

**Think Lean**

**Lean**

Kaizen

*TQM*

*ToC*

Kanban

**TPS**

*Wertstromdesign*

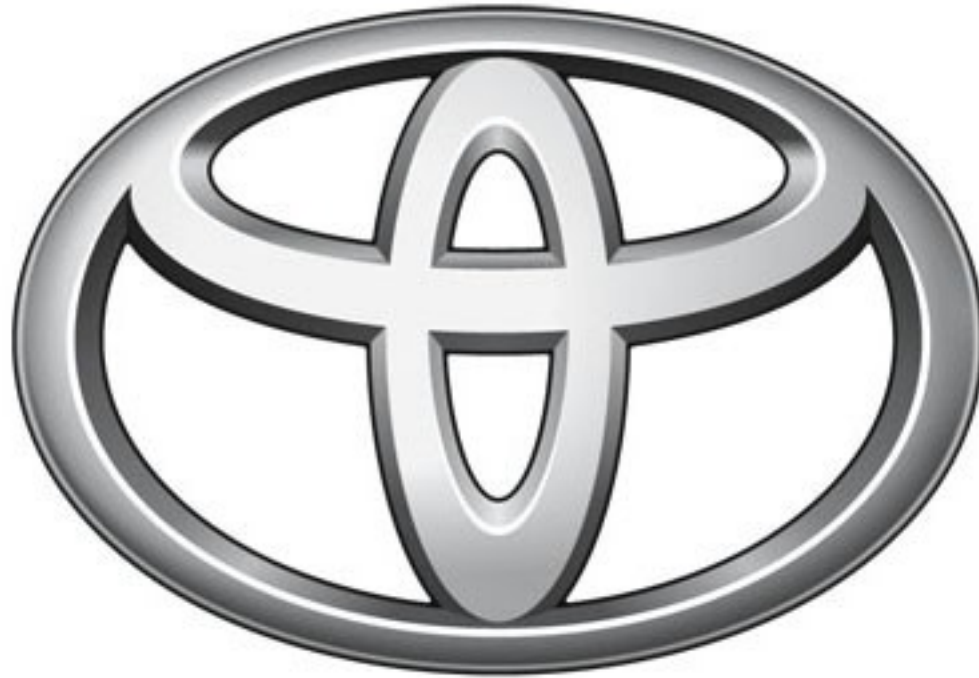
***KVP***

# Total Quality Management (TQM)

- William Edward Deming
- Joseph M. Juran

# Total Quality Management (TQM)

*The Japanese learned from Deming's 1950 lectures how to use Statistical Process Control as an aid to make the cheapest, most consistent, and best quality products.*



**TOYOTA**

# Toyota Production System (TPS)

*The Toyota Way has two main pillars:  
continuous improvement and respect for people.*

*Respect is necessary to work with people. By  
„people“ we mean employees, supply partners,  
and customers. ...*

*If you adopt that principle, you'll also keep  
analyzing what you do in order to see if you're  
doing things perfectly, so you're not troubling  
your customer. ...“*

# Toyota Production System (TPS)

*„That nurtures your ability to identify problems,  
and if you closely observe things, it will lead to  
kaizen – continuous improvement.*

*The root of the Toyota Way is to be dissatisfied  
with the status quo; you have to ask constantly,  
**«Why are we doing this?»**“*

Katsuaki Watanabe CEO Toyota

# Kaizen

The image shows the Japanese characters for Kaizen, which are 改 (change) and 善 (good). The characters are written in a bold, black, sans-serif font. The character 改 is on the left and 善 is on the right. They are enclosed in a thin black rectangular border.

Veränderung zum Besseren



# Kaizen

- Vermeide Verschwendung (muda)
- Vermeide Variationen (mura)
- Vermeide Überlastung (muri)

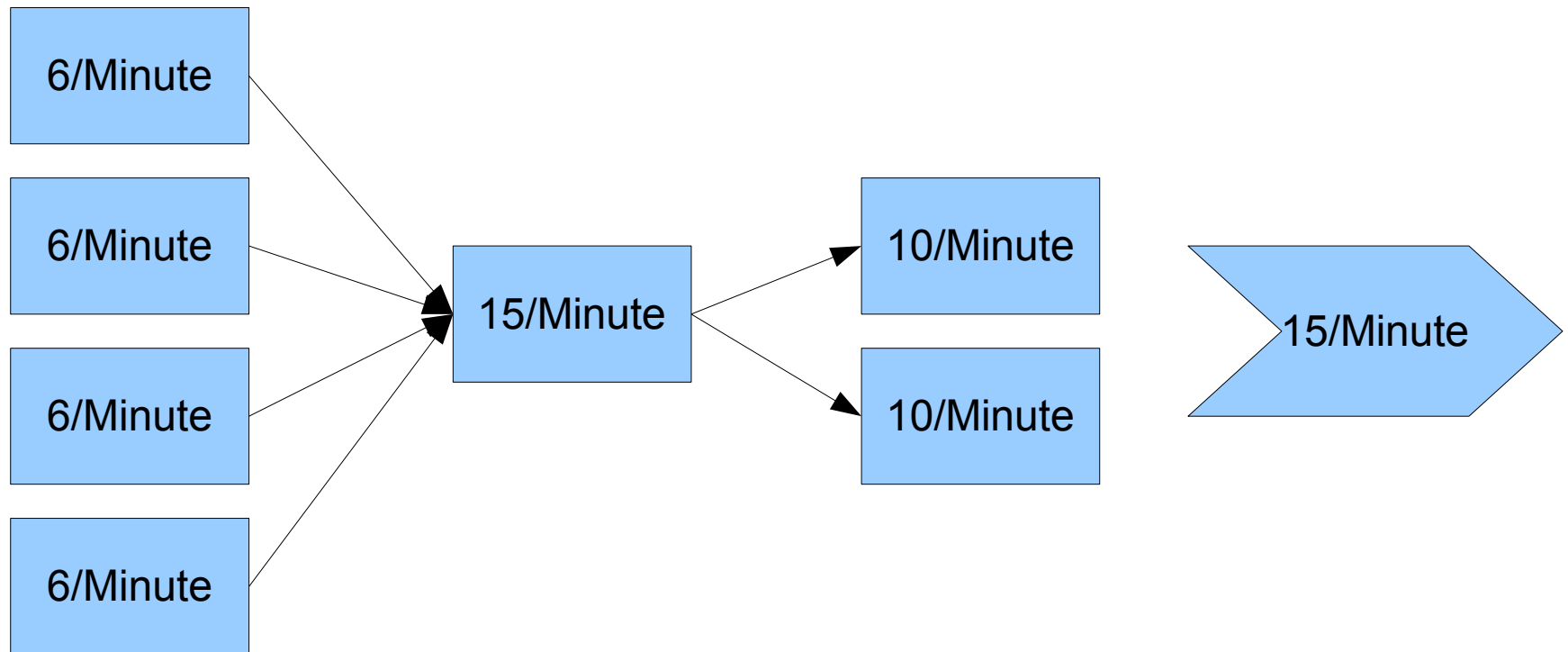
# Theory of Constraints (ToC)



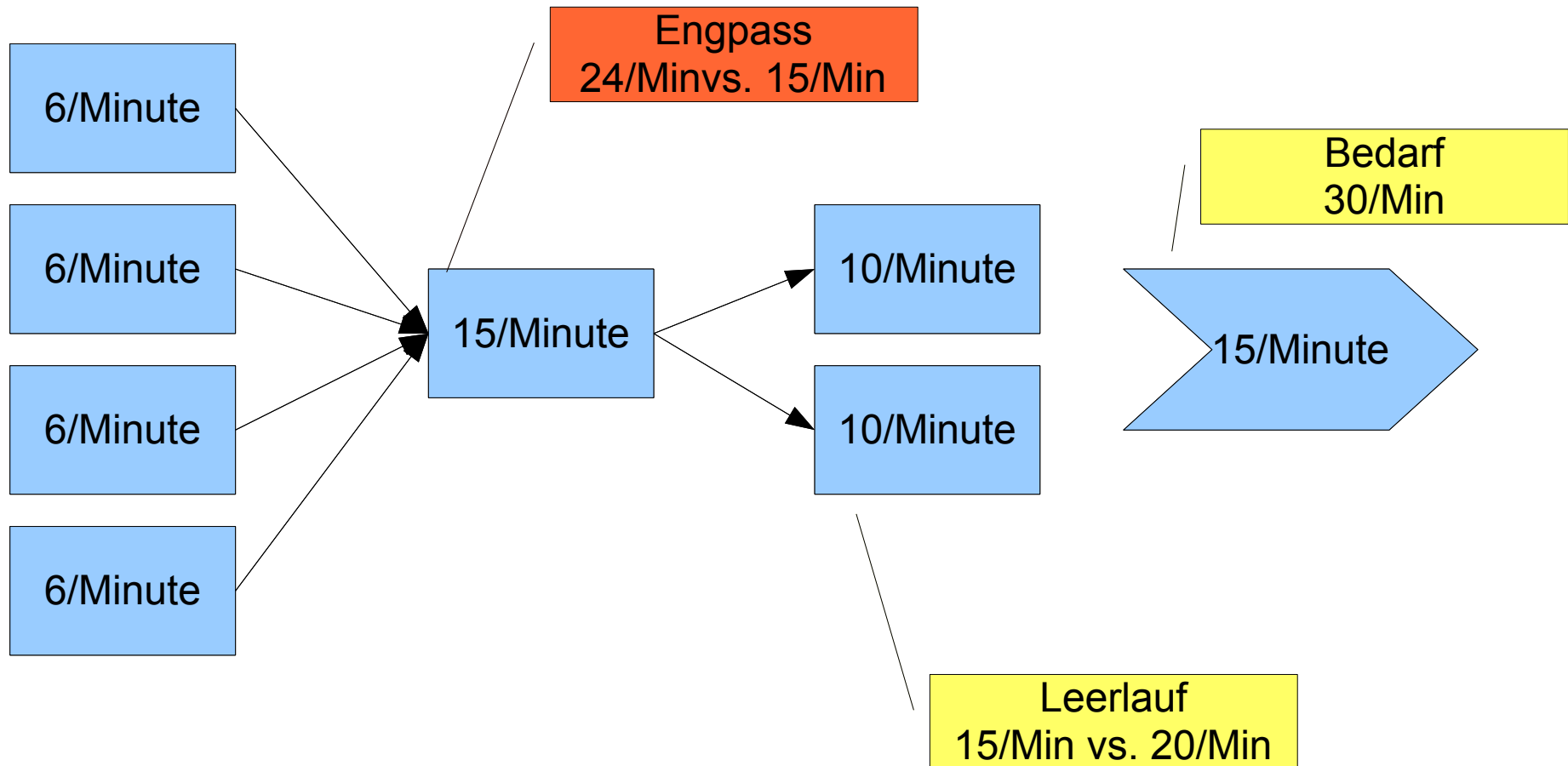
# Theory of Constraints (ToC)

- optimiere den Durchsatz
- finde den Engpass
- orientiere alles am Engpass aus
- finde den nächsten Engapss
- ...

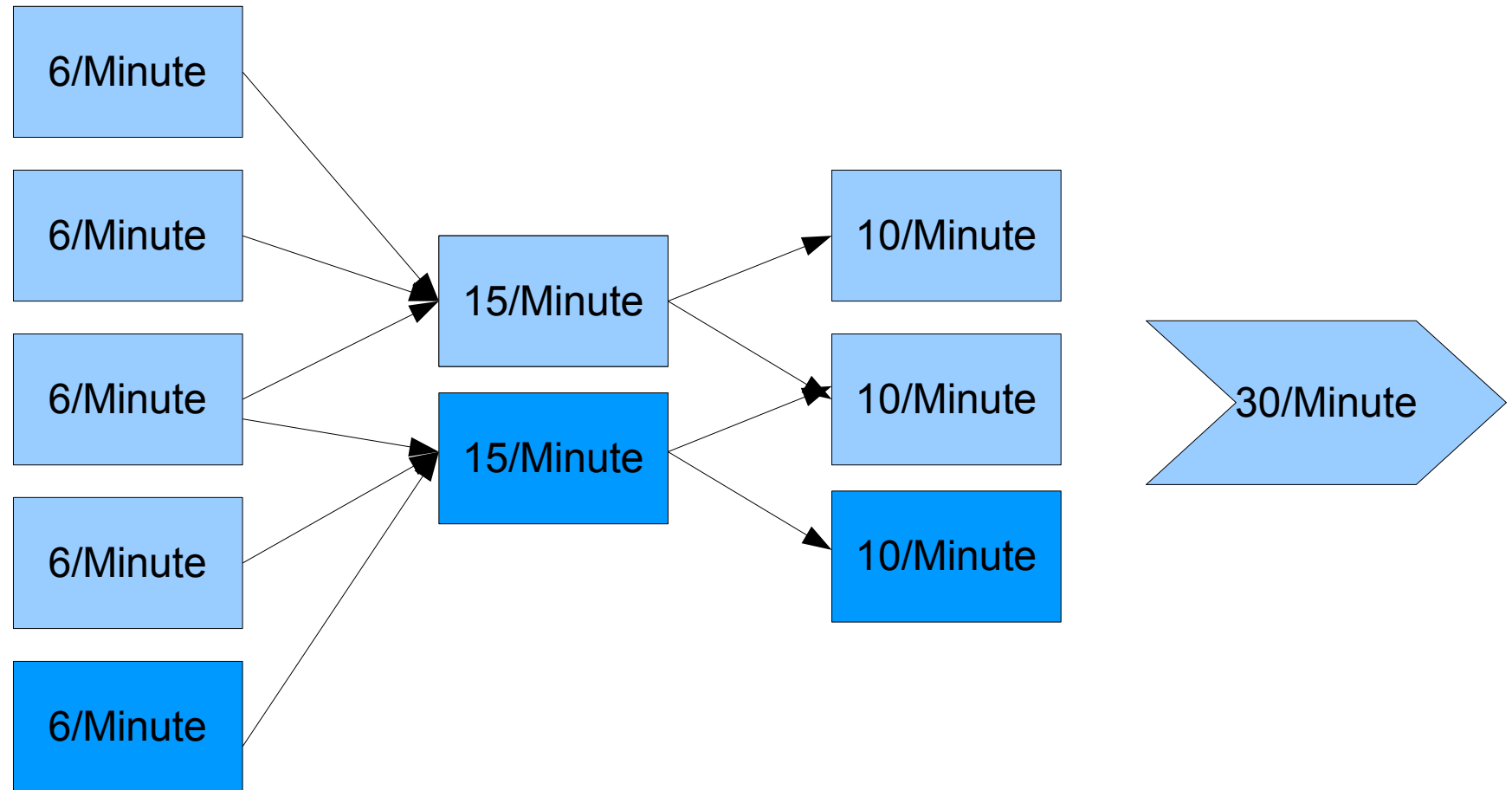
# Wertstrom/value stream



# Wertstrom/value stream



# Wertstrom/value stream



# Kanban (Karte)

- vermeide unnötige Wege/Staus
- vermeide Halden
- schiebe nicht die Güter durch den Prozess
- signalisiere rechtzeitig wenn ein Folgeprozess mehr Güter braucht
- eine Instanz bedient alle (Signal-)Karten

# Kanban (Karte)

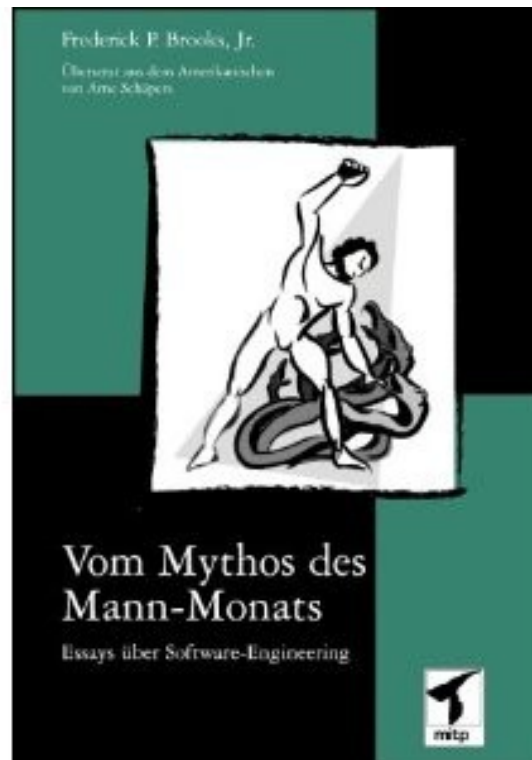




# Ja und jetzt?

*„Das ist Industrie, da funktioniert das.  
Aber wir machen ja Software, das ist was total  
anderes!“*

# Wirklich?



„Adding manpower to a late software project makes it later.“  
Frederick P. Brooks law

# Scrum

- Pull statt push
- Storypoints statt Stückzahlen
- Velocity statt Durchsatz
- Impediment statt Engpass
- Signalkarten die Folgeschritte auslösen
- Adapt and inspect aka. Kaizen

**„There are no silver bullets.“**

Frederick P. Brooks