



SMART STORES 24/7 – Status and perspectives

Prof. Dr. Stephan Rüschen

Heilbronn, November 2022

Prof. Dr. Stephan Rüschen



Professor für Food Retail (since 2013)

Retail Marketing, Management, Category Management/Purchasing, Sustainability, Customer Satisfaction

Cooperative State University Baden-Württemberg (DHBW) in Heilbronn

- appr. 1.000 Retail-Students

2001-2012 Metro Cash & Carry

- Marketing, Corporate Development, Nonfood Einkauf, eCommerce
- Germany, Hungary, West-Europe

1996-2000 Tengelmann Group

- Corporate Development, Food Purchasing, Controlling



Source: DHBW Heilbronn, Eigene Darstellung

shop.box und collect.box openend 15.3.2021 on the site of the Bildungscampus in Heilbronn



Source: Bildungscampus Heilbronn (2021)

Smart Stores 24/7: 56 concepts in Germany identified (Status November 2022)



Source: Internet

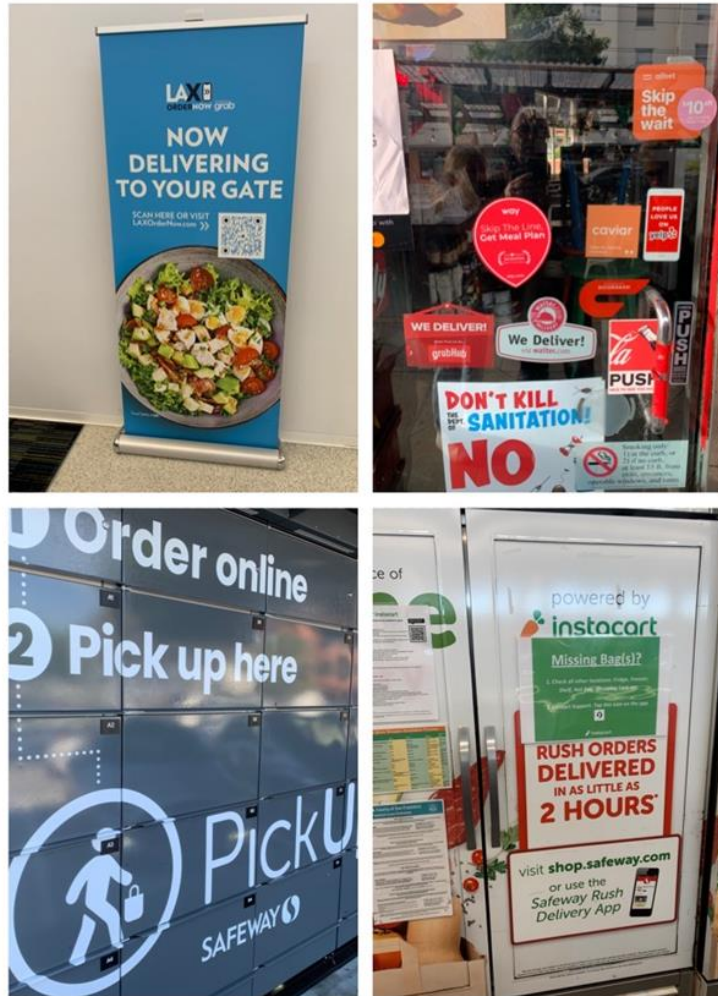
Five Criterias of Smart-Store 24/7 Concepts → Convenience

- ‚Unmanned‘
- ‚24/7‘
- ‚Tiny‘
- ‚Cashless‘
- ‚Registration‘



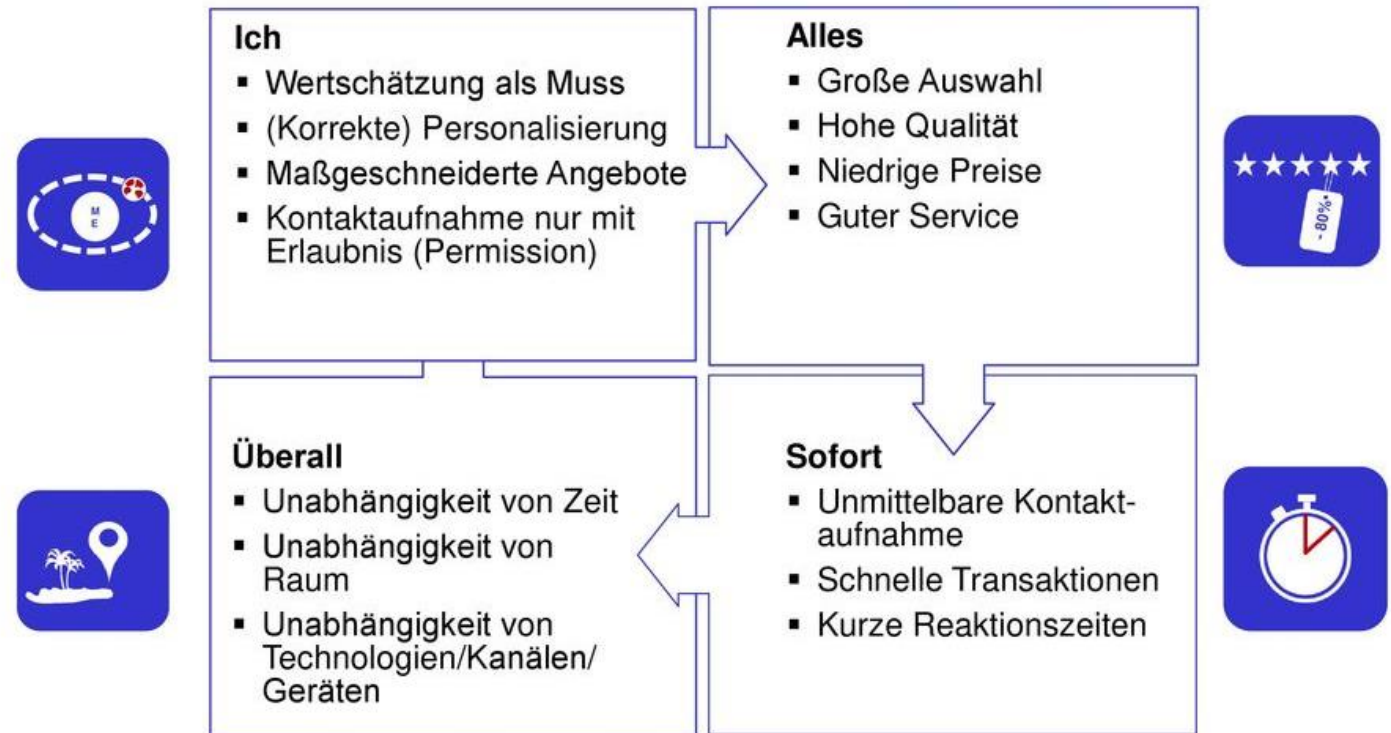
„Exceptions prove the rule.“

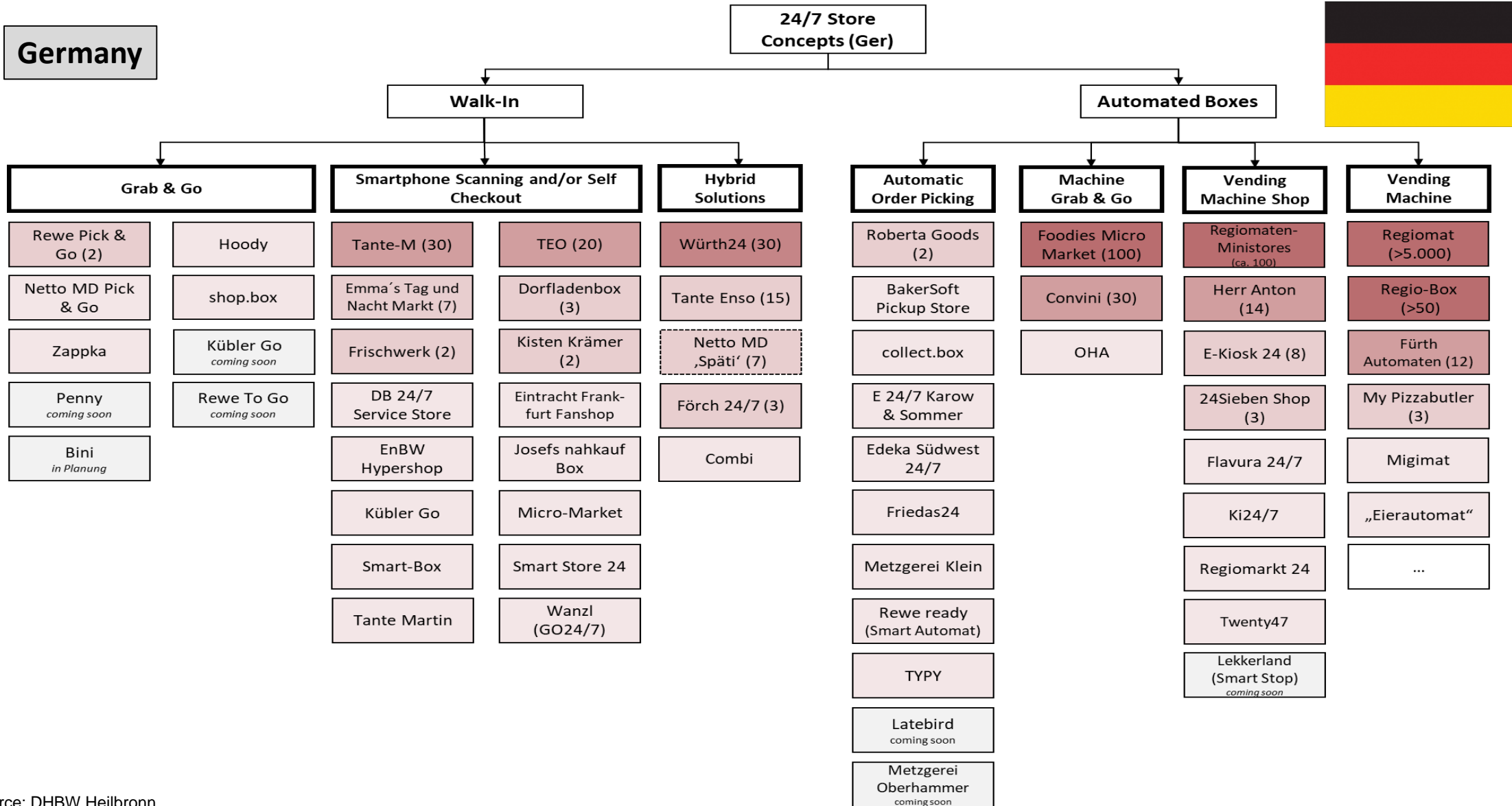
Convenience 2.0?



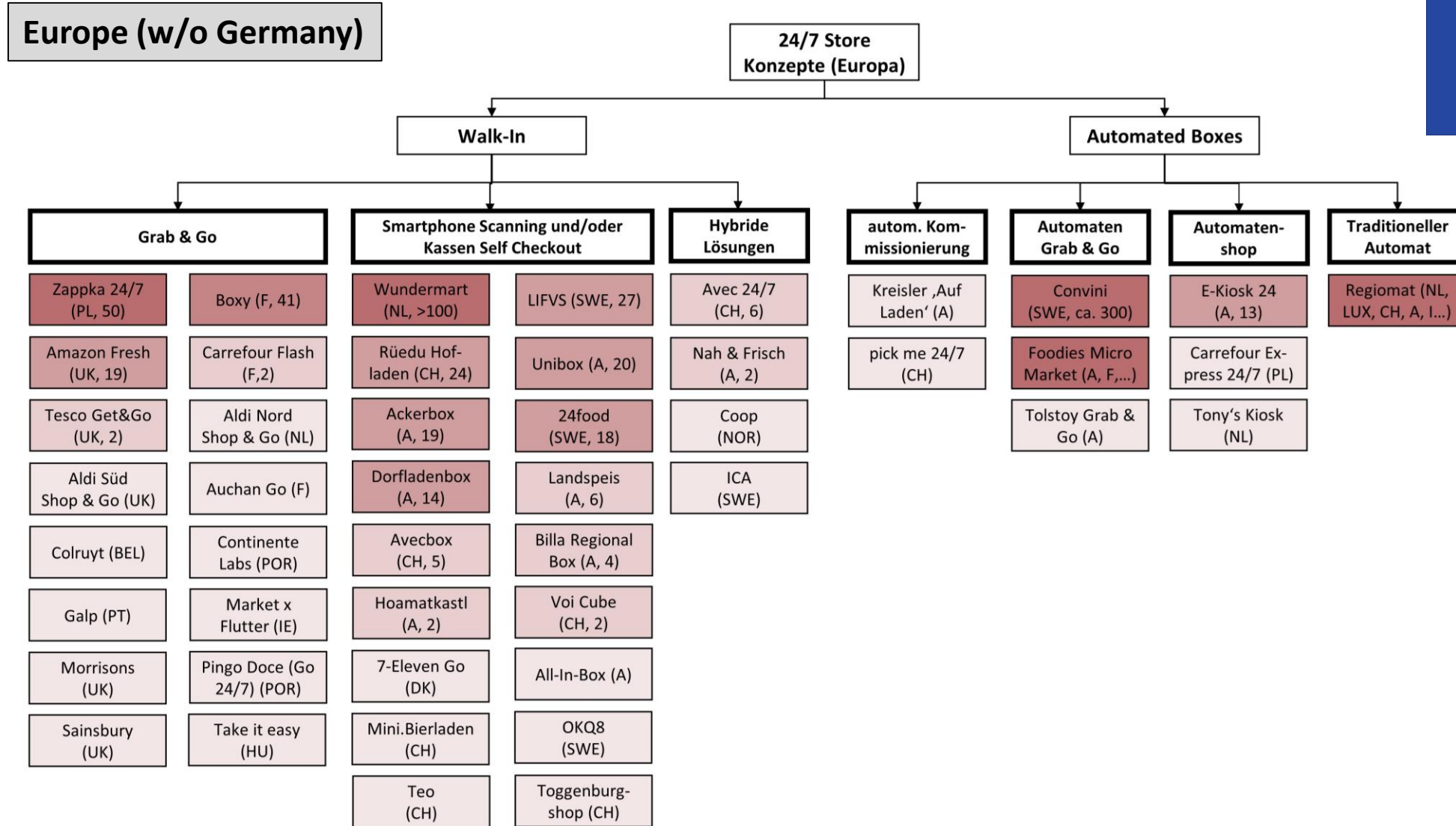
Source: San Francisco (2022)

Customer: Me, everything, everywhere, immediately!





Source: DHBW Heilbronn

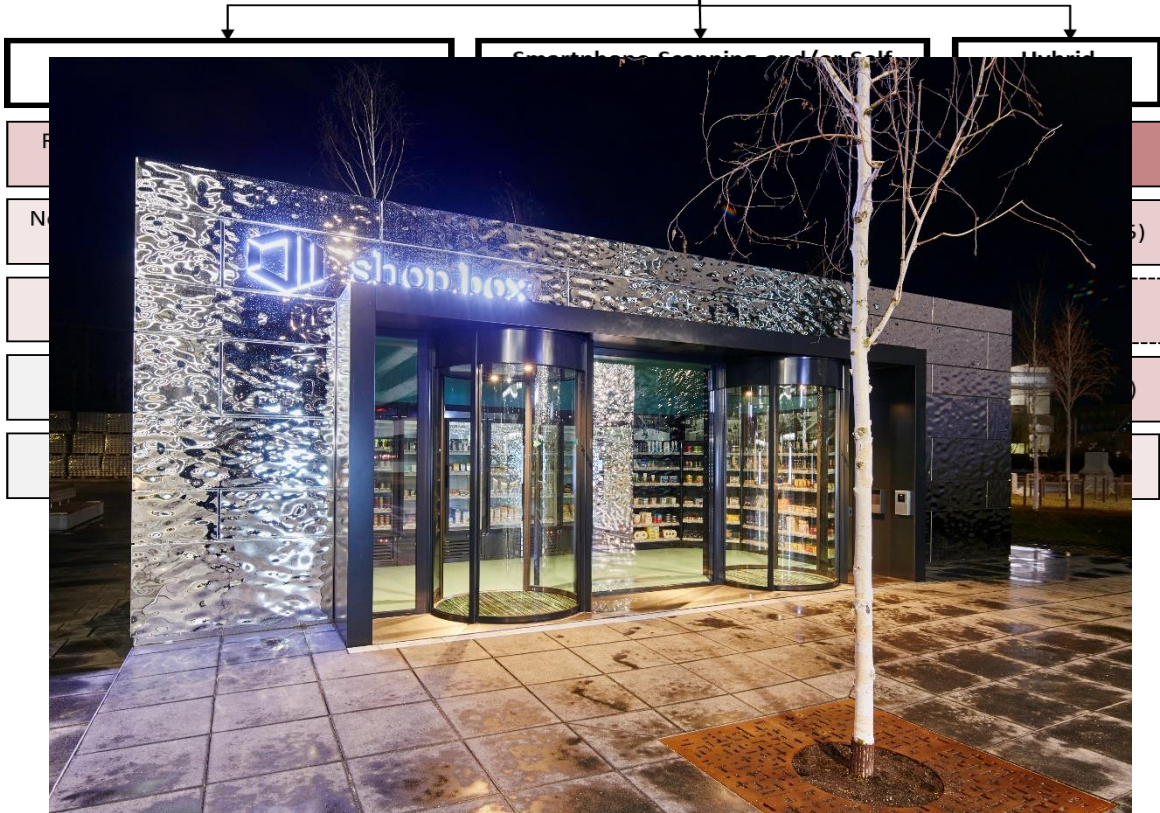


Source: DHBW Heilbronn

24/7 Store Concepts (Ger)

Walk-In

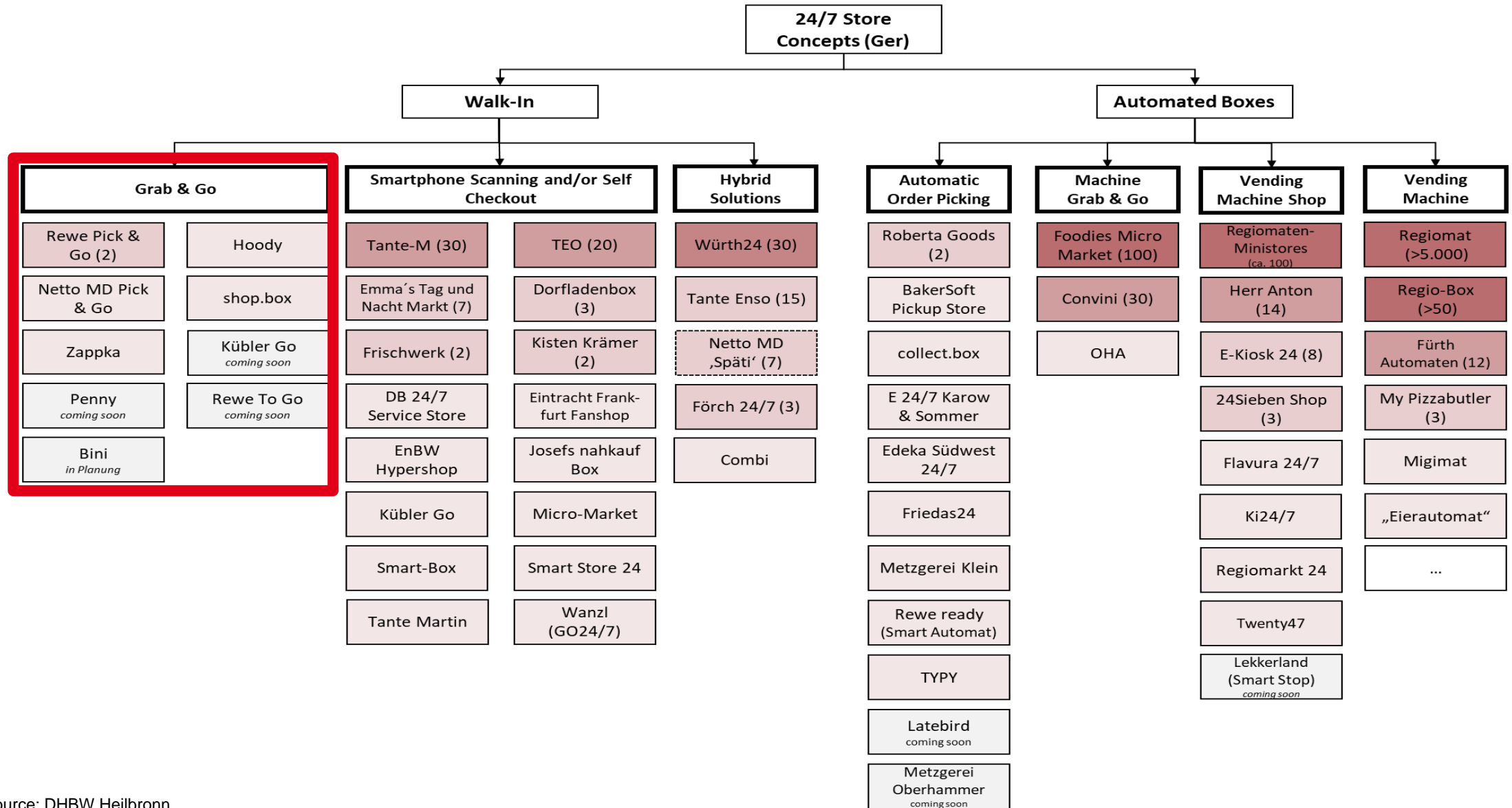
Automated Boxes



Latebird
coming soon

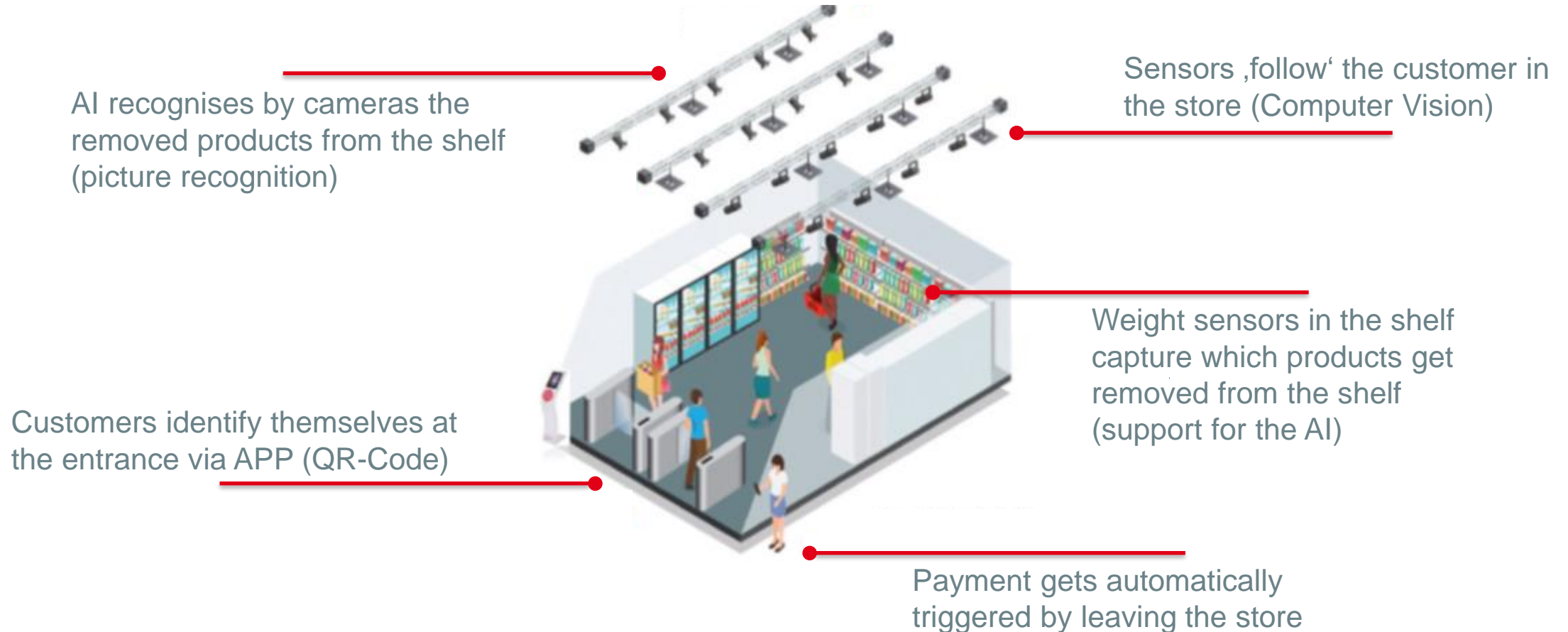
Metzgerei
Oberhammer
coming soon

Source: DHBW Heilbronn, Bildungscampus



Source: DHBW Heilbronn

How work Grab & Go Stores?



Source: LZ (2021)

Grab & Go – in Germany still only Tests

Grab & Go	
Rewe Pick & Go (2)	Hoody
Netto MD Pick & Go	shop.box
Zappka	Kübler Go <i>coming soon</i>
Penny <i>coming soon</i>	Rewe To Go <i>coming soon</i>
Bini <i>in Planung</i>	



- In D only 5 tests
- At Rewe and Netto MD the Grab & Go is an alternative payment method
- Only Rewe with a 2. store
- Only Shop.box as 24/7



Source: DHBW Heilbronn, LZ (2021), Netto (2022), ID Metropolen News (2022), Bildungscampus (2021)

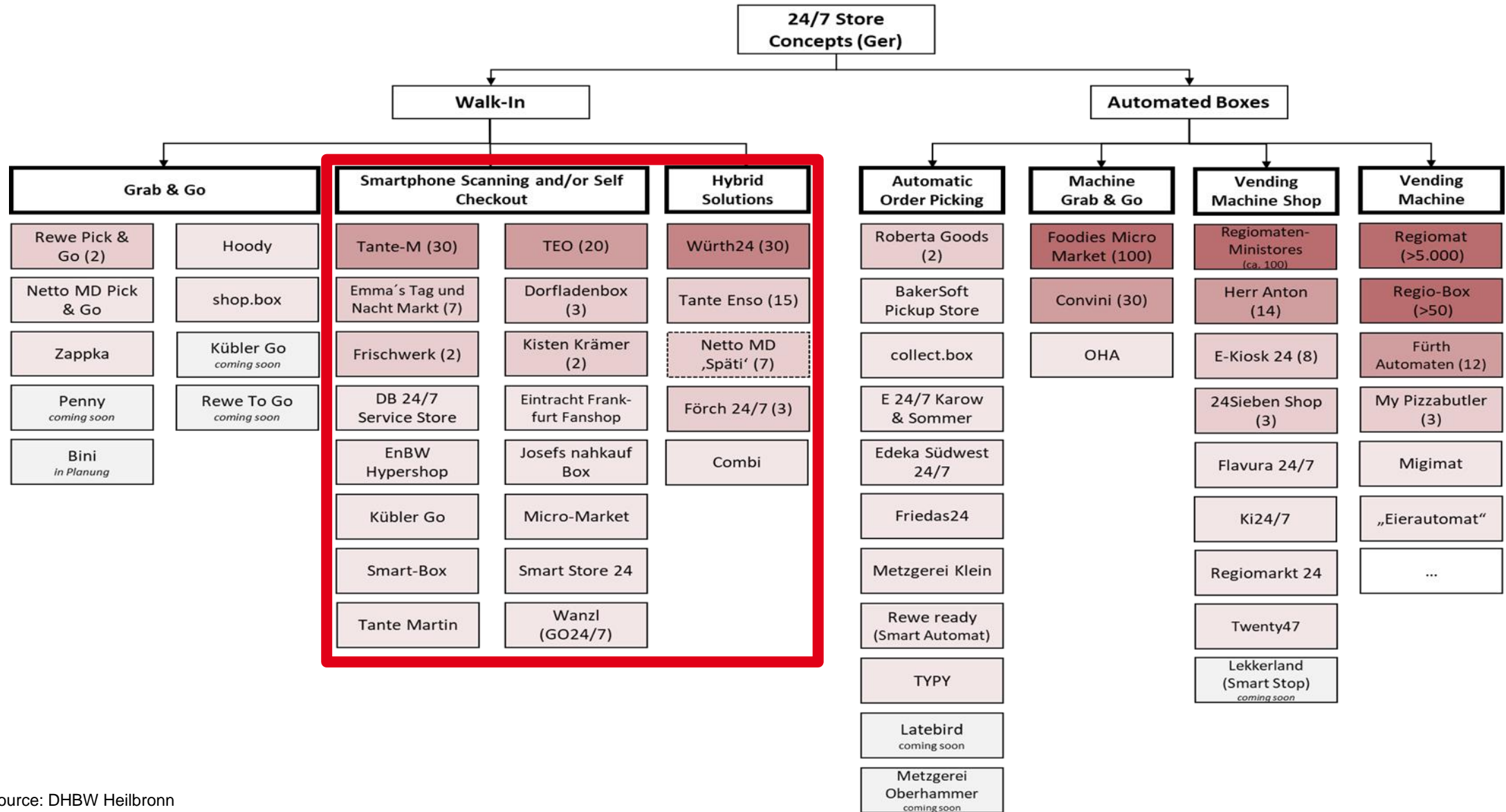
Grab & Go – in Europe partly Roll-outs - 16 different Tests

Grab & Go	
Zappka 24/7 (PL, 50)	Boxy (F, 41)
Amazon Fresh (UK, 19)	Carrefour Flash (F, 2)
Aldi Nord Shop & Go (NL)	Aldi Süd Shop & Go (UK)
Auchan Go (F)	Colruyt (BEL)
Continente Labs (POR)	Galp (PT)
Market x Flutter (IE)	Morrisons (UK)
Pingo Doce (Go 24/7) (POR)	Sainsbury (UK)
Take it easy (HU)	Tesco Get&Go (UK)

- 3 retailers already with Roll-out (Amazon in UK, Zappka in PL, Boxy in F)
- Many established retailers test the Grab & Go (Aldi Süd & Nord, Schwarz-Gruppe, Tesco, Carrefour, Albert Heijn, Colruyt, Morrisons, Sainsbury, etc.).
- Technological development would be with ,only camera‘ (without weight support).



Soruce: DHBW Heilbronn, Interia.pl (2021), Boxy (2022), Londonseite.de (2022)



Source: DHBW Heilbronn

Tante-M, Tante Enso, Teo and Co. -> Rollout

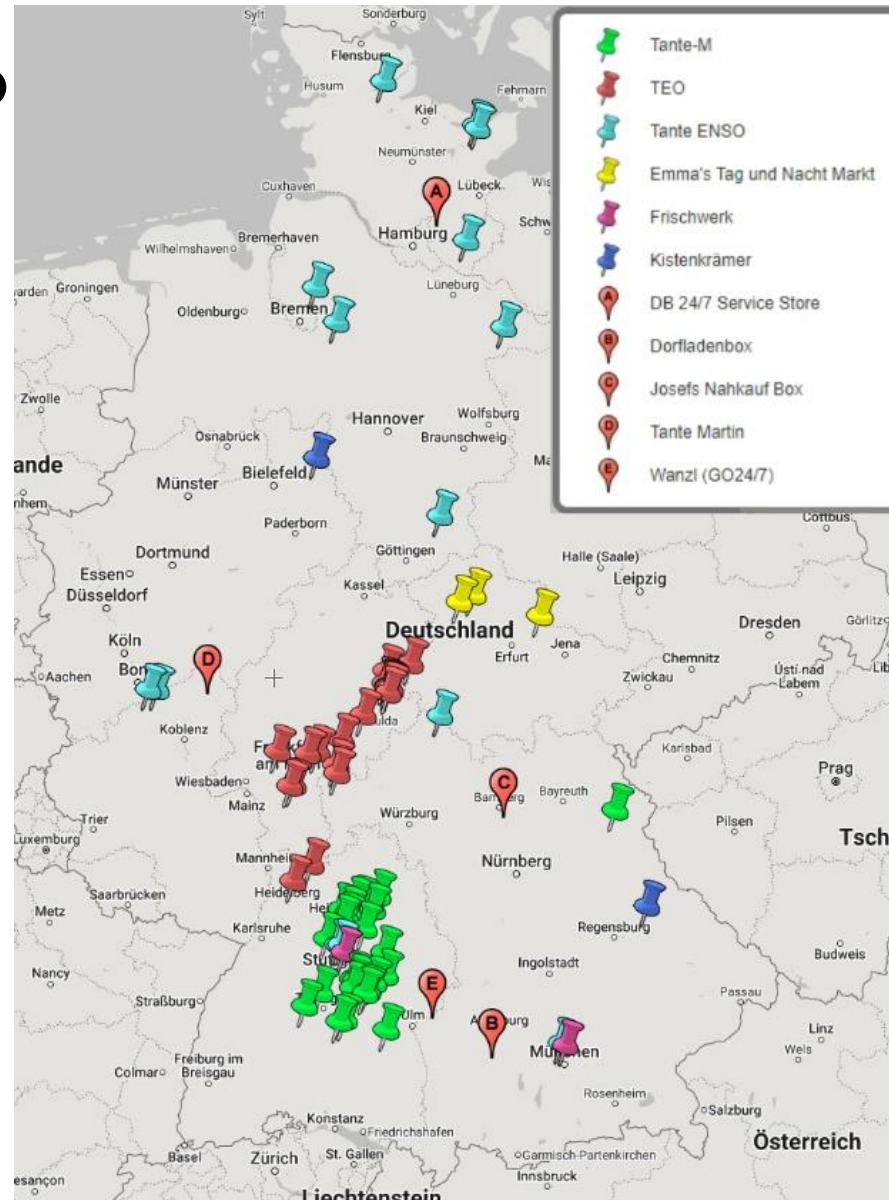


- **Tante-M:** 30 stores (+20 planned for 2023)
- **Teo:** 21 stores (+25 planned for 2023)
- **Tante Enso:** 15 stores (+26 planned for 2023)
- **Emmas Tag und Nacht Markt:** 3 stores (+7 planned for 2023)



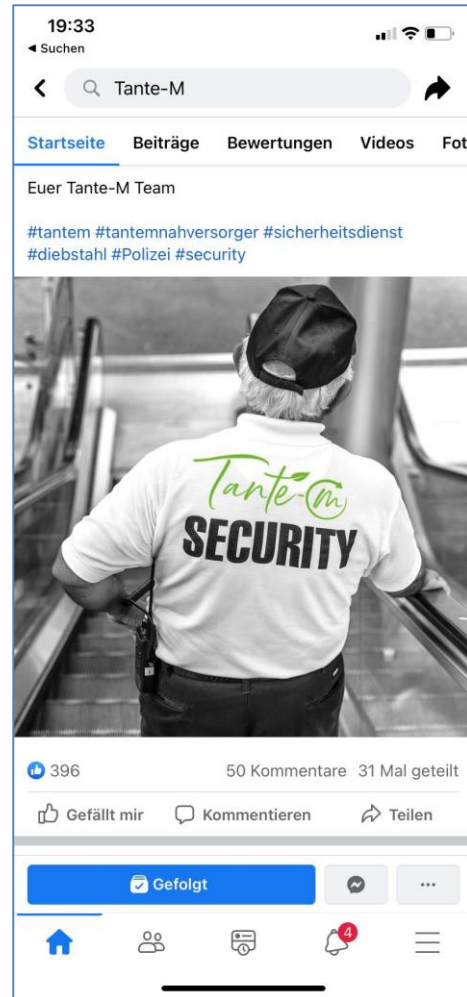
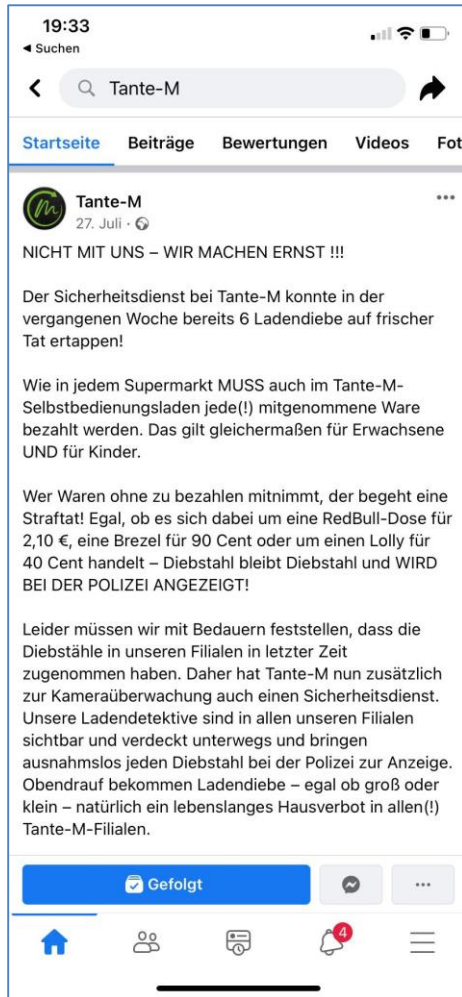
Source: Tante-M, Tante Enso, Tegut, Emma's Tag und Nacht Markt

Tante M, Tante Enso, Teo and Co. mainly do the Rollout in Hessen and Baden-Württemberg



Source: DHBW Heilbronn (Status August 2022)

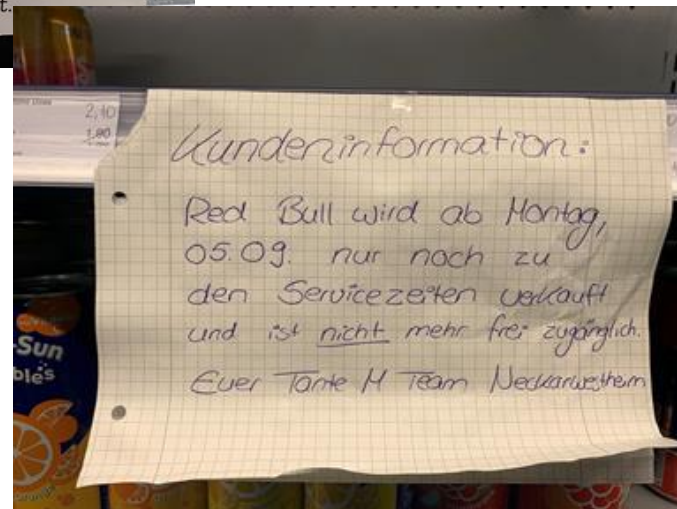
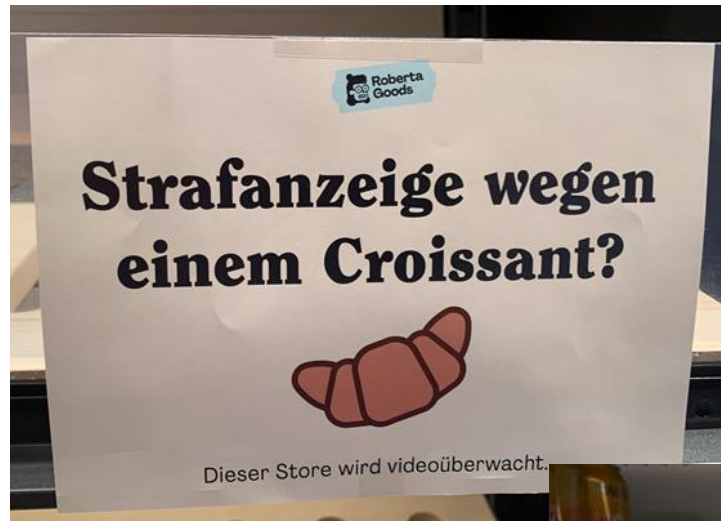
Challenge: Theft and Vandalism



- Theft
- Vandalism
- Necessity of security at Tante M
- Partly no 24/7

Source: DHBW Heilbronn, Tante-M, Roberta Goods

Challenge: Theft and Prevention



Source: Tante-M, Roberta Goods, F.A.Z. (TEO)

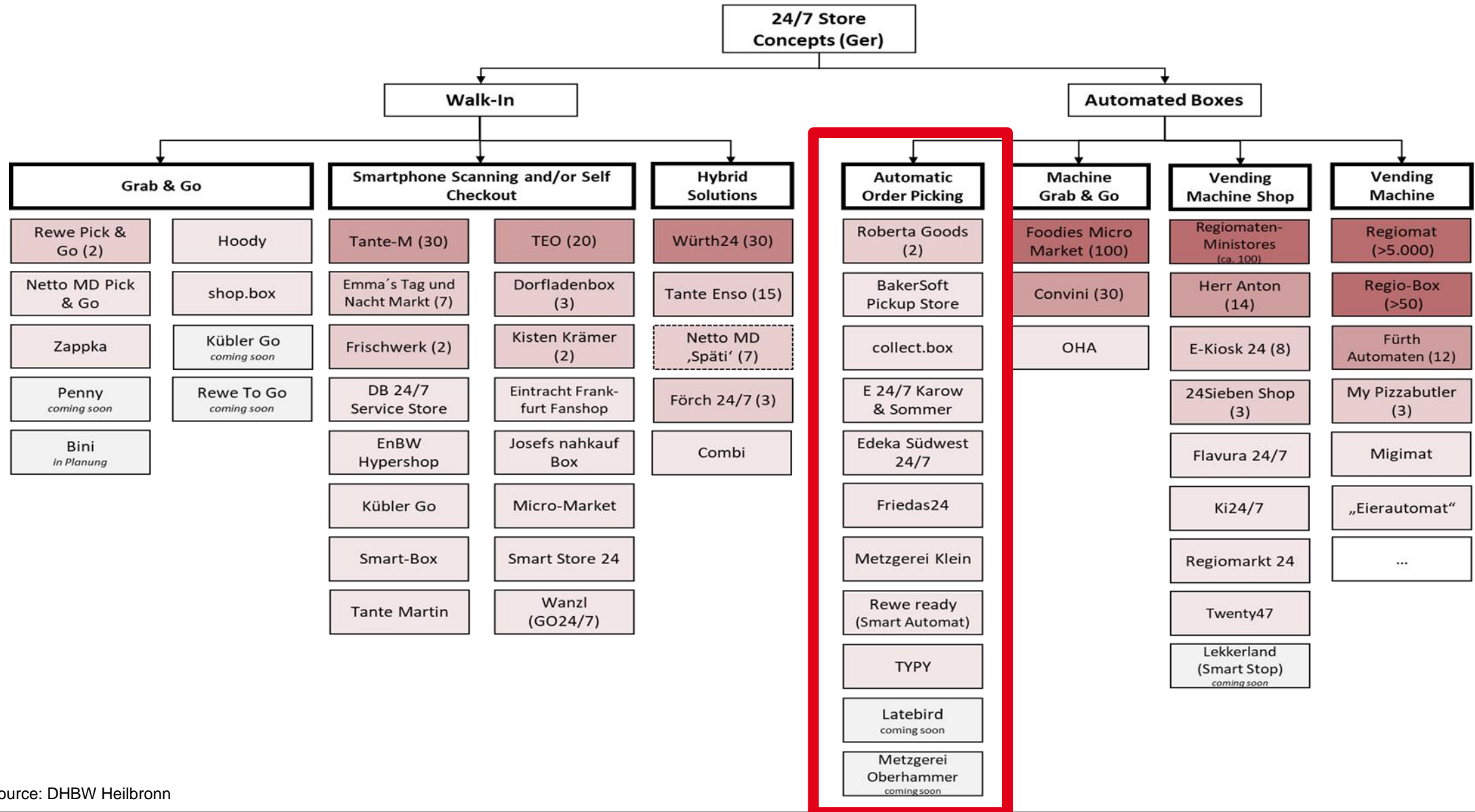


Der vollautomatische Igeo-Supermarkt in Hainau
Foto: Frank Scharfner

Der unbemannte Supermarkt

In der Theorie klingt das Konzept gut, in der Praxis aber verbesserungswürdig. So huschen beim Main-Taunus-Zentrum stets Leute ohne Registrierung in den Laden. Entweder, weil die Tür durch ihre Vorgänger noch geöffnet ist. Oder, weil sich drinnen jemand der Tür nähert und diese deshalb automatisch aufgeht. Den meisten Leuten scheint gar nicht bewusst

Das Problem ist Matthias Stüb, Mitglied der Geschäftsführung von Tegut, bewusst. IT-Experten tüftelten bereits an einer Lösung, sagt er. Künstliche Intelligenz sollte in Zukunft helfen. Kameras könnten so ungewöhnliches Verhalten, etwa wenn jemand etwas direkt in den Rucksack packt, registrieren und in Echtzeit Alarm schlagen.



Source: DHBW Heilbronn

Automated Boxes - Provider

- Many tests with 1 or 2 locations
- 4 provider for the technology:
Smark, KHT, Latebird, VPS-Roberta



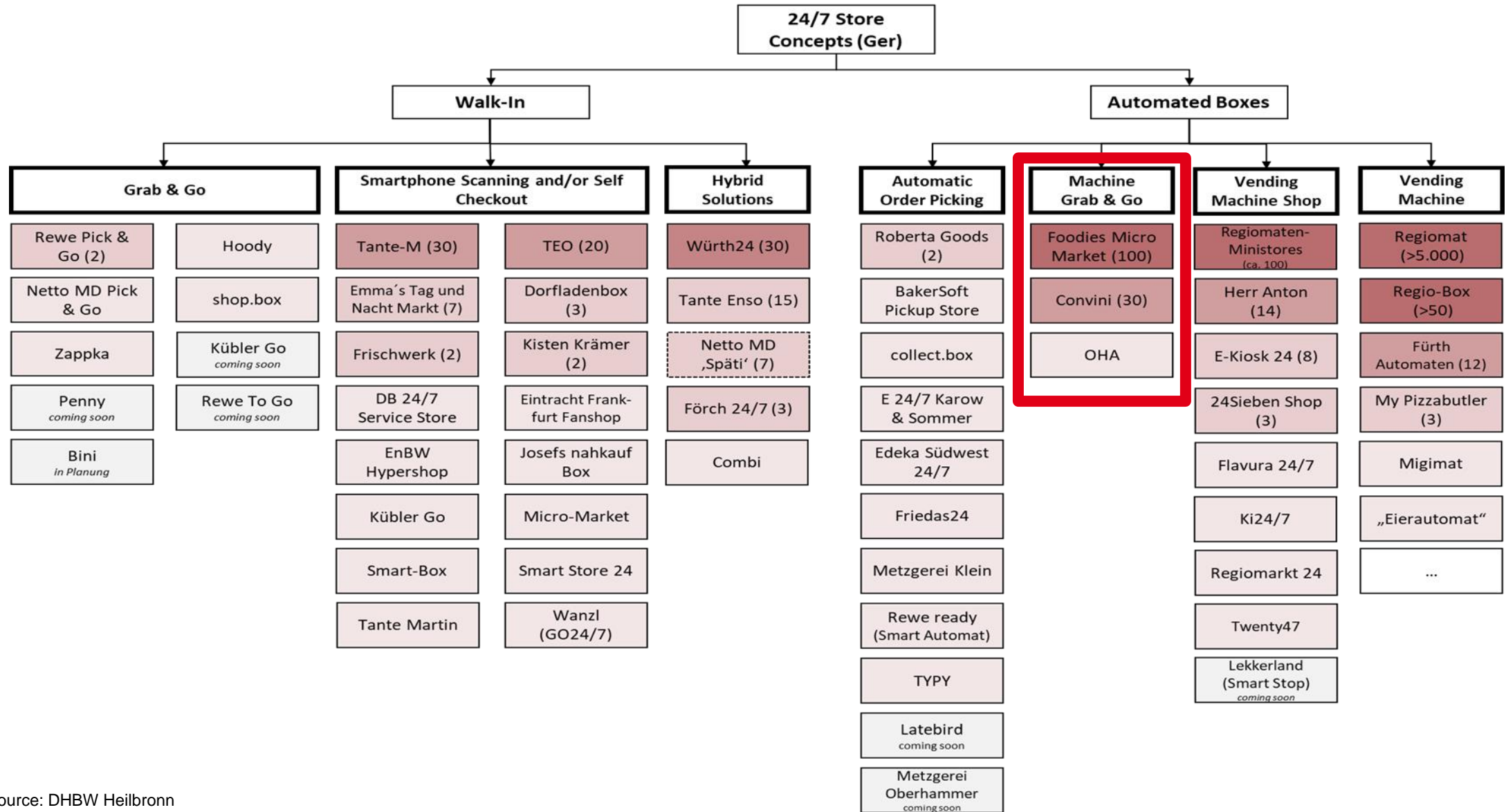
Source: LZ, DHBW Heilbronn

PROVIDER	STORE	
Smark	Roberta Goods (2x)	Pick me 24/7 (CH)
	E 24/7 Karow & Sommer	TYPY
KHT	Edeka Südwest 24/7	Kreisler („Auf-Laden“) (A)
	Edeka Offenburg	Würth
VPS-Roberta	Friedas24	Metzgerei Oberhammer Coming soon
	Metzgerei Klein	
Latebird	Latebird coming soon	REWE ready
copago	BakerSoft Pickup Store	
???	Collect.box	

Automated Boxes...now also for Bakery



Source: Copago AG (2022)



Source: DHBW Heilbronn


Vending gets more ‚intelligent‘




Source: Convini (2022), Foodji (2022), Selecta (2022)

Vending gets more ‚intelligent‘

 **EMV Kartenlesegerät** für kontaktlose Giro-, Kreditkarten und Mobile Payment


 **Kameras und Computervision** analysieren Kunden- und Produktbewegungen


 **Intelligente Regale** mit 3D-Gewichtssensorik

 **Smart LED Lichtsystem** reagiert auf Umgebung

 **GPS-Tracking** für Positionsbestimmung


 **Eingebettetes System** mit Einplatinencomputer

 **Temperatursensoren** für optimale Überwachung & Regulierung

 **RFID** für kontaktlose Produktidentifikation und Nachverfolgung



 **Touch Screen** von User Interface für Befüller und Kunden

 **HD Bildschirme** für interaktiven Digital Signage, der sich basierend auf Aktionen und Bewegungen anpasst

 **Lautsprecher** - Audio-Mitteilungen für Hinweise und Produkt-Infos

 **Bewegungssensorik** für Kundenerkennung und zählen

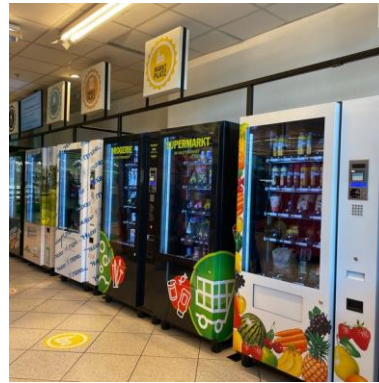
 **Electronic Shelflabels** für dynamische Preise und Produkt Infos

 **Proximity Beacons** senden personalisierte Angebote

 **5G / LTE Gateway Router**, optional (W)LAN-Internetverbindung

 **Elektromagnetische Türschlösser** Zugriffskontrollsystem

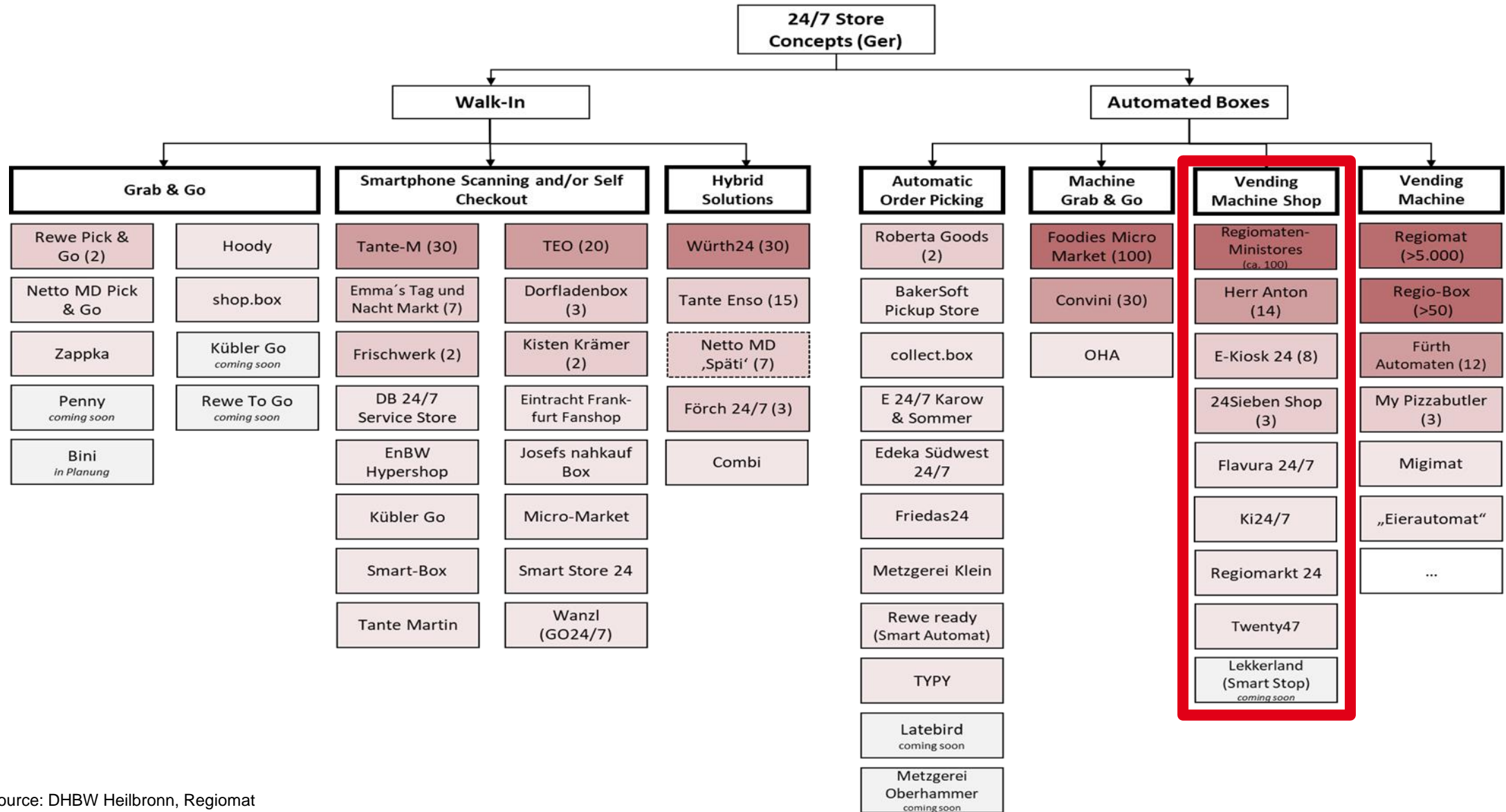
TWENTY47 at the Main Station in Freiburg



TWENTY47

- 38 vending machines at the main station of Freiburg
- Vending machines are supplier branded
- High share of regional assortment (cheese cake, sausage, etc.)
- Bonduelle (salade) und Pizza machine (which bakes the pizza fresh)





Source: DHBW Heilbronn, Regiomat

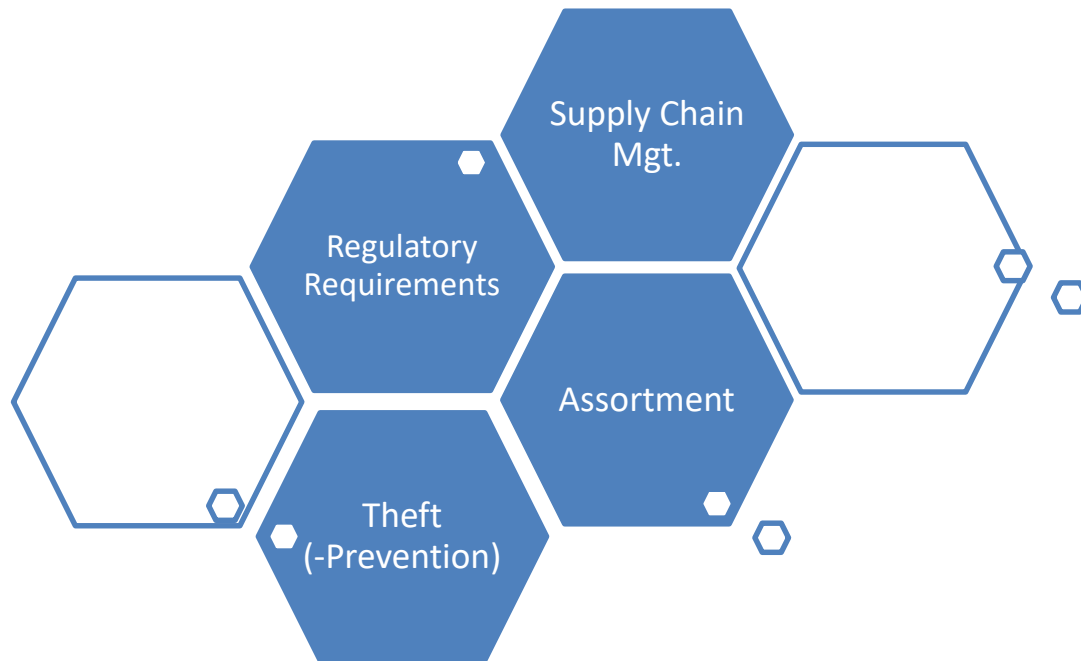
Example Regiomat: > 5.000 Regiomat Vending Machines in Germany

- Traditioneller Automat
- Regiomat (>5.000)
- Regio-Box (>50)
- Fürth Automaten (12)
- My Pizzabutler (3)
- Migimat
- „Eierautomat“
- ...



Source: DHBW Heilbronn, Regiomat

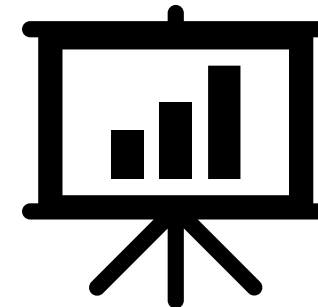
Challenges by Operating Smart Stores 24/7



Source: DHBW Heilbronn (based on Experts Interviews), Adobe Stock

Potential for the Future?

- Rather country side than downtown
- Potential for oil stations and D2C (Farmer)
- Rather business model approach (Zabka, Boxy, Tante M, Tante Enso, Teo, etc.) than an ‚innovation experiment‘.
- Grab & Go get from some retailer tested first in small stores, in order to developp the technology for larger stores > 1.000sqm
- Already interests from the Nonfood-Business
- ...



10 Thesis about Smart Stores 24/7

1. Smart Stores 24/7 get **established s Niche**.
2. The **Roll-out started already on the country side**. There is also a huge interest from the politicians.
3. The **proper concept for the city is still not clear**.
4. Smart Stores 24/7 are especially a **good complement for the independent retailers** as a kind of satellite to existing stores (Edeka and Rewe)
Rewe/Lekkerland with a broad (announced) test scenario. Edeka works parallel (but a bit behind Rewe).
5. Retailers try to **develop the Grab & Go technology for bigger store formats**.
6. **Automated boxes** (eg Latebird, VPS Roberta) have still to **prove the profitability**.
7. The **Vending Machine Business is also ,on the rise‘** with a more intelligent technology.
8. **Newcomer** as Tante-M, Tante Enso, Emmas Tag und Nacht Markt **need a strong partner as supplier**.
9. **Logistic, Assortment and Theft-Prevention are success factors**.
10. There will **come more players** (to the already 56 existing) in the next 2-3 years, but then the market **gets consolidated**.

Smart Stores 24/7 – It's a chance!



Source: Shutterstock

Whitepaper ‚Smart Stores 24/7‘ and Podcasts about Smart Stores 24/7



<https://handel-dhbw.de/whitepaper-download/>

Source: DHBW Heilbronn

Podcast HÄNDLER der DHBW Heilbronn

- #2 Smart Stores 24/7
- #5 Tante M – Unbemannter Smart Store als Versorgung für den ländlichen Raum
- #6 TEO – Immer nah. Immer für Dich da – 24/7 Nahversorgung von tegut
- #7 Datenschutz bei Smart Stores 24/7
- #8 KI-Systeme bei Smart Stores 24/7
- #9 Herr Anton – Automaten für die ländliche Versorgung
- #26 Stefan Stüwer (‘Mr. Regiomat’) – Verkaufsautomaten neu gedacht
- #28 Livello – Smarte Kühlschränke für eine bessere Customer Experience
- #29 Kübler Go – Smart Store 24/7 in Stuttgart
- #30 Automatenland – No frills und technische Innovationen im Automatengeschäft



<https://handel-dhbw.de/haendler-podcast/>

or Spotify and other platforms

100 Smart Store 24/7-Concepts in Europe identified, there of 56 in Germany

Smart Stores 24/7 - Überblick (erstellt von der DHBW Heilbronn)									
Stand: 28.03.2022									
Name	Betreiber	Betriebsform	Technologie	Technologie-Partner	Personal	Medien	Offnungszeiten		
1 Ackerbox	myAcker	Walk in	Kassen-Self-Checkout	myAcker	-	Terminal	???		
2 Albert Heijn Schiphol boulevard	Albert Heijn	Walk in	Grab & Go	AIFI	-	Kreditkarte	24/7		
3 Aldi Shop & Go	Aldi Süd	Walk in	Grab & Go	AIFI	Personal z. B. für Alterskontrolle	App	7-23		
4 Aldi Nord (bisher angekündigt, noch nicht er	Aldi Nord (NL)	Walk in	Grab & Go						
5 ALDimat	Aldi Süd	Ausgabeautomat	Traditioneller Automat		-	-	24/7		
6 Amazon Fresh (Amazon Go)	Amazon	Walk in	Grab & Go	Amazon	-	App / Konto	7 - 23		
7 Avec box	Valora	Walk in	Smartphone Scanning	SAP Customer Experience (C/4HANA)	-				
8 Billa Regional Box	Billa	Walk in	Kassen-Self-Checkout	myAcker	-				
9 Carrefour Express 24/7	Carrefour	Ausgabeautomat	Automatenshop		-				
10 Carrefour flash	Carrefour	Walk in	Grab & Go	AiF	-				
11 Colyut (OKay Direct)	Colyut	Walk in	Kassen-Self-Checkout	Smart Technics	-				
12 Combi City	Combi	Walk in	Kassen-Self-Checkout	Wanzl	-				
13 Combi 24/7	Combi	Ausgabeautomat	Autom. Kommissionierung	Wanzl/Project Retail CX by Knapp (KHT GmbH)	-				
14 Combi	Combi	Walk in	Kassen-Self-Checkout	Wanzl	Mo-Sa l				
15 Continente Labs	Sonae (Retailer aus Portugal)	Walk in	Grab & Go	Sensei (www.sensei.tech)	-				
16 collect.box	Schwarz Restaurant Betriebe	Ausgabeautomat	Autom. Kommissionierung		-				
17 Coop Norge's Extra	Coop Norge	Walk in	Hybride Lösung		bis 23 U				
18 DB 24/7 Service Store	Valora	Walk in	Smartphone Scanning	Von Valora (wie avec box)	-				
19 Dorfladenbox	Div. Direktvermarkter	Walk in	Smartphone Scanning	Dorfladenbox GmbH	-				
20 E 24/7 Karow & Sommer	Edeka	Ausgabeautomat	Autom. Kommissionierung	Smak	-				
21 Emma's Tag und Nacht Markt	Kommune	Walk in	Kassen-Self-Checkout	Eigene Entwicklung	-				
22 Flavura 24/7 Automatenshop	Flavura	Ausgabeautomat	Automatenshop		-				
23 Fürth - Automaten	Div. Direktvermarkter	Ausgabeautomat	Automatenshop		-				
24 Hen					-				
25 Josi					-				
26 KIZI					-				
27 Kist					-				
28 Krei					-				



https://docs.google.com/spreadsheets/d/1T_ePC9_s11kaNIOO328l3mwQABOiWYTMW71kk7QhMLU/edit#gid=1312899167

Source: DHBW Heilbronn

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