



weisenburger



Takt in Construction
- a missing link –

Background



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29.04.1987

Baden-Baden, Germany

- Civil Engineering, KIT
- Research Associate, PhD Candidate
- Leader of the regional practise group GLCI – Karlsruhe
- Head of Department - Lean Construction, weisenburger bau

Overview



Warm-Up: Why do we need Takt?

Practical Example : weisenburger bau GmbH

Scaling: How does Takt help to grow your organization?

Effects: How does Takt affect your organization?



Warm Up

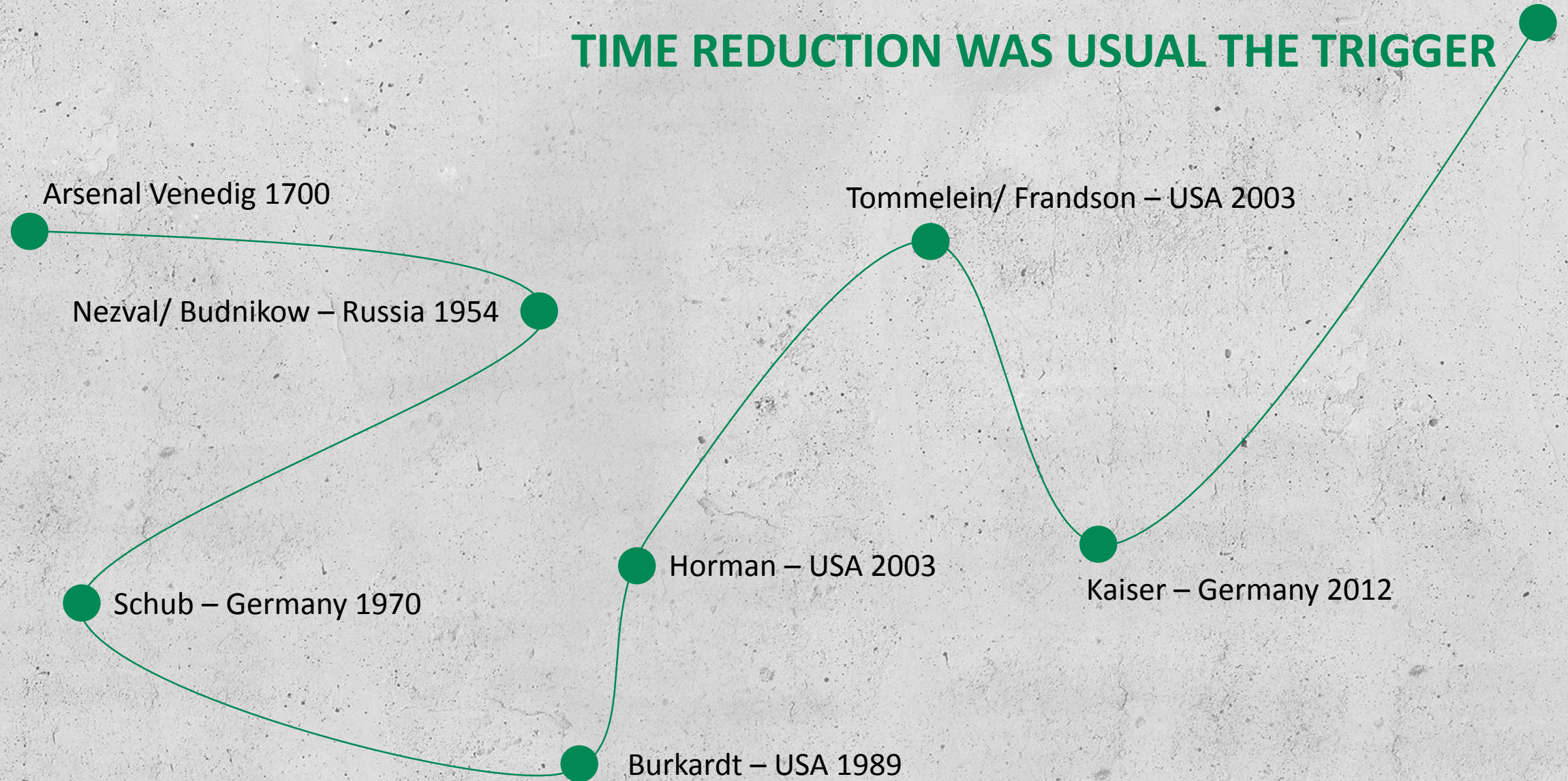
Why do we need Takt?



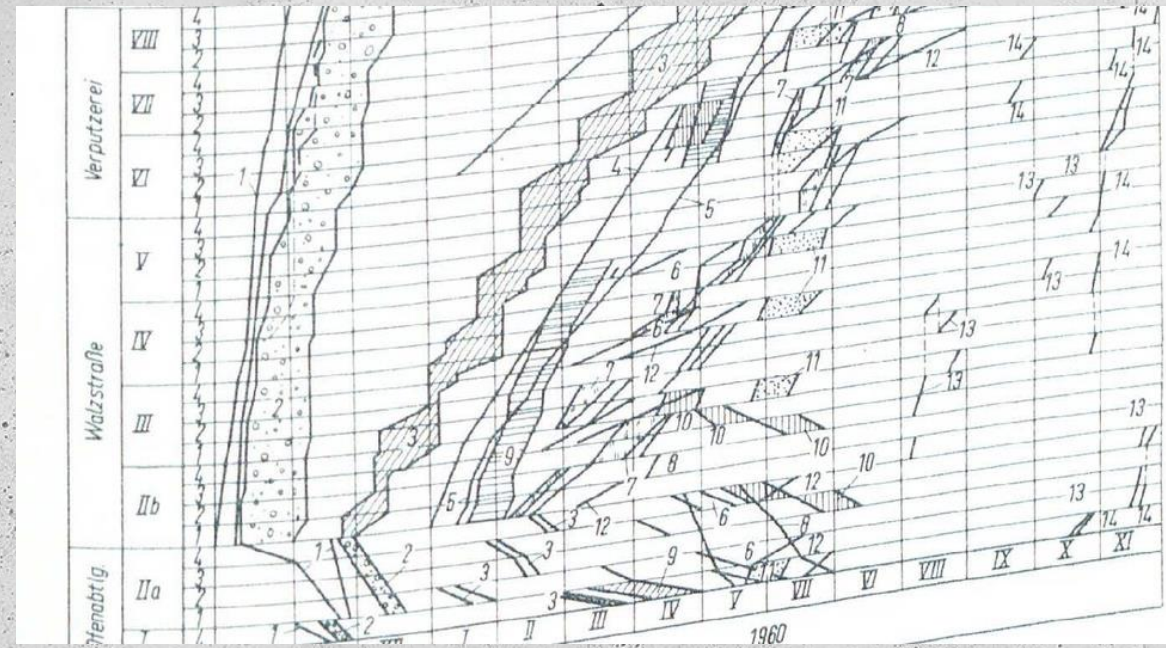
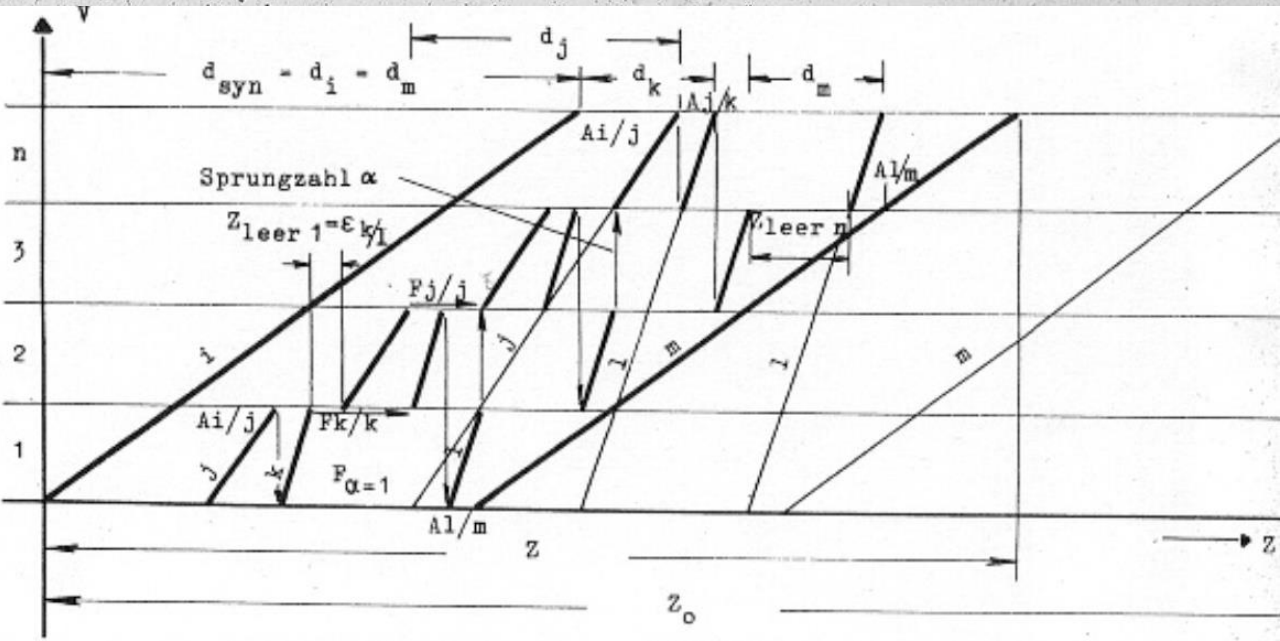
Taktplanning in the past



TIME REDUCTION WAS USUAL THE TRIGGER



Taktplanning in the past



Schub, Adolf (1970), *Problems of Taktplanning in Construction*. Wiesbaden und Berlin: Bauverlag GmbH.

Nezval, Jiri (1960), *Foundations of Flowproduction in Construction*. 1. Auflage. Verlag für Bauwesen Berlin.

Focus was taktplanning of PRODUCTS



Three dimensions of Takt

the value/ product/ taktarea

the process/ value adding/ waggon

the time/ cycle/ rhythm/ takt time

Takt

Don't takt the product – takt the PROCESS

Taktplan



Takt time



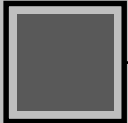
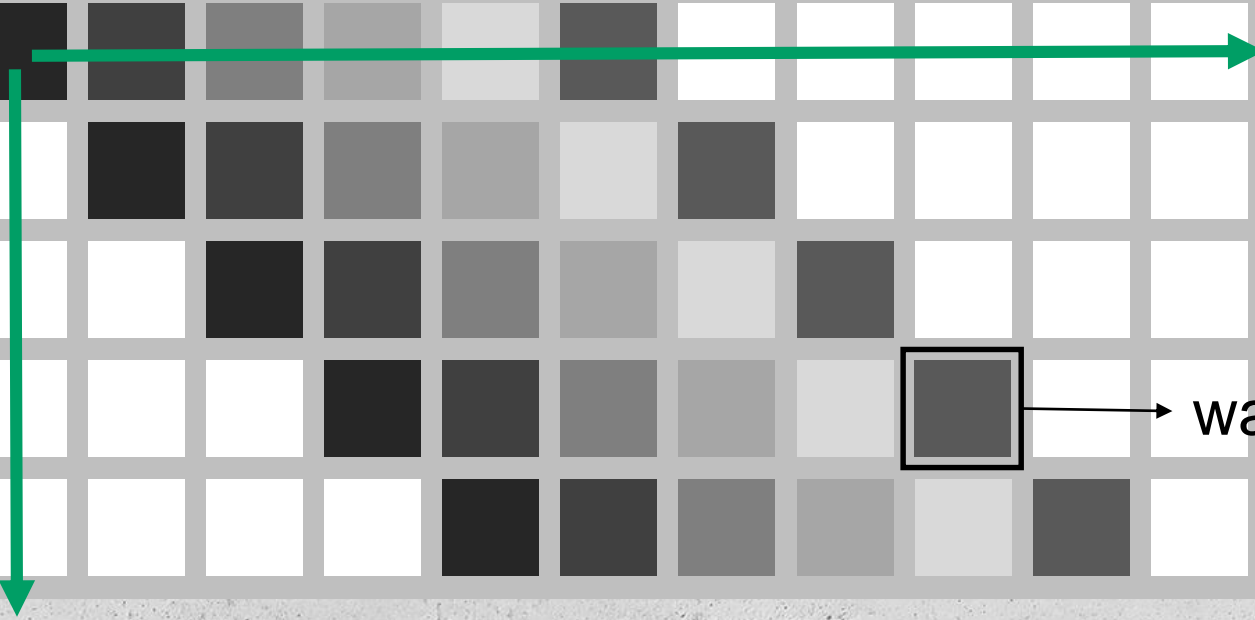
Takt area

Takt/ Week	1	2	3	4	5	6	7	8	9	10	11	12
TB 1	█	█	█	█	█	█						
TB 2		█	█	█	█	█	█					
TB 3			█	█	█	█	█	█				
TB 4				█	█	█	█	█	█			
TB 5					█	█	█	█	█	█		

Product perspective

Resource perspective

waggon





Practical Example

weisenburger bau GmbH



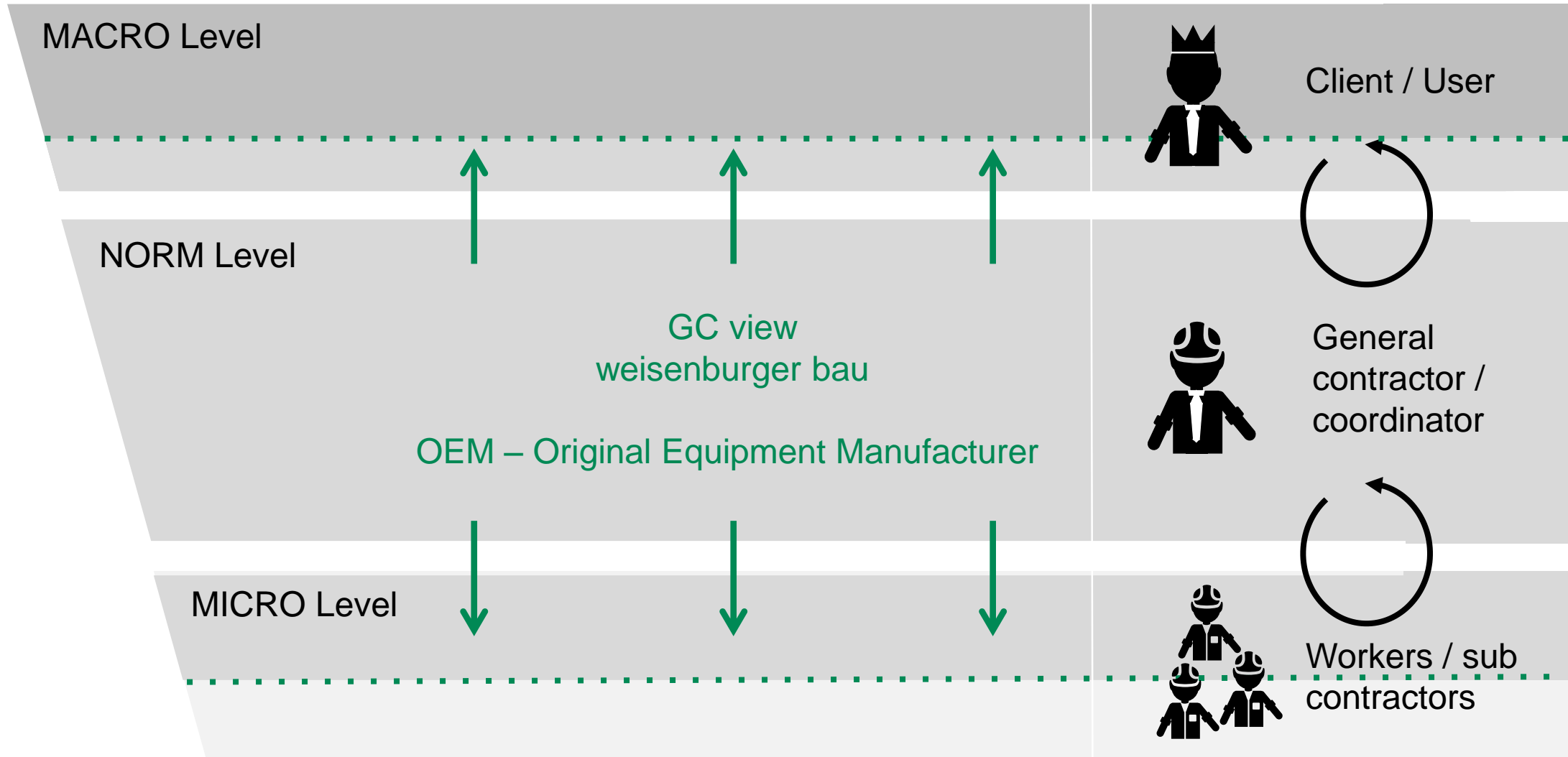
weisenburger bau GmbH



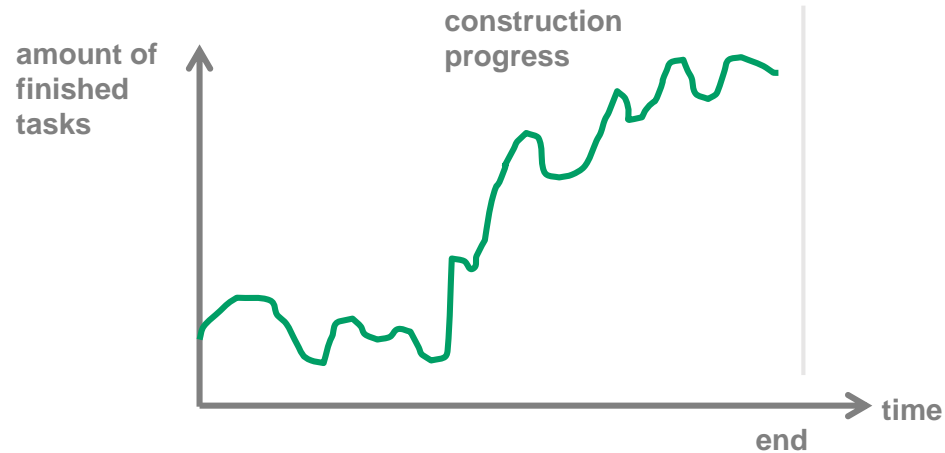
- GC – over **60 years** in the market
- **Turnkey residential housing** (multi-storey, terraced, hotels, etc.)
- **400** employees (190 engineers)
- South-West of Germany
- 300 million Euro in sales volume p.a.
- 140 projects with TPTC



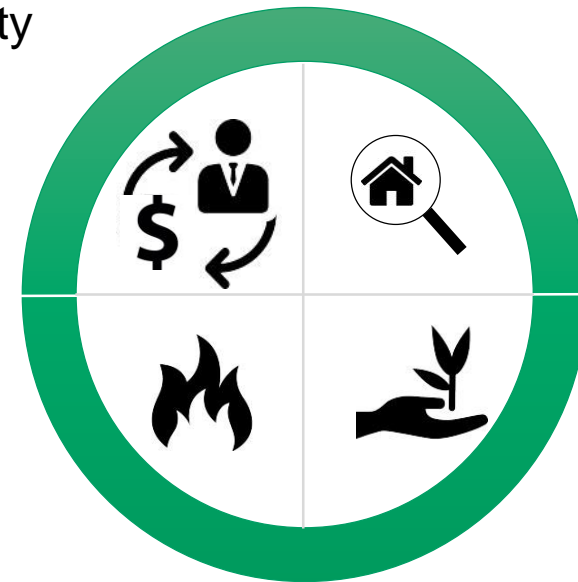
Influence in the role of a GC



Traditional site management



- management of resources and money
- no management of value creation processes
- low productivity
- project based thinking
- fragmented market
- high specialization



Nr.	Bezeichnung	Start	Daue	Ende	Arbeitsmeng	2008											
						18	20	22	24	26	28	30	32	34	36	38	40
1	Ablauf Ausbau	20.05.2008	129at	14.11.2008		[Green bar spanning from May 18 to Nov 18]											
2	Trockenbau	20.05.2008	40at	14.07.2008		[Yellow bar from May 18 to Jun 26]											
3	Elektro	03.06.2008	65at	01.09.2008		[Purple bar from Jun 26 to Sep 11]											
4	HLS	03.06.2008	65at	01.09.2008		[Dark blue bar from Jun 26 to Sep 11]											
5	Maler	07.07.2008	80at	24.10.2008		[Yellow bar from Jul 14 to Oct 21]											
6	Estrich	14.07.2008	30at	22.08.2008		[Grey bar from Jul 21 to Aug 18]											
7	Estrichtrocknun	28.07.2008	50at	03.10.2008		[Grey bar from Aug 25 to Oct 12]											
8	Fliesenleger	08.09.2008	30at	17.10.2008		[Pink bar from Sep 15 to Oct 13]											
9	Bodenbelag	01.09.2008	50at	07.11.2008		[Olive bar from Sep 22 to Nov 19]											
10	Türen	27.10.2008	15at	14.11.2008		[Red bar from Oct 24 to Nov 18]											

- “Firefighting”
- stress and overtime
- missing consistency
- quick problem solving
- same problem will come up again
- missing sustainability

Lean at weisenburger bau



2010



Pilot project & external consulting

2012

Own training simulation

2015



Top Innovator
Lean as a key factor

2016

Reducing of throughput time by up to 50%

2018

Start SFM

25

50

75

100

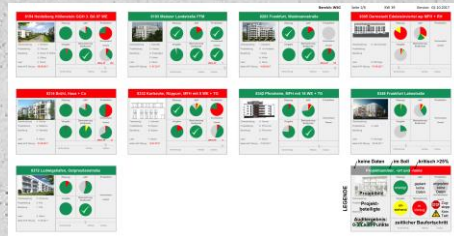
125

Projects
[Number]

2011

Start of roll out

2013



Takt-based
controlling
system

2016

Production
Data Base

2017

Digital
construction
management
tool AAP



Scaling

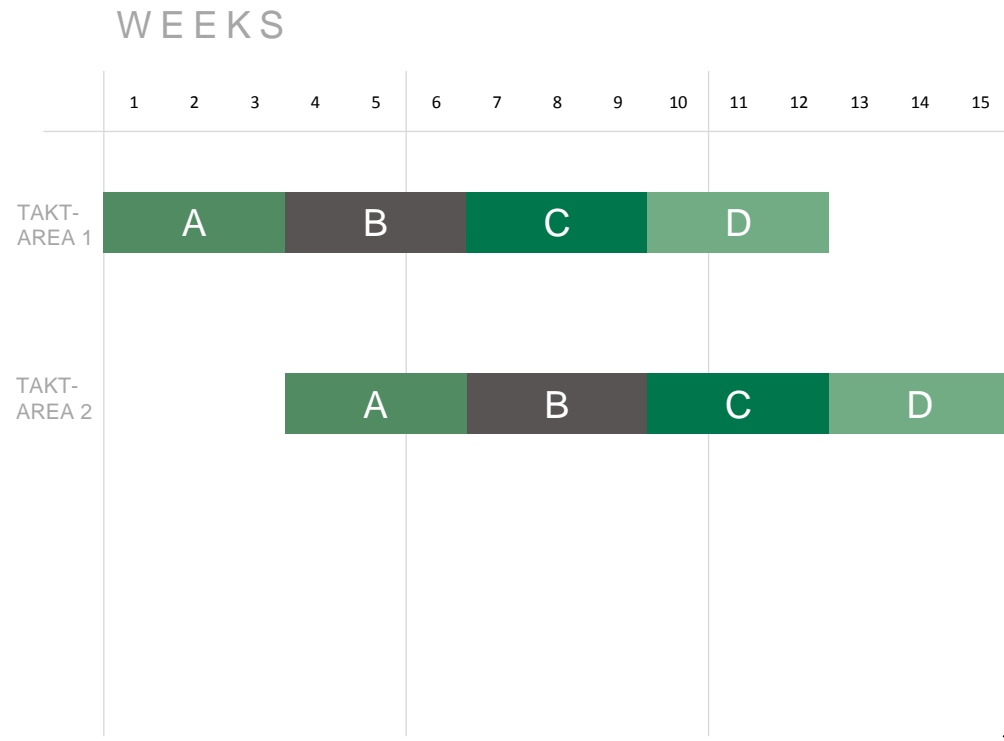
How does Takt help to grow your organization?



Example of scaling



Takt time: 3 weeks

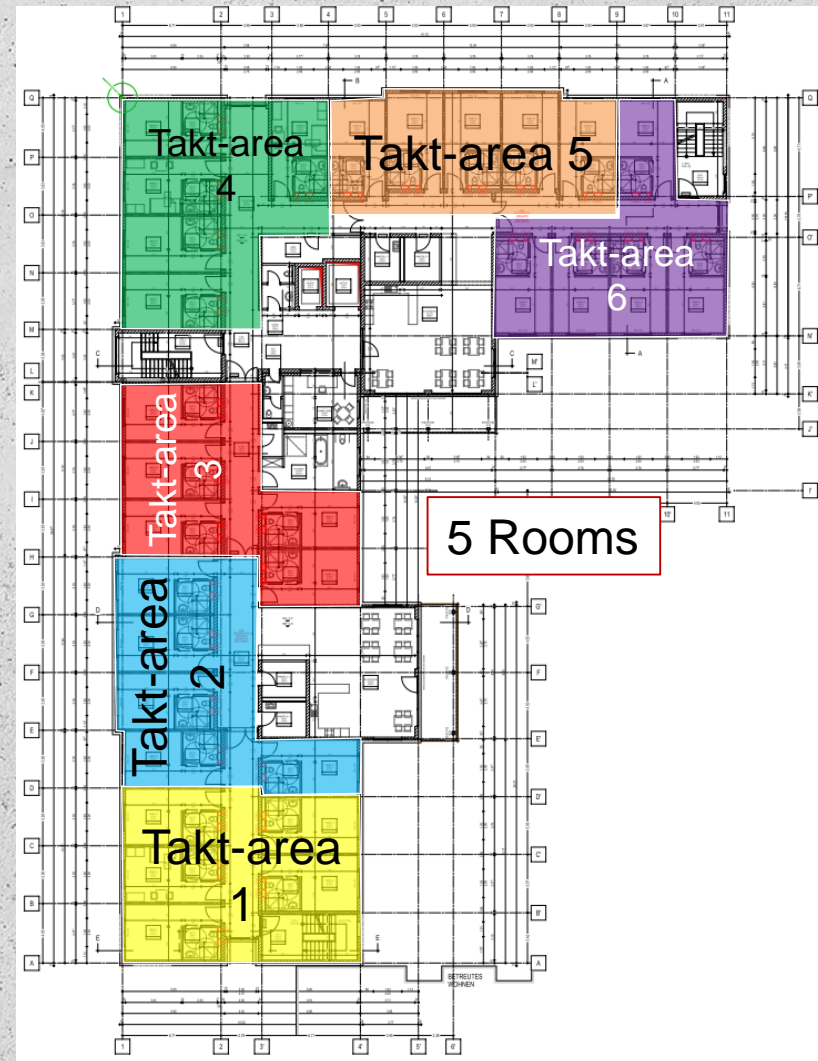
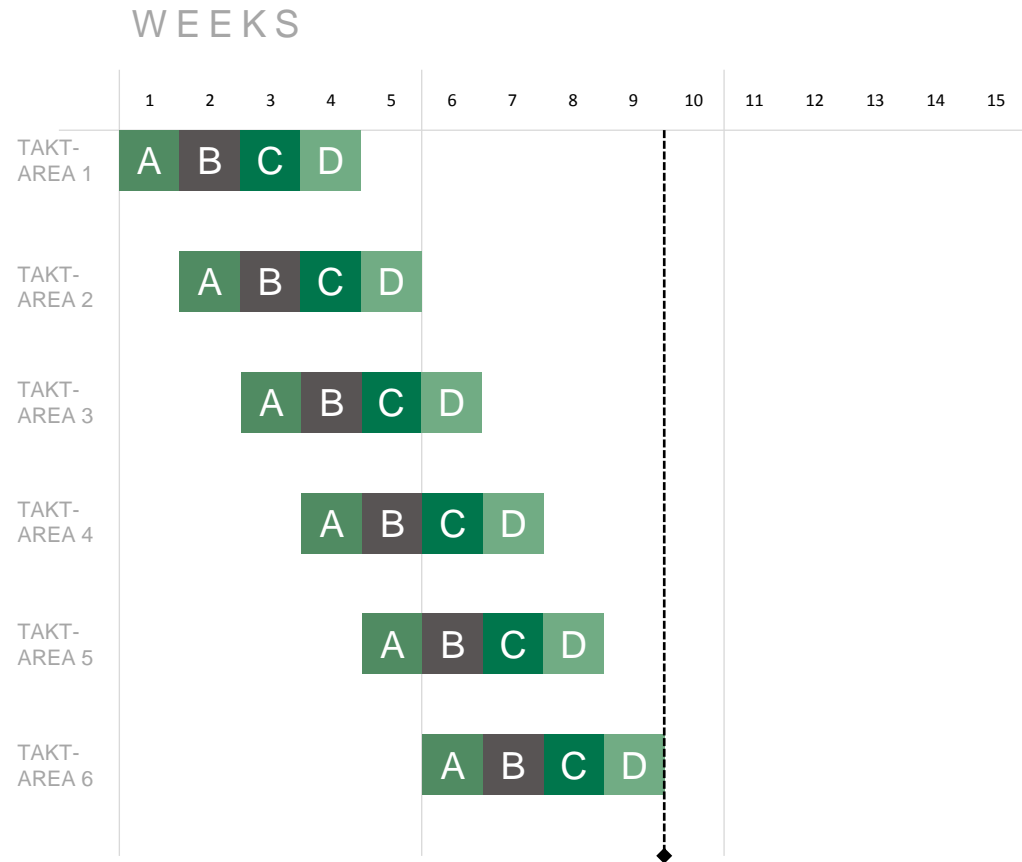


Duration time = (2 Takt areas + 4 waggons -1) x 15 d = 75 days (15 weeks)

Example of scaling



Takt time: 1 week

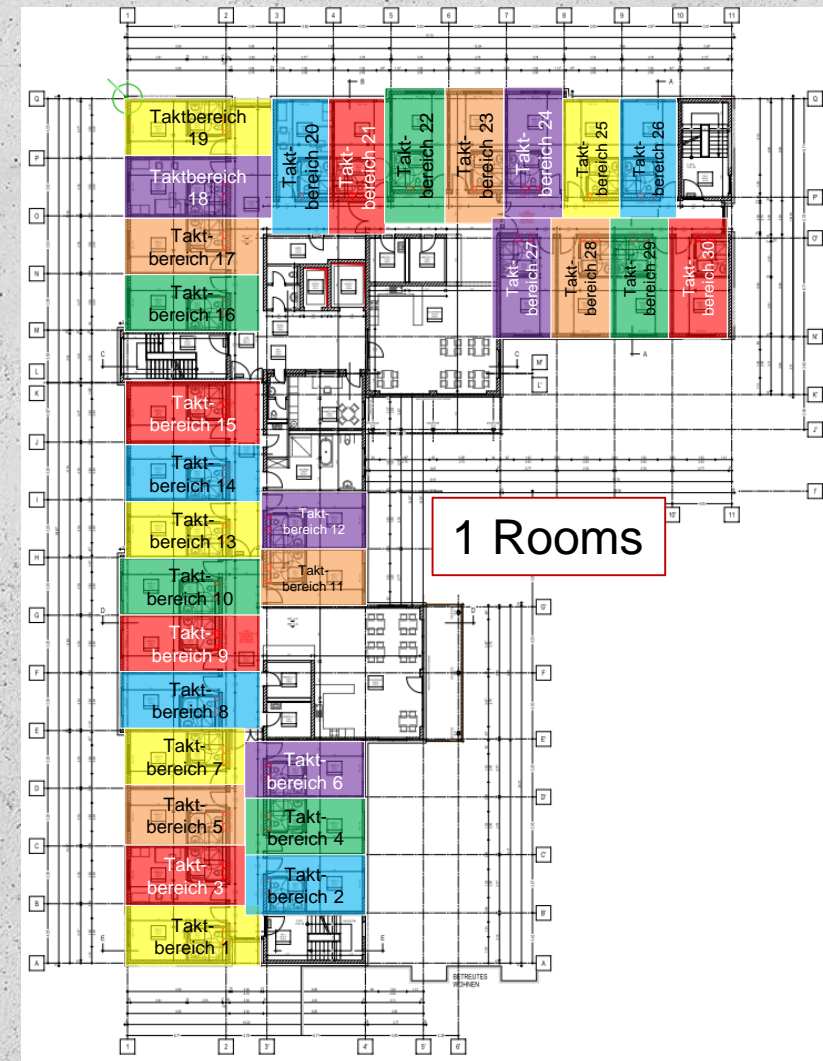
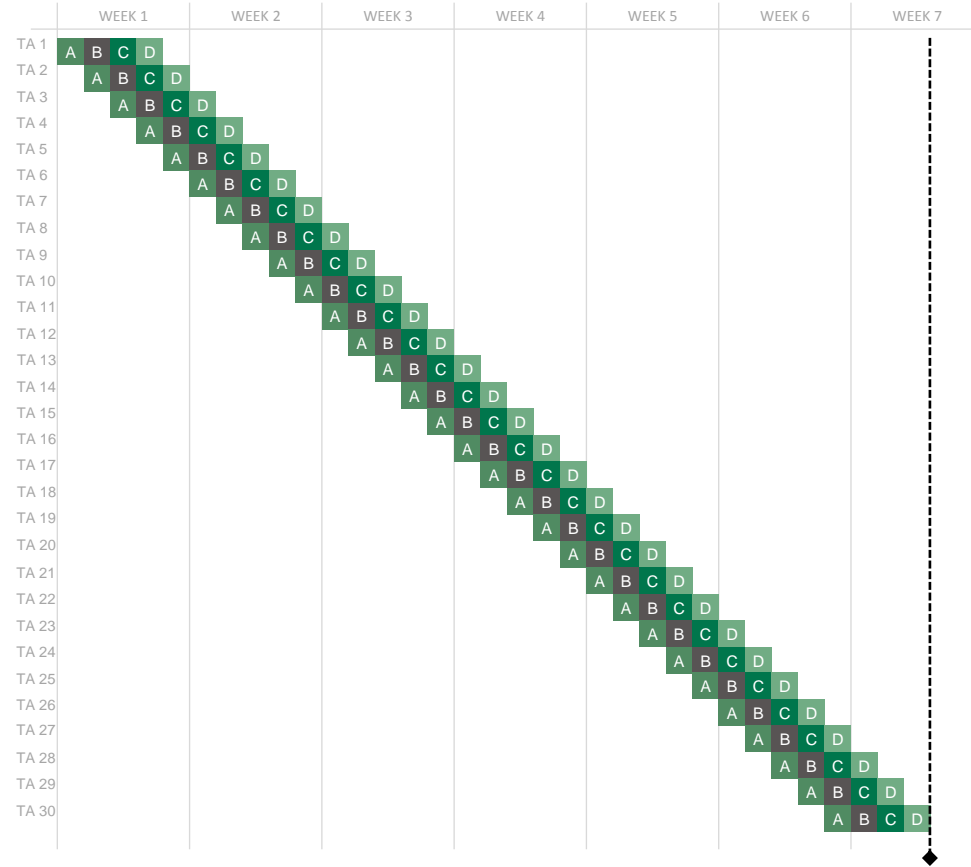


Duration time = (6 Takt areas + 4 waggons -1) x 5 d = 45 days (9 weeks)

Example of scaling

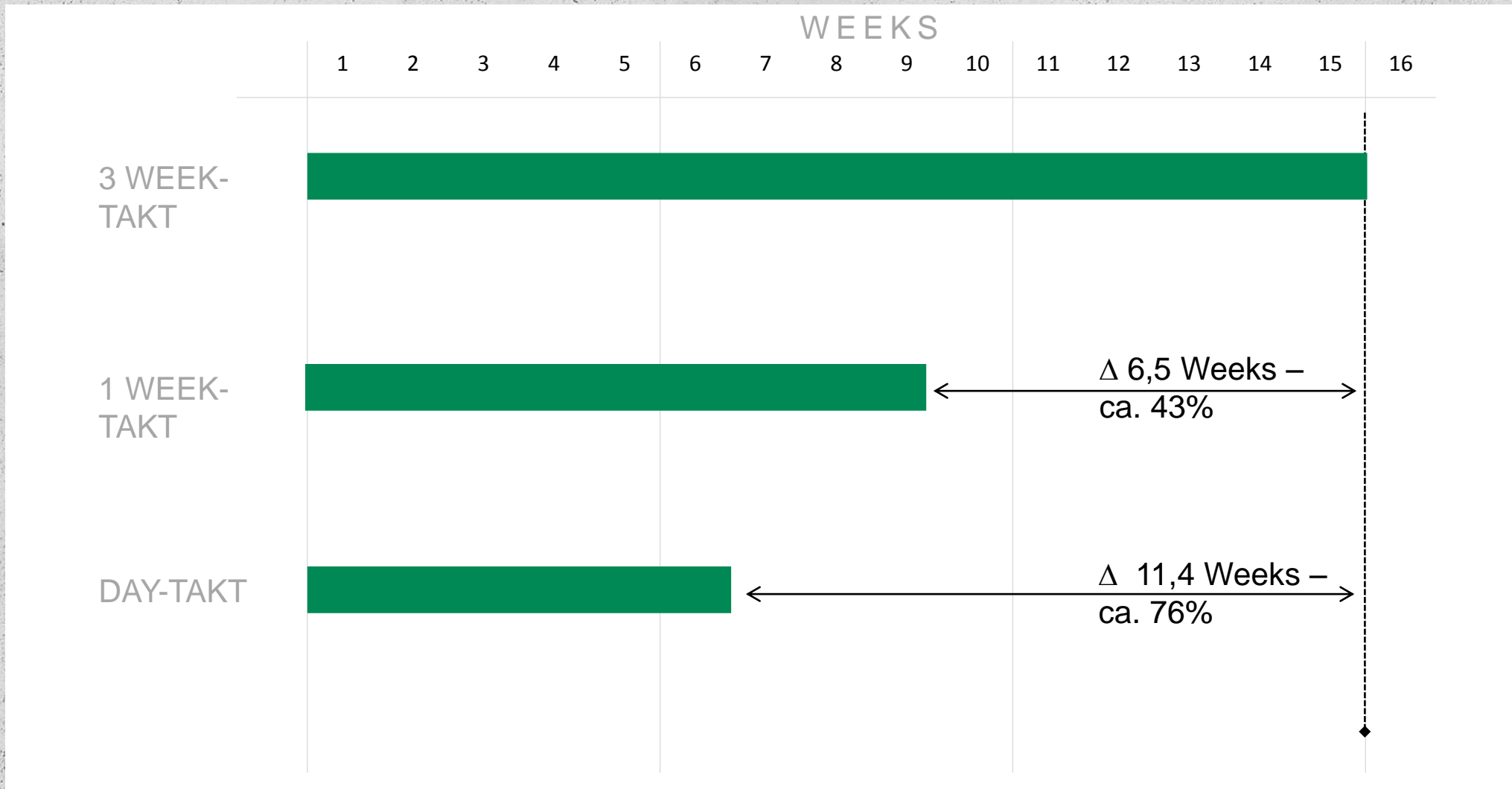


Takt time: 1 Day



Duration time = (30 Takt areas + 4 waggons - 1) x 1 d = 33 days (6,6 weeks)

Example of scaling



Smaller, tightly geared Takt areas/times result in a significant reduction in time!

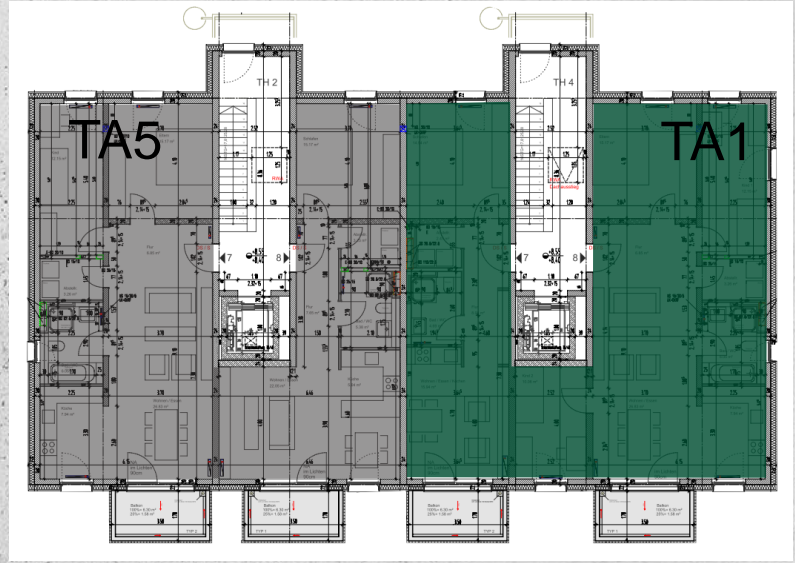
Example 1: Affordable housing



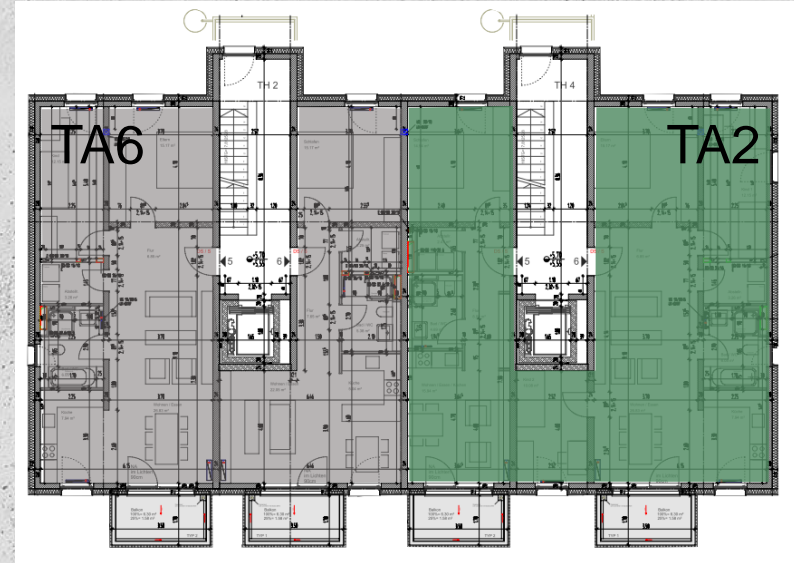
Selection of Takt areas



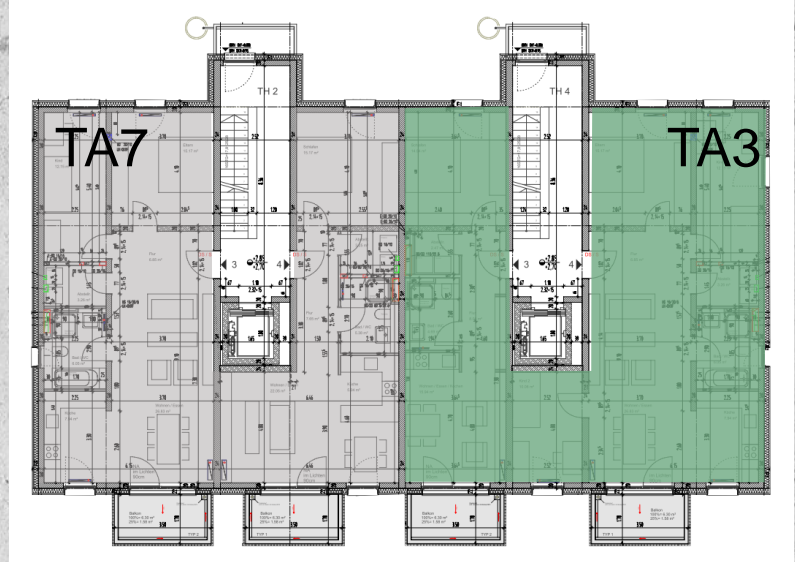
Attic:



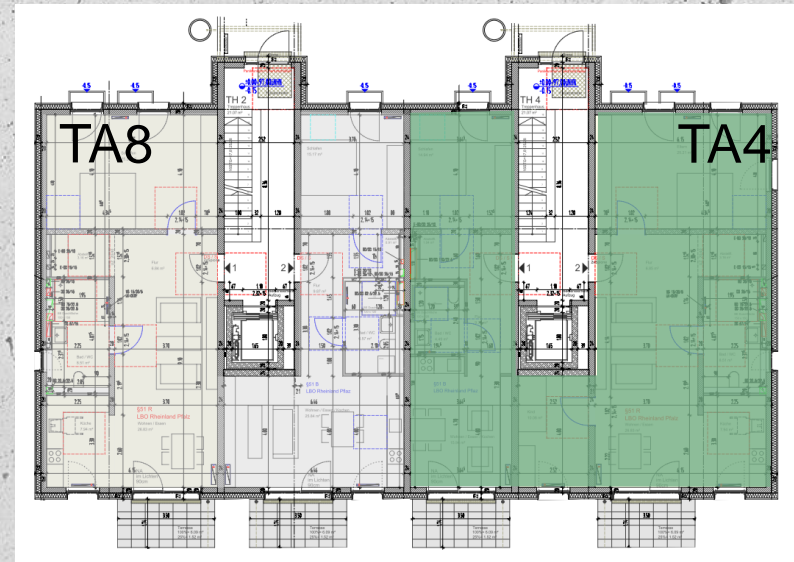
2F:



1F:



GF:



Numbers and facts



4
months



124
m²/day



39 WD
through
-put
time



2 CM
1 PM

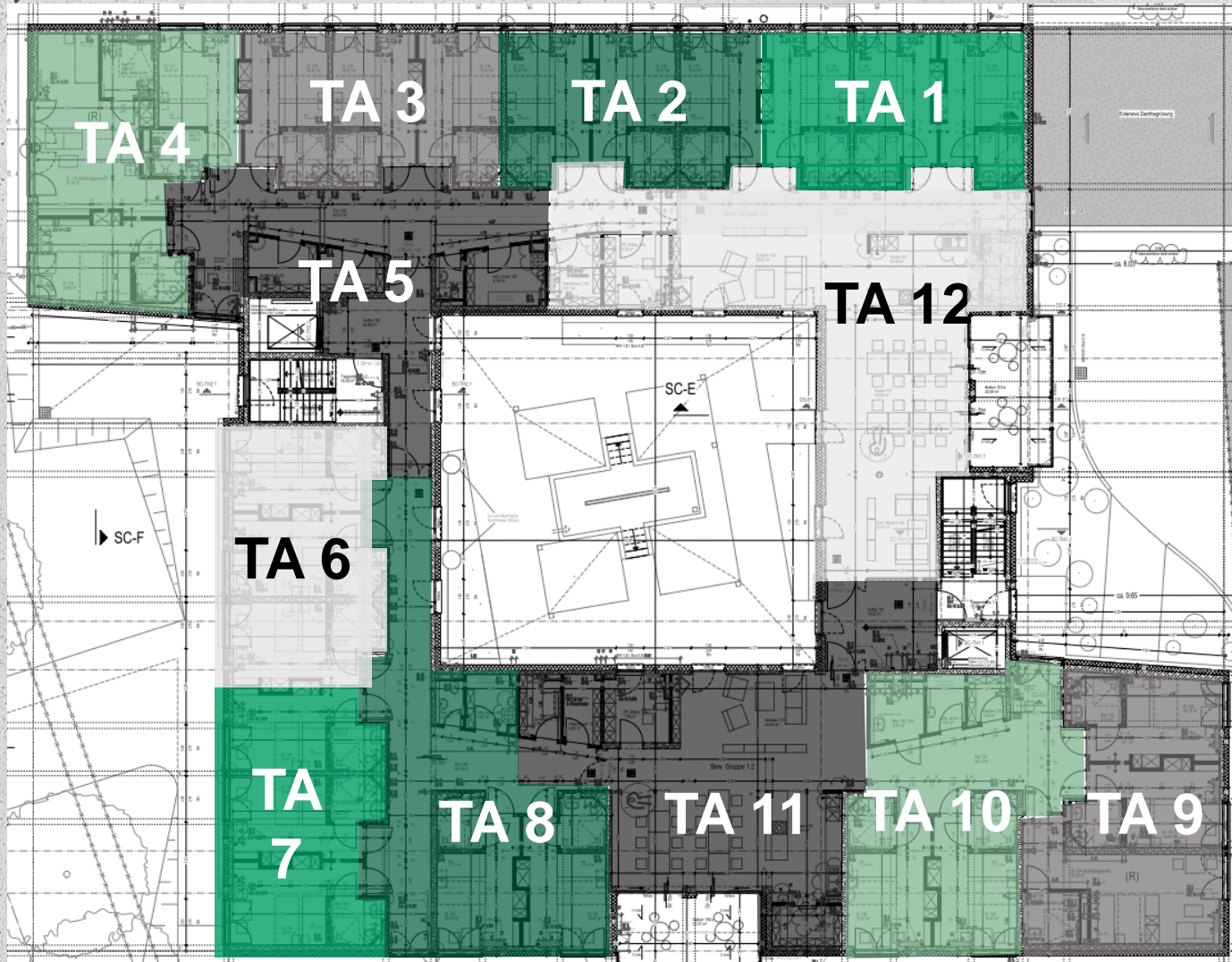


1 Day

Example 2: Nursing home



Selection of Takt areas 1-12



**3 Rooms (70m²)
per Takt area**

44 Takt areas (TA)

Friday is a buffer day

Numbers and facts



4,5
months



70
m²/day



42 WD
through
-put
time



2 CM
1 PM



1 day



Effects

How does Takt affect your organization?





Taktsteuerungstafel

Termine

Item	Start	End	Status
1	01.01.2024	15.01.2024	Completed
2	16.01.2024	31.01.2024	In Progress
3	01.02.2024	15.02.2024	Planned



Task Name	Start	End	Status
Boden 1	01.01.2024	15.01.2024	Completed
Elektro 3	16.01.2024	31.01.2024	In Progress
HL2-Sanitär 3	01.02.2024	15.02.2024	Planned
Du/Siegw	16.02.2024	31.02.2024	Planned

Control

Visualization



Our data bank and app world

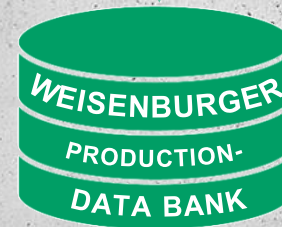
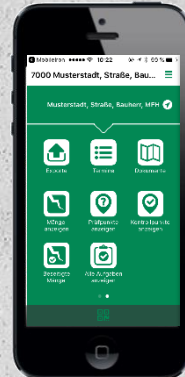


WB Services App

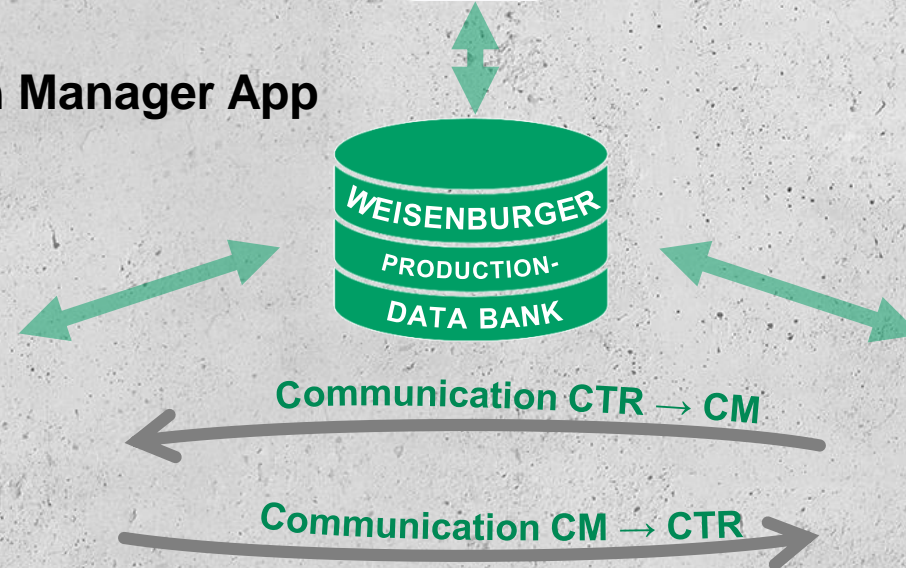
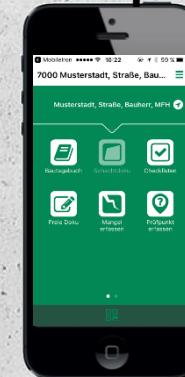


BIN = Bauteilidentifikationsnummer
cf. Car serial number
(WB- wide global unique number)

WB Construction Manager App



WBpro



We build future.



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Contact Data



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