by the speaker)

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