

High Tech – Low Tech: The Swiss Cooperative Storage Facility

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LAG 18th Seminar, Freiburg i. Br., April 15, 2016



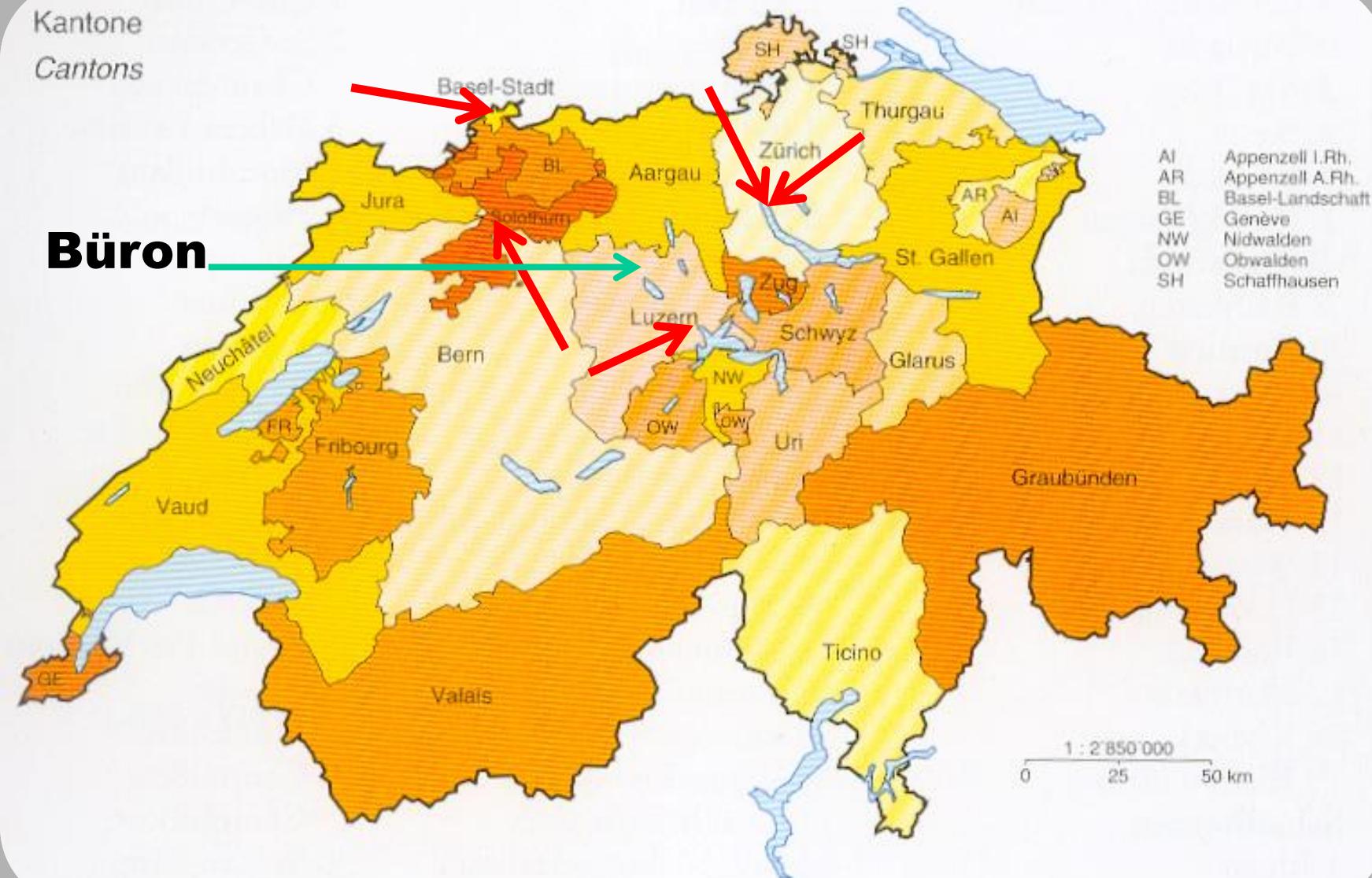
The Swiss Cooperative Storage Facility

- Cooperative storage for 5 libraries
- operational since Feb 1
(331'000 volumes in as of yesterday 5pm)
- Automated and oxygen reduced
storage part
- → rather high tech
- ... and low tech?

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Kantone
Cantons

Büron





What

1. The high tech part
2. The low tech part in two parts
3. Why?
4. Perspectives

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High Tech

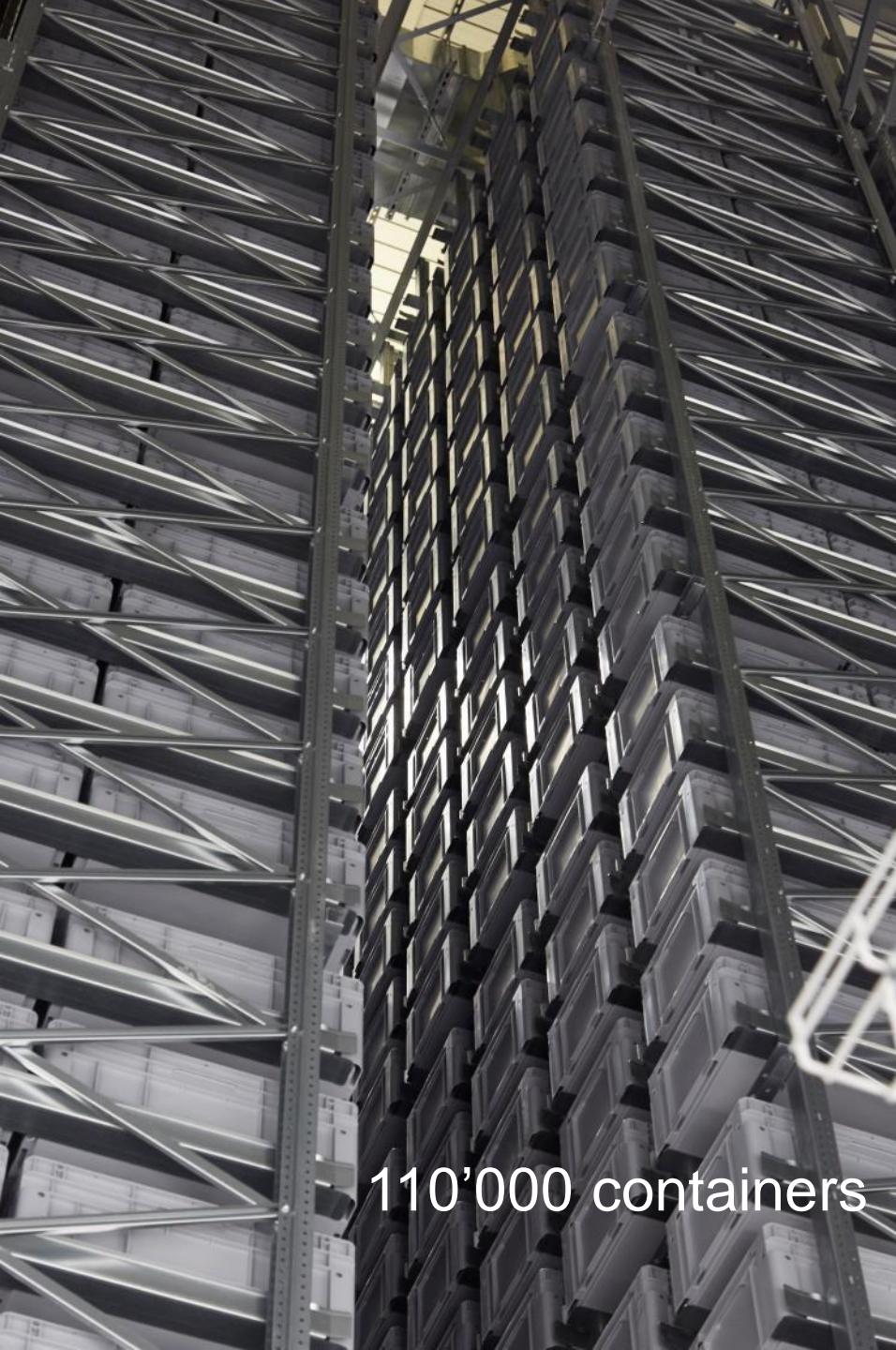
- High bay, high density
- books in containers (standard size: 60x40cm, two heights: 25 and 35 cm; neutral material)
- books in one container on average
- robots pick containers, hand them over to a conveyor lift/belt system which transports containers out of the storage area
- a book has a fixed place in its container, a container is stored dynamically

high bay,
14 m high

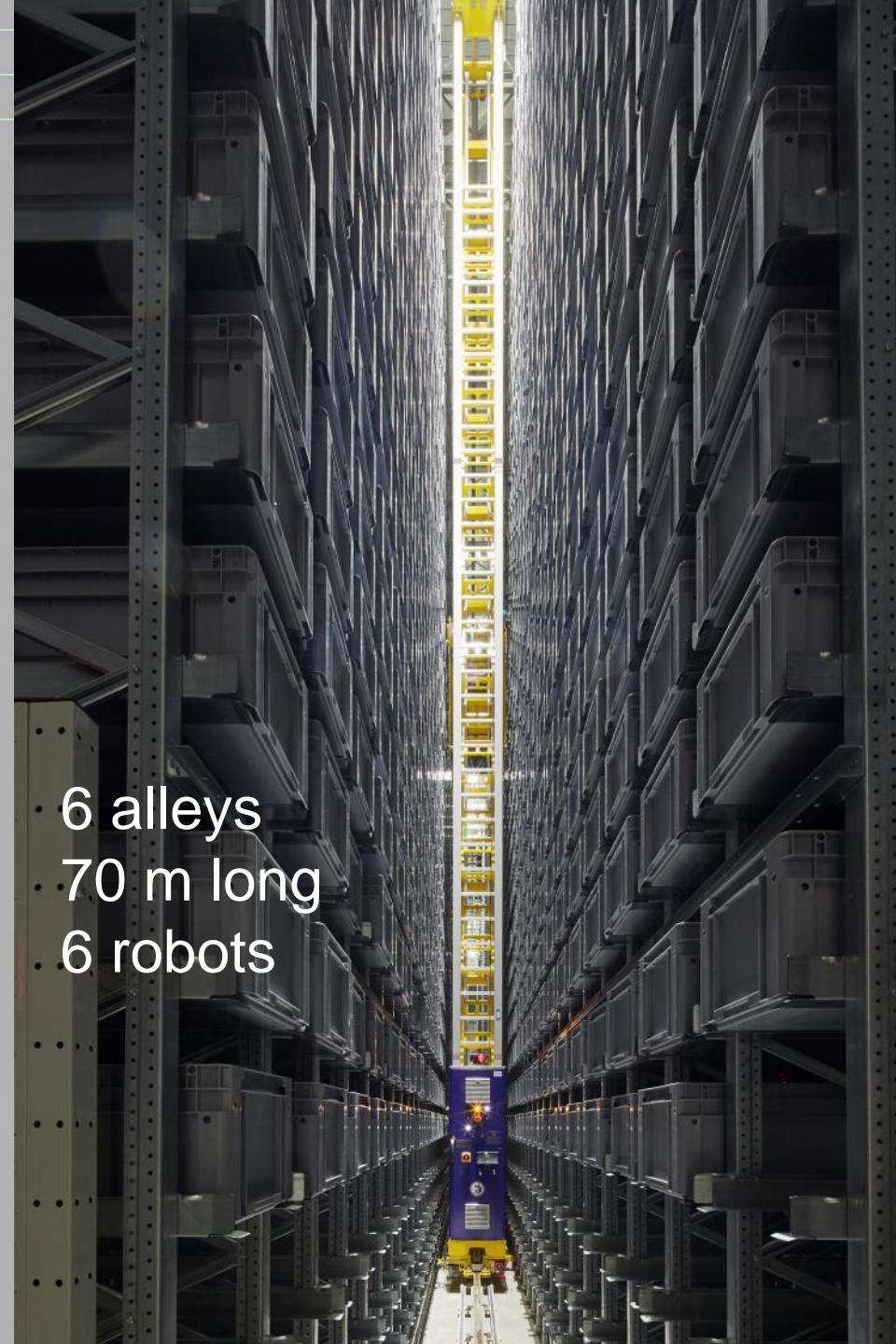


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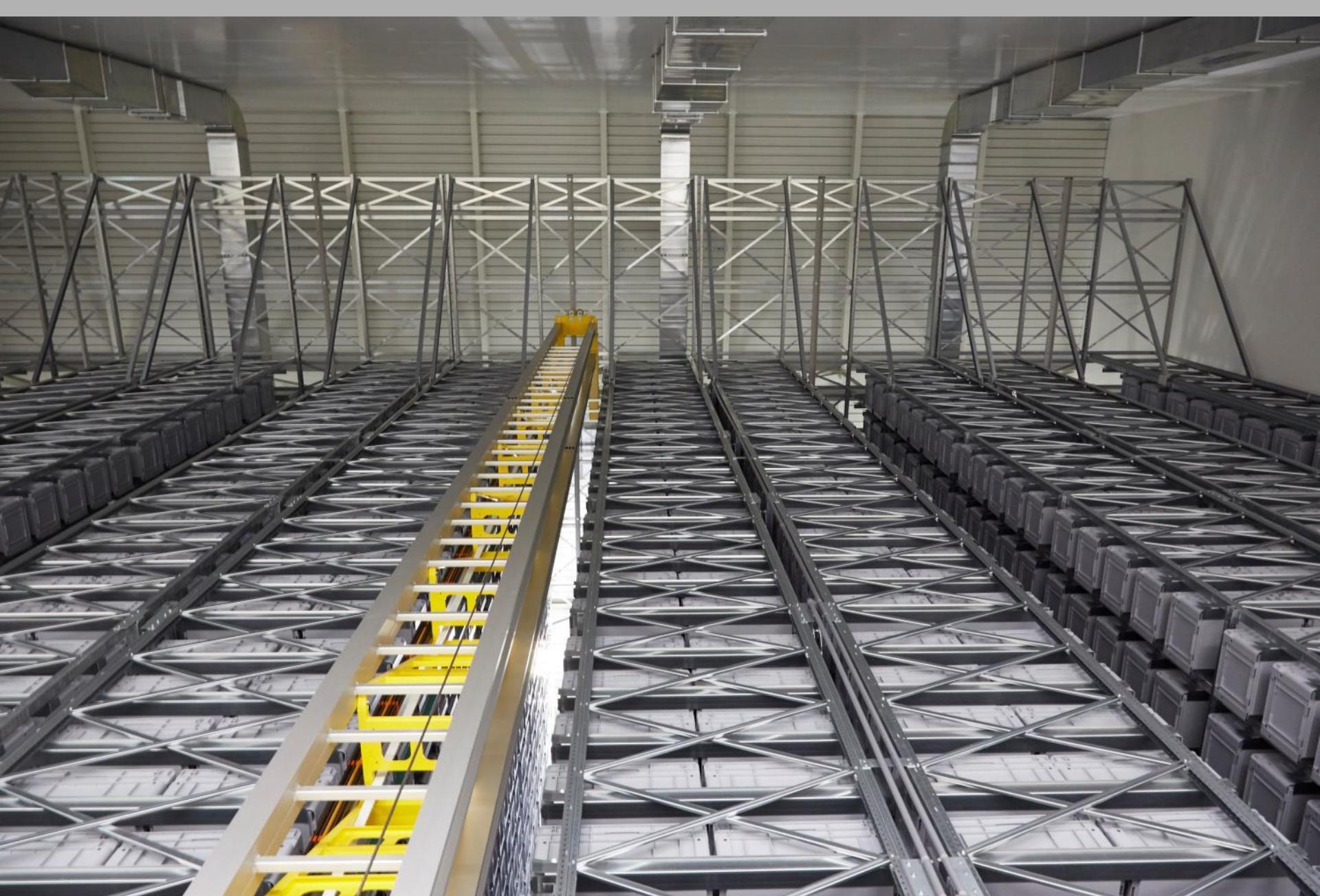




110'000 containers



- 6 alleys
- 70 m long
- 6 robots



2 containers on both sides of each alley ...

...and robots
with 2 places



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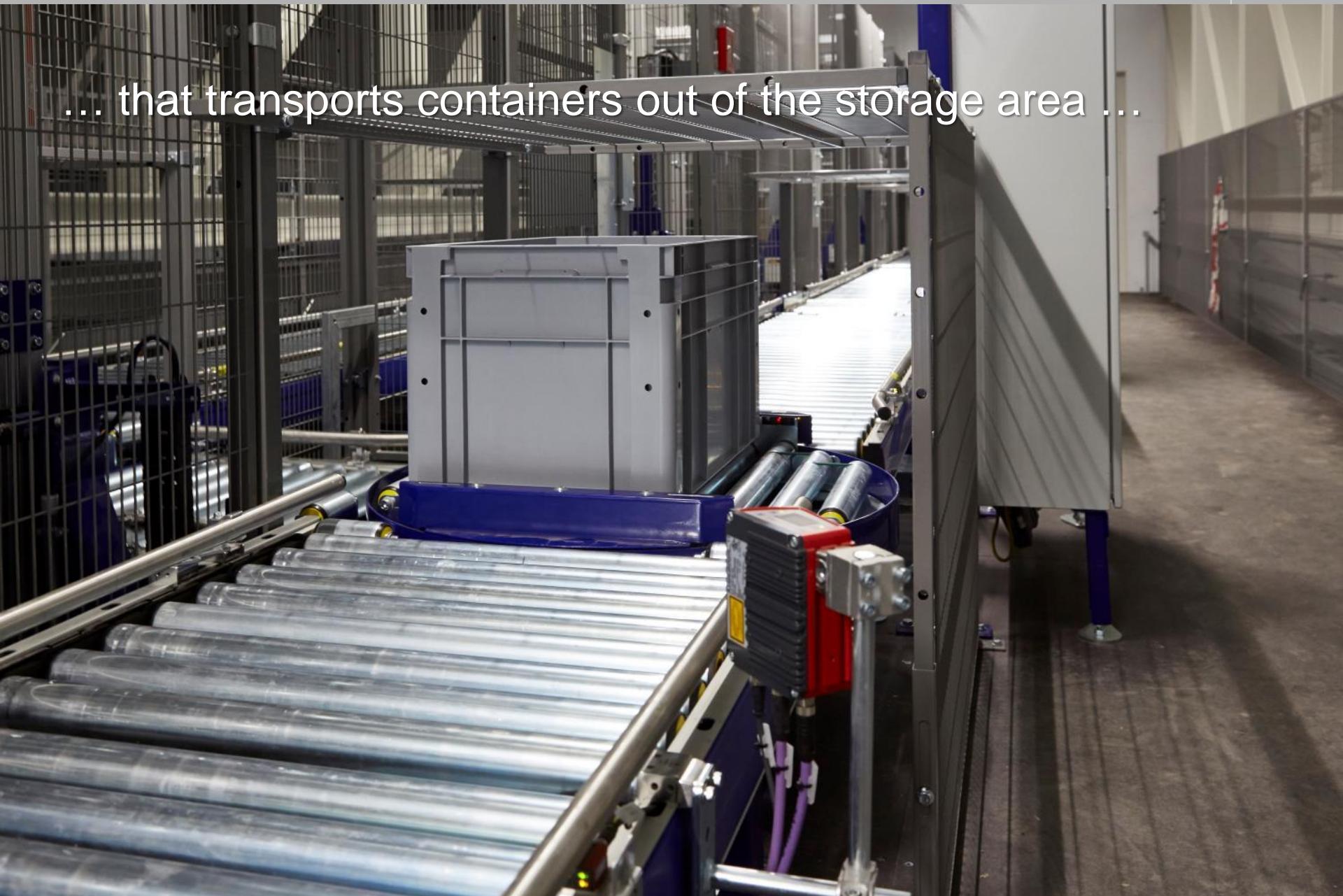






Robots hand over containers to a conveyor lift/belt system...

... that transports containers out of the storage area ...





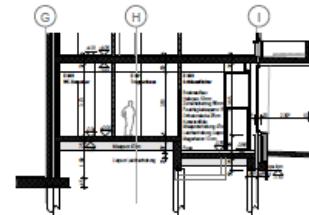
gzb architekten

04_201 Sohnitte A, C, G

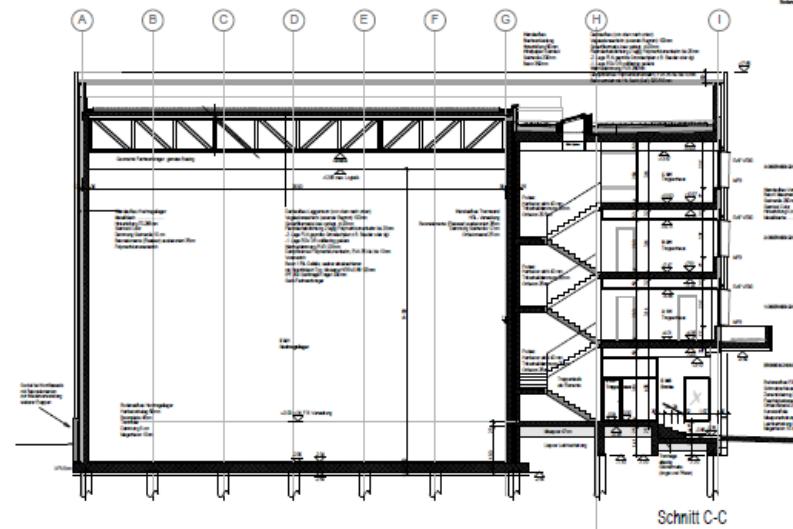
gymnase Bleden AG, Zentralstrasse 10, 8800 Laufen, Tel 041 2283800, Fax 041 2111841, Webpage
e-mail: gymnase@bleden.ch

B: Gummigranulat (Halb
Wt) **C:** Wt roh gestrichen
D: abg. Streckmetall

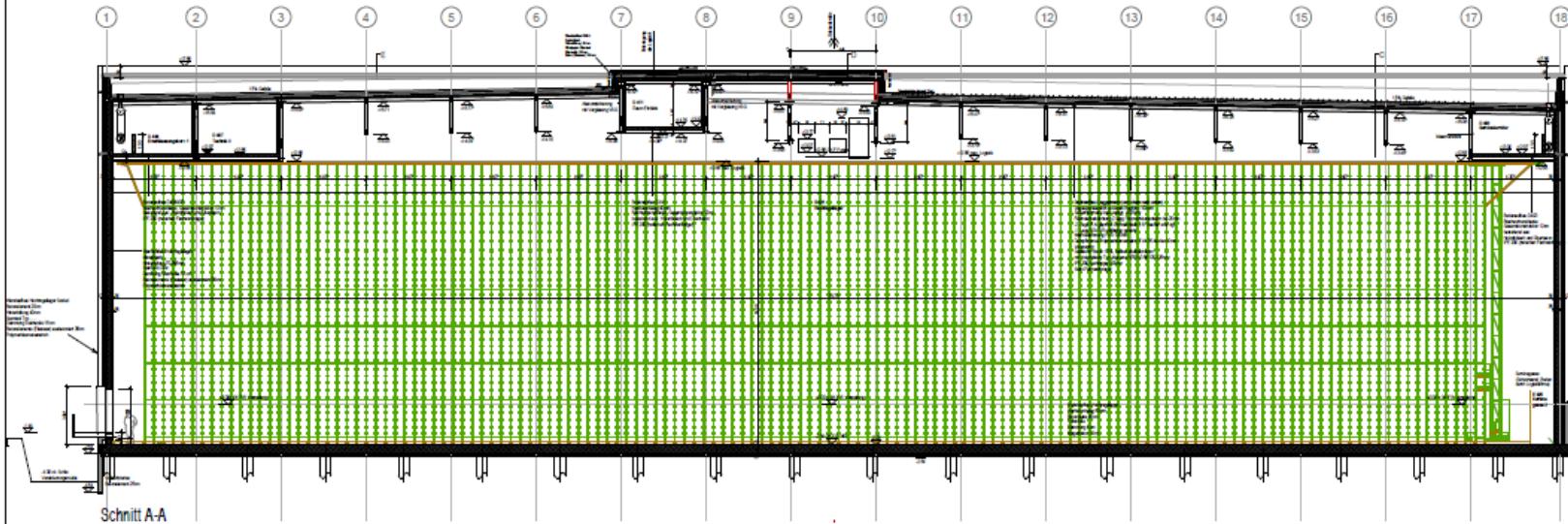
Vorabzug



Schnitt G-



Schnitt C-4



Schnitt A-A

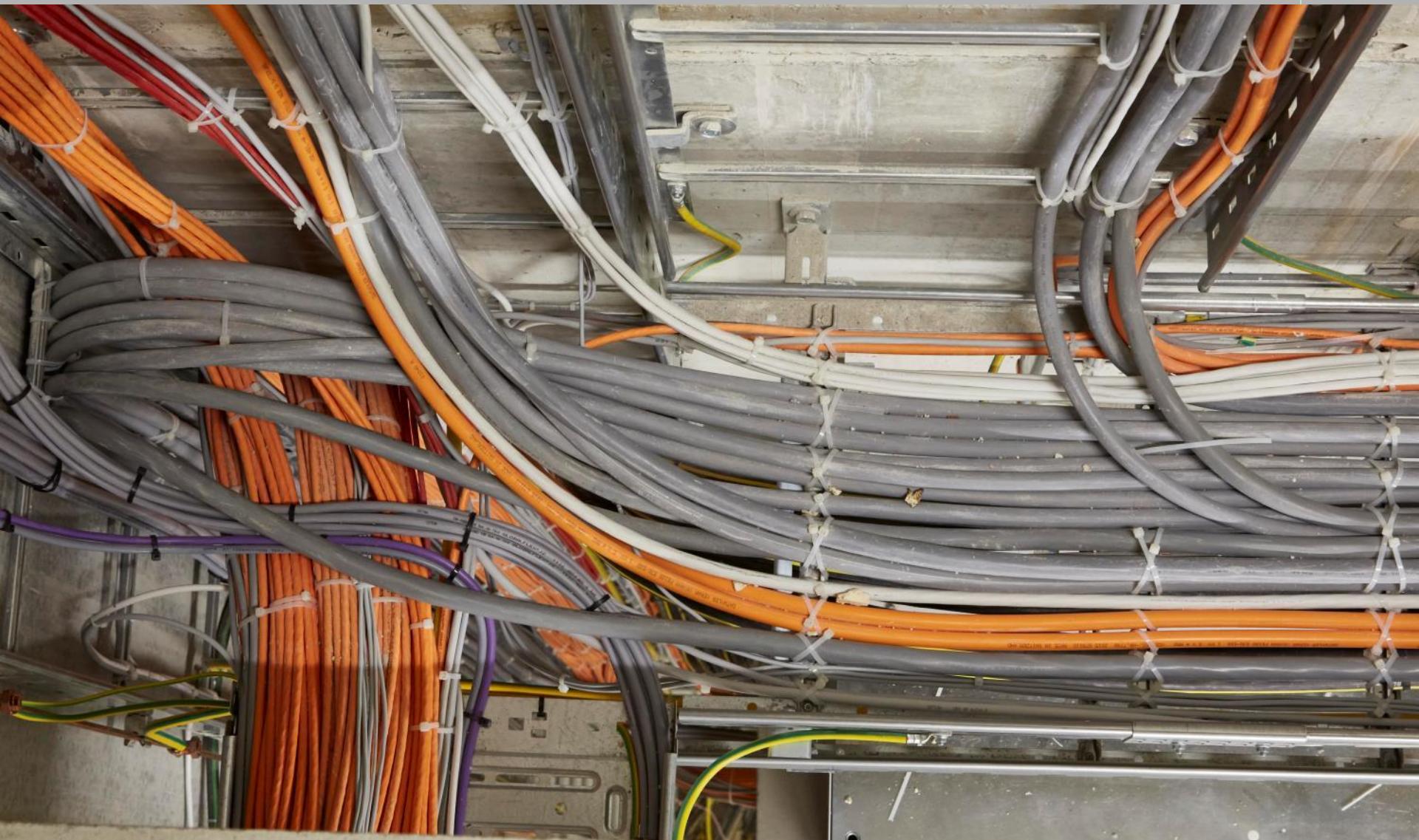
...and into the administrative part of the building,





... to a picking station

There are 4 picking stations
plus 2 mobile ones





Low Tech 1

- Passive climate control → thick walls (36 cm of concrete, plus 10-20 cm insulation)
- (5-20° Celsius, not more than $\pm 1^\circ$ in 12 hours)
- Humidity: 35%-45%; not more than $\pm 5\%$ in 48 hours
- Possible to add climate control machinery (HVAC) easily – storage area prepared!













Low Tech 2 (a bit higher...)

Less is more

- Oxygen reduction as an easy (- and most economical!) way of fire protection
- Oxygen reduction through the infusion of nitrogen

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Need to use piles in order to bear the enormous weight





50cm Ø, 25m long, 256 piles



The piles are used for geothermal heating/cooling



Aug 8th, 2014



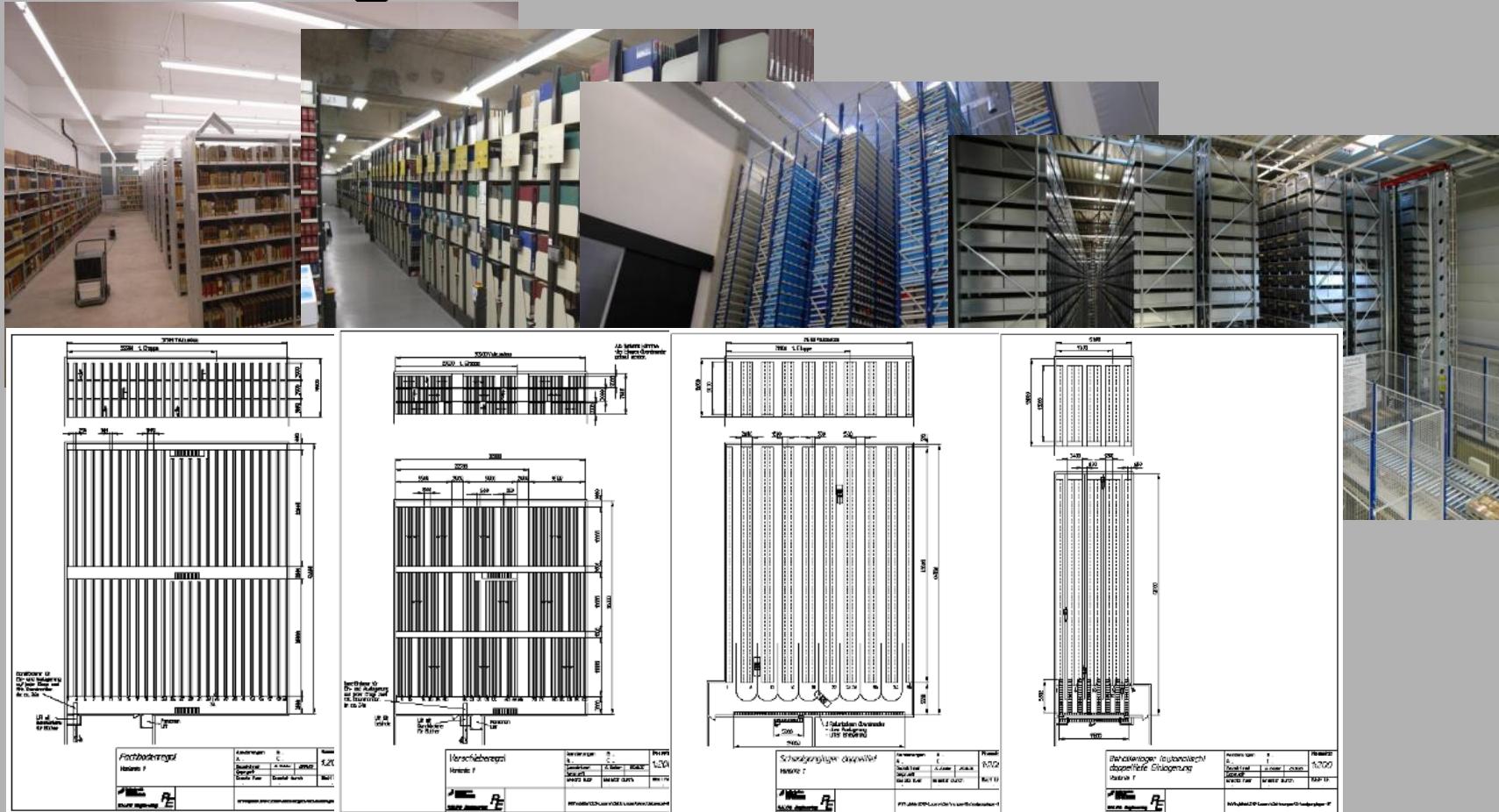
March 11th, 2016

Why? and how?

- Long term storage solution with
 - optimal conservation/ preservation conditions
 - best cost – effect relation

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Detailed evaluation of type of storage, first run

1'800m² 11'220m² 0.681'530m² 0.85580m² 0.32

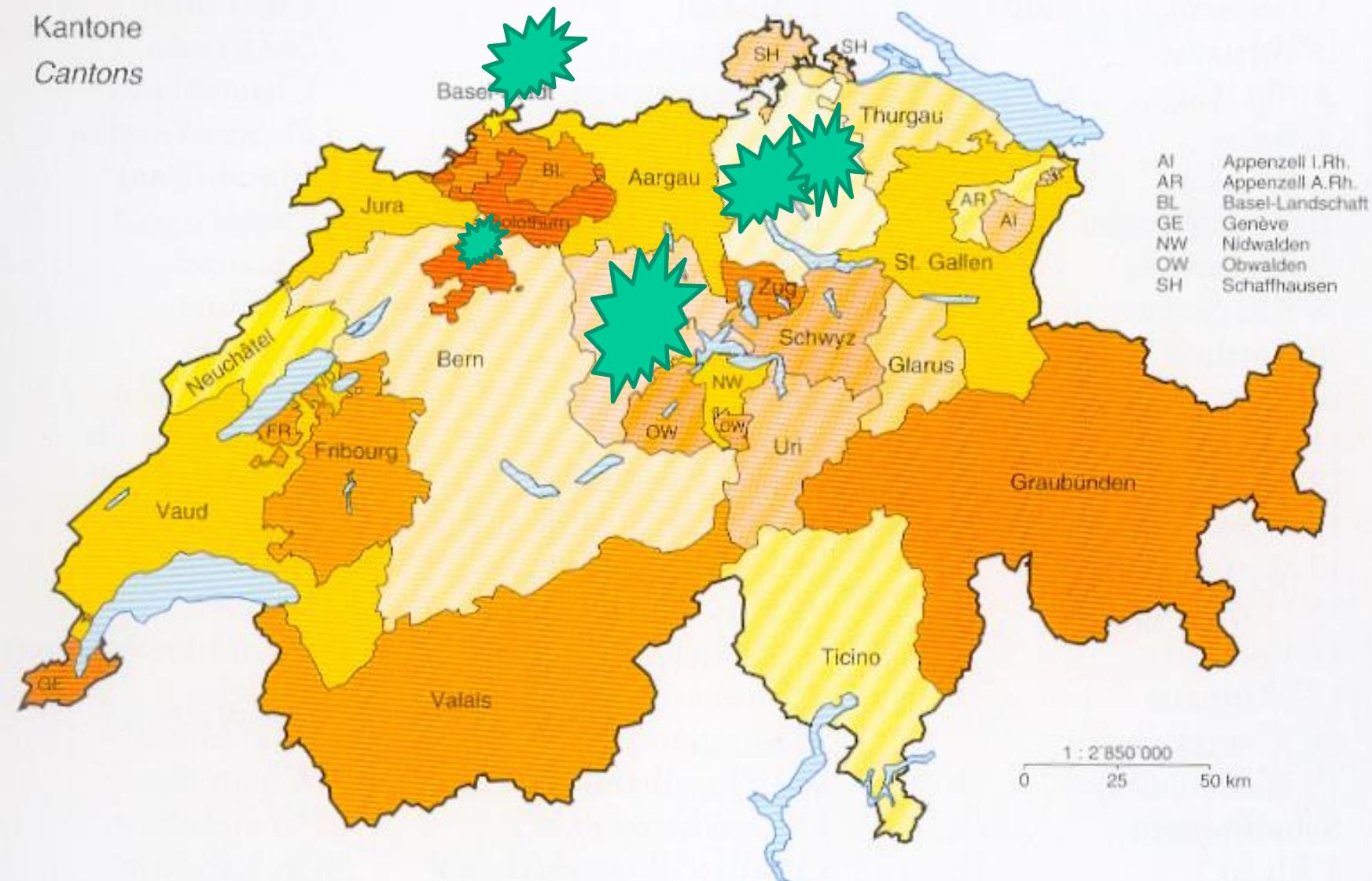
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Detailed evaluation of type of storage, **second run**

- Full cost calculation
- Status quo, fixed shelving, ASRS, outsourcing
- Cost relation: 137 to 119 to 100
- Cooperation potential
→political decision: abandon outsourcing, concentrate on cooperation

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Microsoft Excel - SpeiBi_resroom_eng-150517.xlsx

Swiss Cooperative Storage Facility												
Overview holdings, summer 2014												
storage quota per library												
	UB	BS	ZHB	LU	ZB	SO	UZH	ZH	ZB	ZH	Total	Kontrolle
<i>holdings stored individually</i>												
units		0	1'350'000		80'000	100'000	190'540			1'855'377	1'720'540	
factor (books, videos=1.0, CDs, LPs=0.2)		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0			
sum individual holdings		0	1'350'000	80'000	100'000	190'540	190'540	190'540	190'540	1'720'540	1'720'540	
<i>deduplicated holdings, new collective holding</i>												
volumes		580'000	150'000	20'000	30'000	360'000	923'119	923'119	923'119	923'119	1'140'000	
deduplication factor	0.7	406'000	105'000	14'000	21'000	252'000	798'000	798'000	798'000	798'000	798'000	
sum collective holding		51%	13%	2%	3%	32%	100%	100%	100%	100%	798'000	
	76'316	19'737	2'632	3'947	47'368	150'000						
sum total stored items	406'000	1'455'000	94'000	121'000	442'540	2'518'540	2'518'540	2'518'540	2'518'540	2'518'540	2'518'540	
percentage of totally stored items (i.e. reserved room)		16%	58%	4%	5%	18%	100%	100%	100%	100%	100%	

Thanks for your attention! and see you
in Büron.

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