

Verzamelen en sorteren

Workshop 09-11-2017



GROENEWOUT





GROENEWOUT

Founded in 1966,

Groenewout provides professional consulting in Logistics and Supply Chains Management.

Our core competence has been sharpened in supply chains optimization and detailed designs of manufacturing-, distribution- and fulfillment centers. We place a great deal of emphasis on both the identification and realization of feasible opportunities.

GROENEWOUT FOCUS GEBIEDEN

Supply Chains Management



Internal Logistics



Construction Mgt. & Engineering



50 JAAR

LOGISTIEKE ERVARING

MULTI DISCIPLINAIR

ONAFHANKELIJK

PROFESSIONEEL



GROENEWOUT REFERENTIES

(Fine) Chemicals



Healthcare



Electronics



3rd-Party Logistics Service Providers



Retail / Fast Moving Consumer Goods



And many other industries



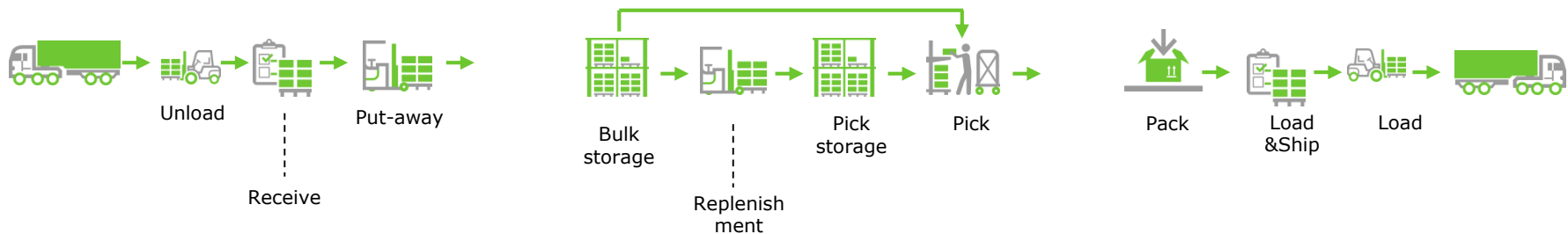
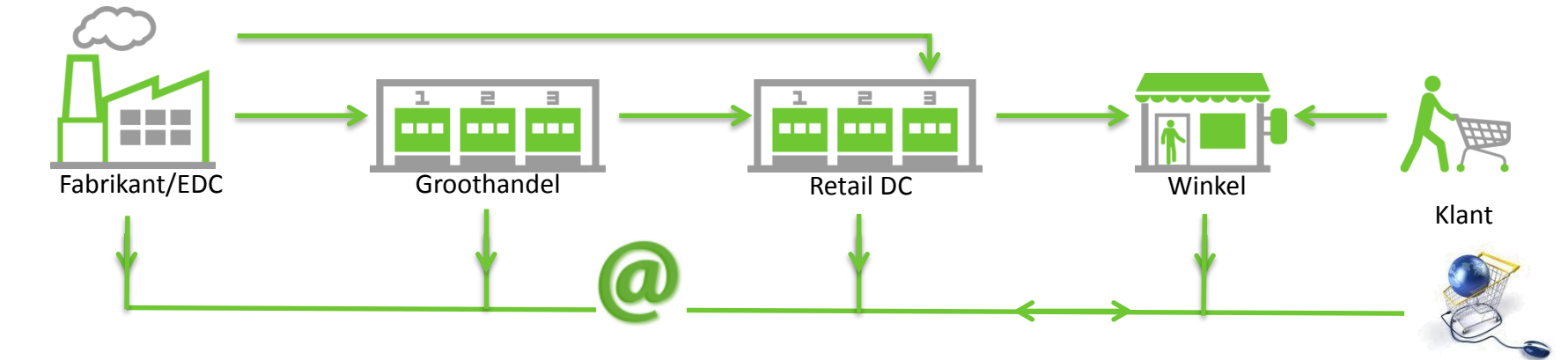
Slim verzamelen en sorteren

GROENEWOUT CONSULTANCY

INFO@GROENEWOUT.COM



LOGISTIEKE KETEN



Orderprofiel

ABC curve

Groei

Type
artikelen

Pick
methodiek

LOGISTIEKE KETEN: ONTWERP-PARAMETERS



Orderprofiel

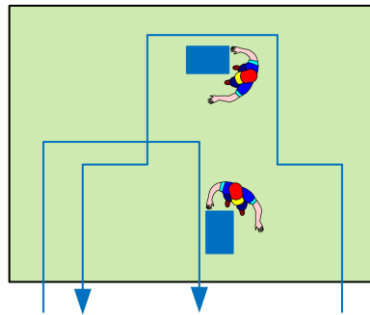
ABC curve

Groei

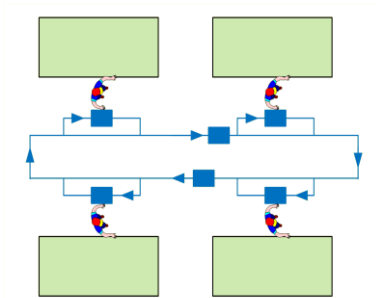
**Type
artikelen**

**Pick
methodiek**

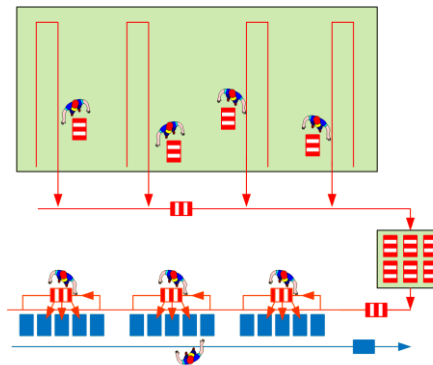
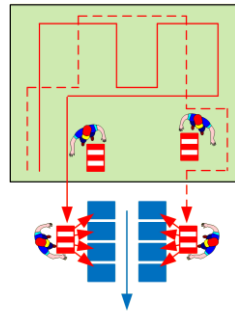
Per order



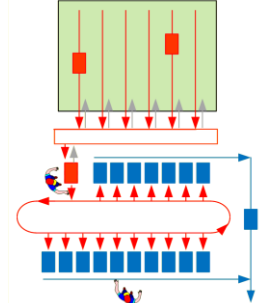
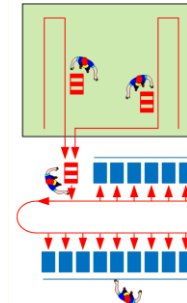
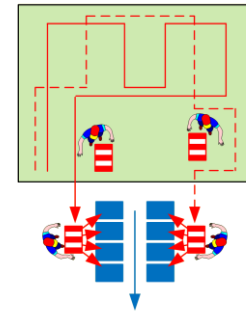
Conventioneel



Mini-batch



Batch



Orderprofiel

ABC curve

Groei

Conveyable
artikelen

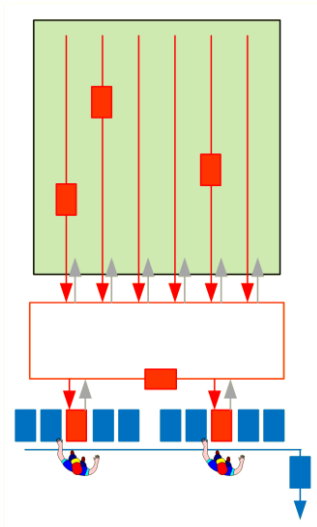
Pick
methodiek

"Verleden"

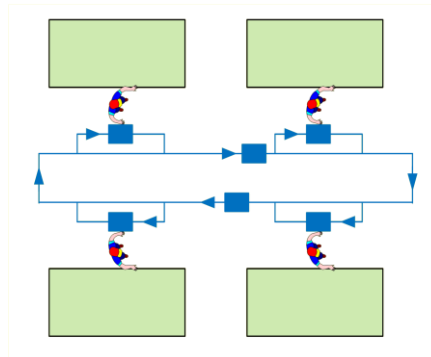
artikel bak
order bak

Behoeften: productiviteit ↑ congestie ↓

per order



g2m mini-load/
carousel

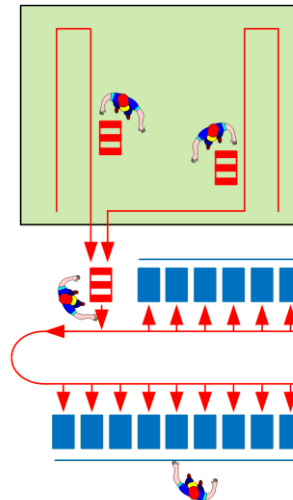


zone pick

Tekortkoming:

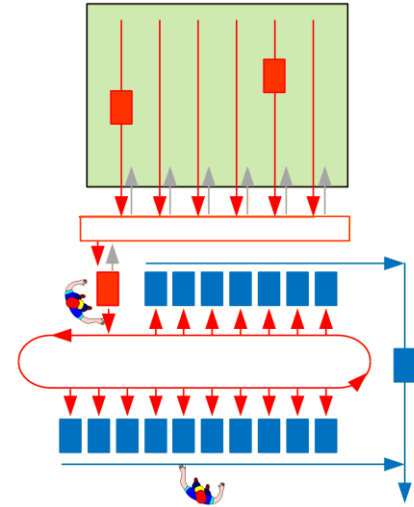
capaciteit

Batch



Manueel picken
& sorter

capaciteit
doorlooptijd

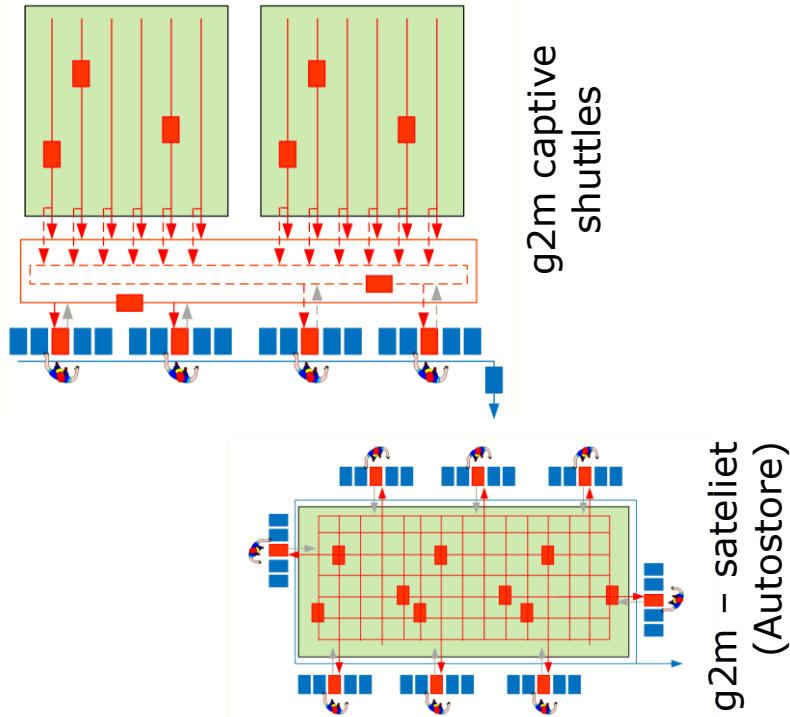


Automatisch
picken
& sorter

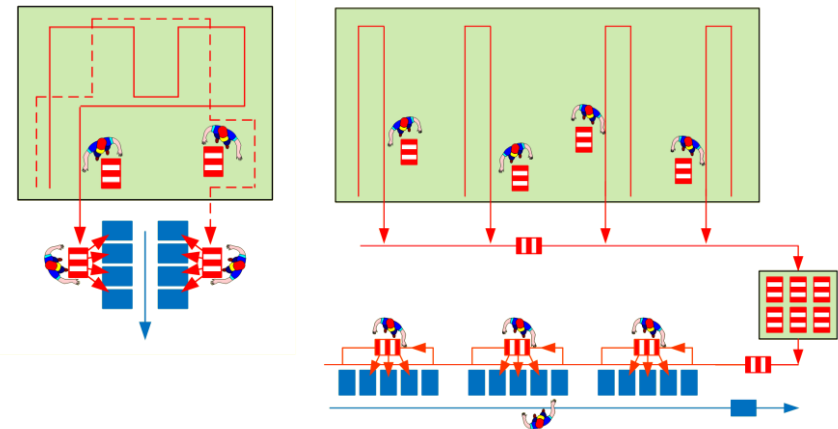
doorlooptijd
sorteerrielingen
schaalbaarheid

Behoeften: productiviteit ↑ congestie ↓ capaciteit ↑ doorlooptijd ↓ schaalbaarheid ↑

per order



Batch



manueel

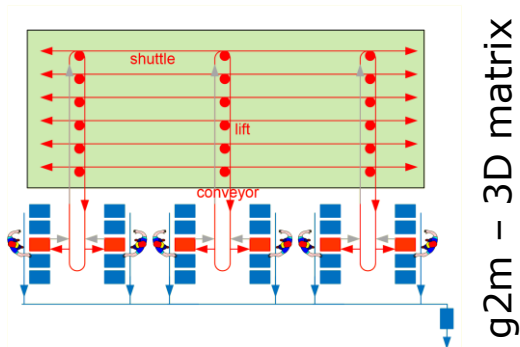
gemechaniseerd transport
van pick & put-away bakken

Tekortkoming: complexiteit
capaciteit
(Schaalbaarheid)

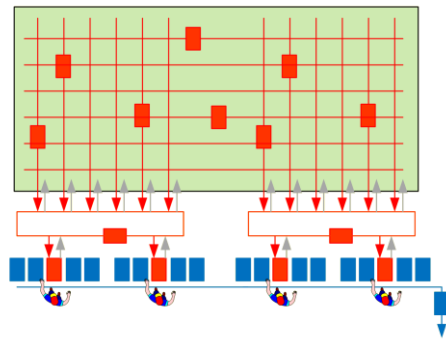
ondanks mechanisatie nog
veel lopen in pick

Behoeften: productiviteit ↑ congestie ↓ capaciteit ↑ doorlooptijd ↓ schaalbaarheid ↑ **ergonomie** ↑

per order

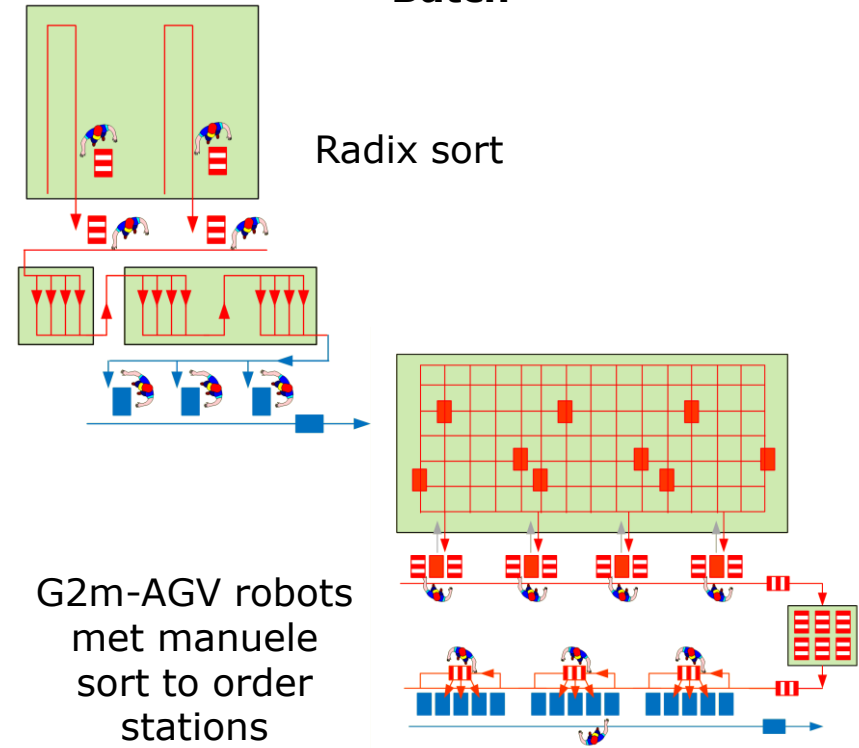


g2m -
roaming shuttles



Batch

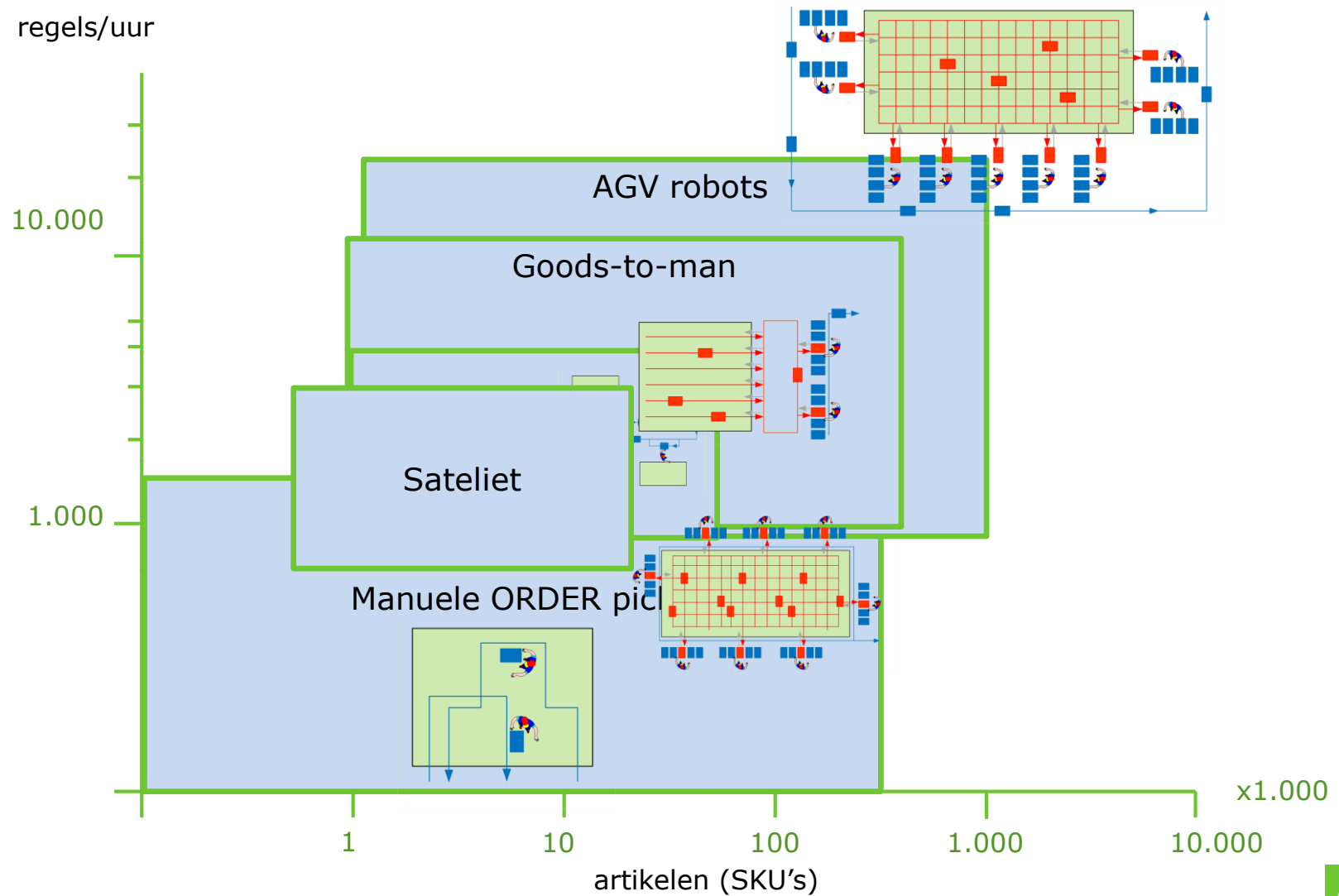
Radix sort



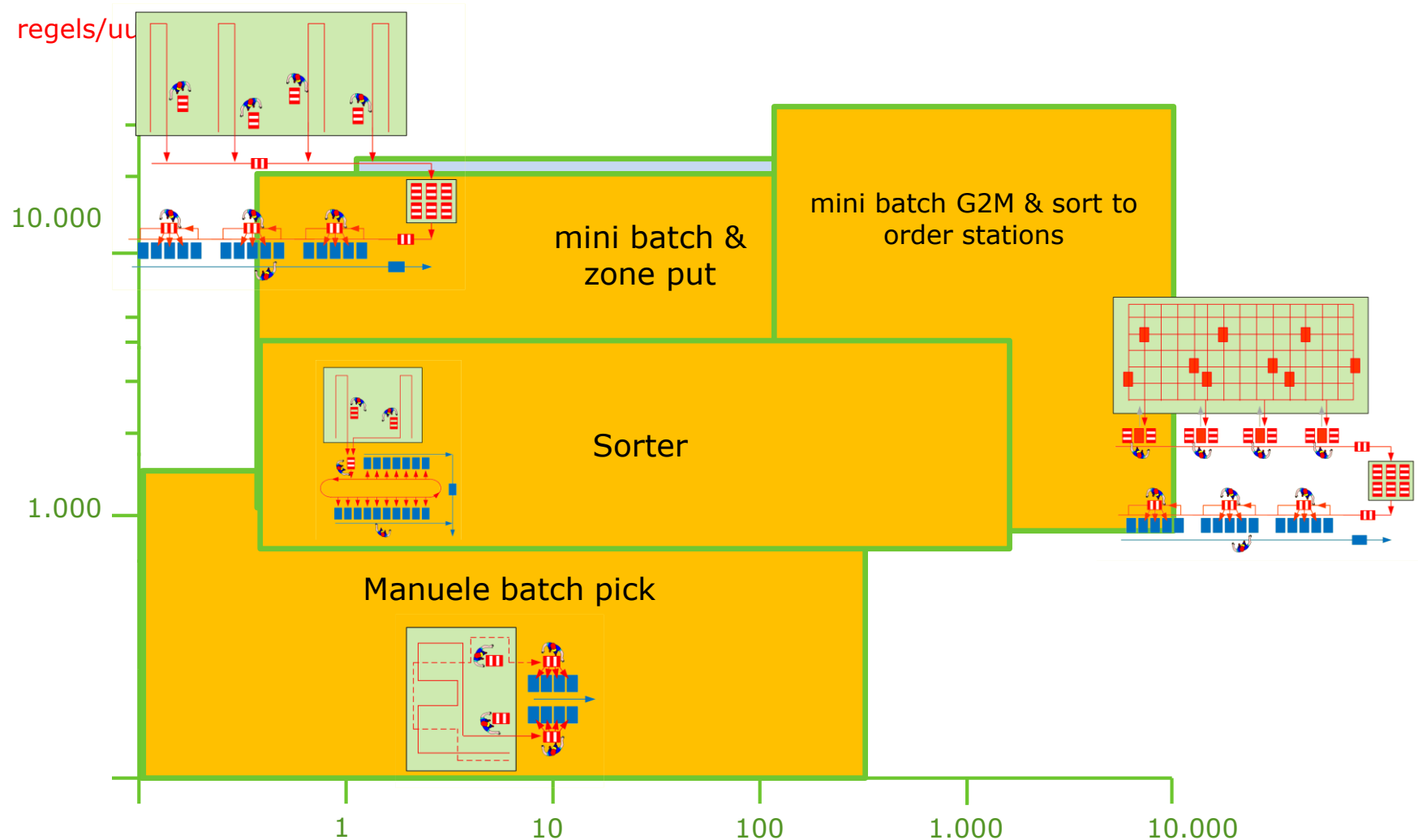
Voordelen: flexibel/schaalbaar
snel

oneindig aantal sorteerrichtingen

Orderpick methodieken: Pick per (multi) order



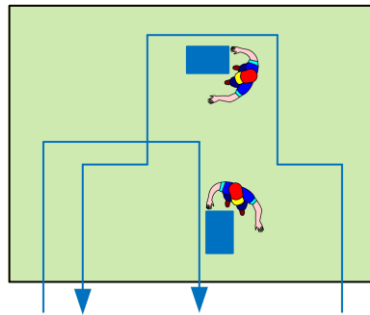
Orderpick methodieken batch pick



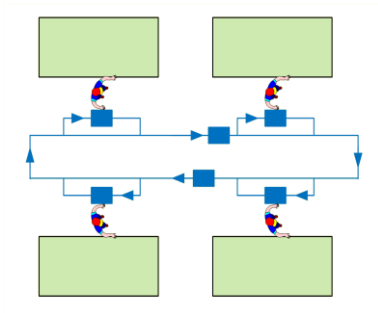
LOGISTIEKE PARAMETERS : PICK METHODIEK

artikelen
order bak

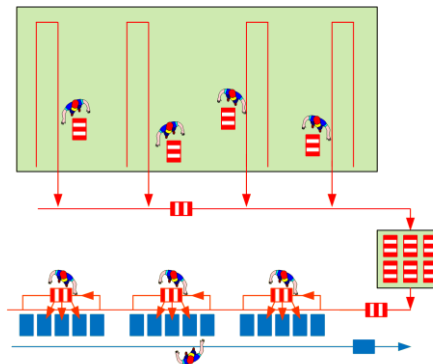
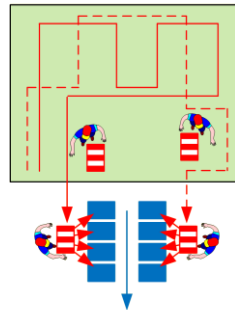
Per order



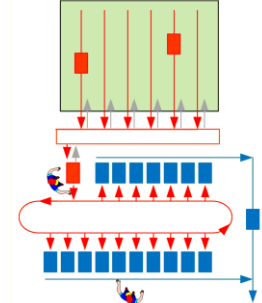
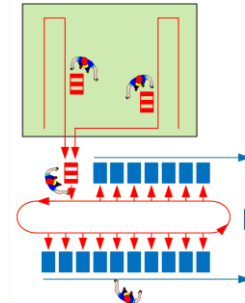
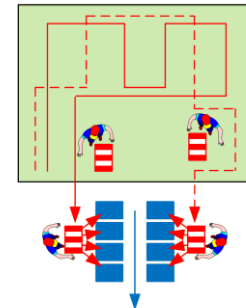
Conventioneel



Mini-batch



Batch



Orderprofiel

ABC curve

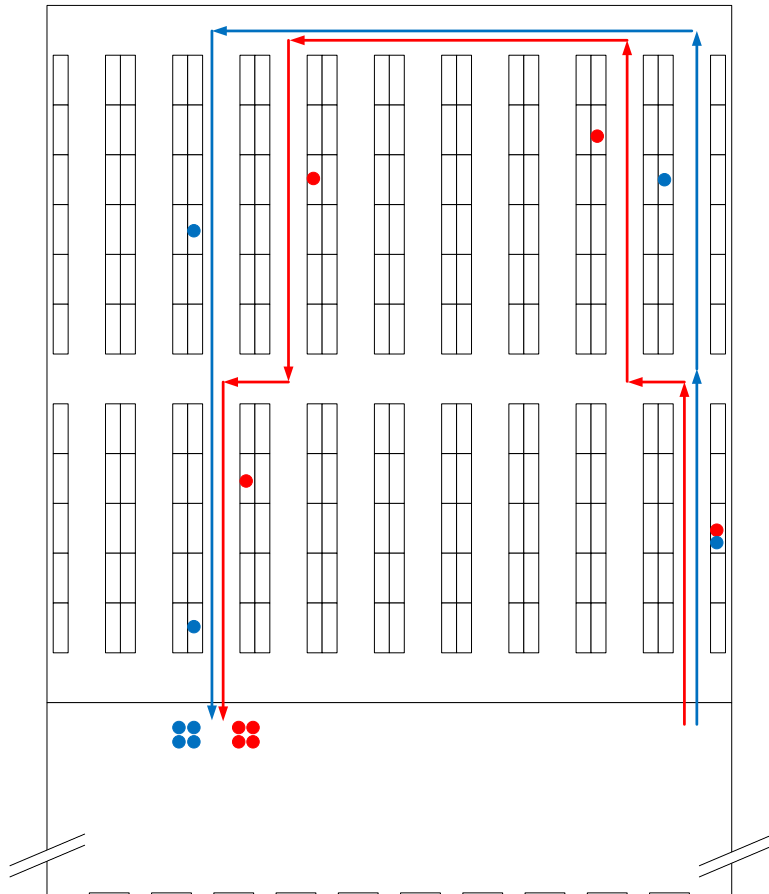
Groei

Conveyable
Artikelen

Pick
methodiek

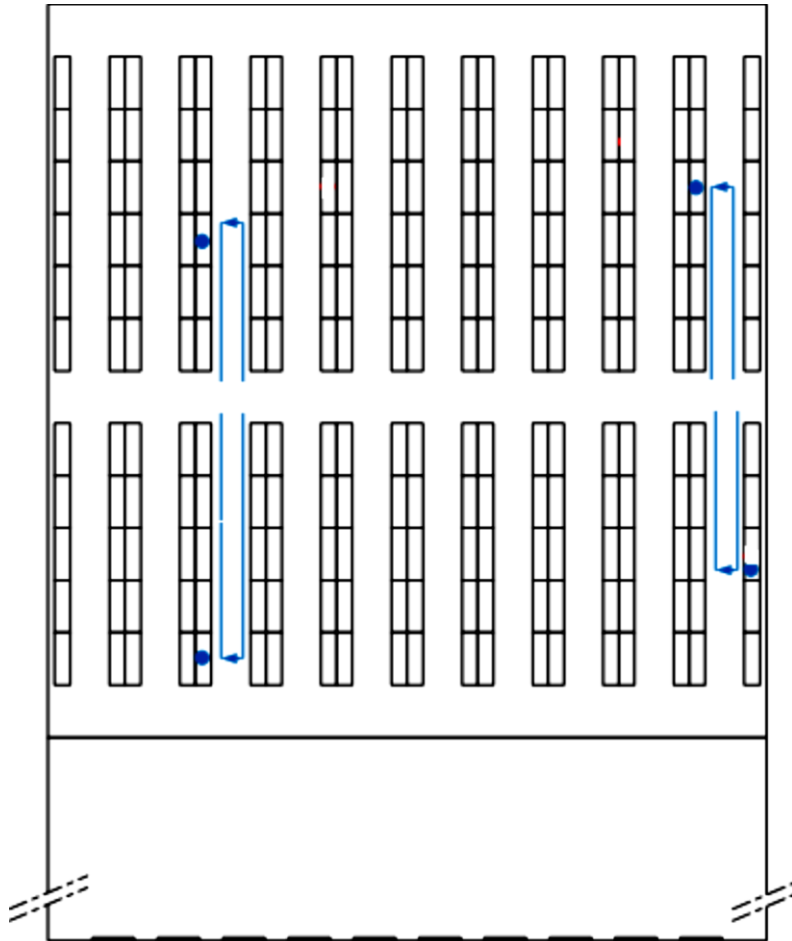
LOGISTIEKE PARAMETERS : PICK METHODIEK

Pick per (multiple) order:
sorteer naar order **tijdens** pick



LOGISTIEKE PARAMETERS : PICK METHODIEK

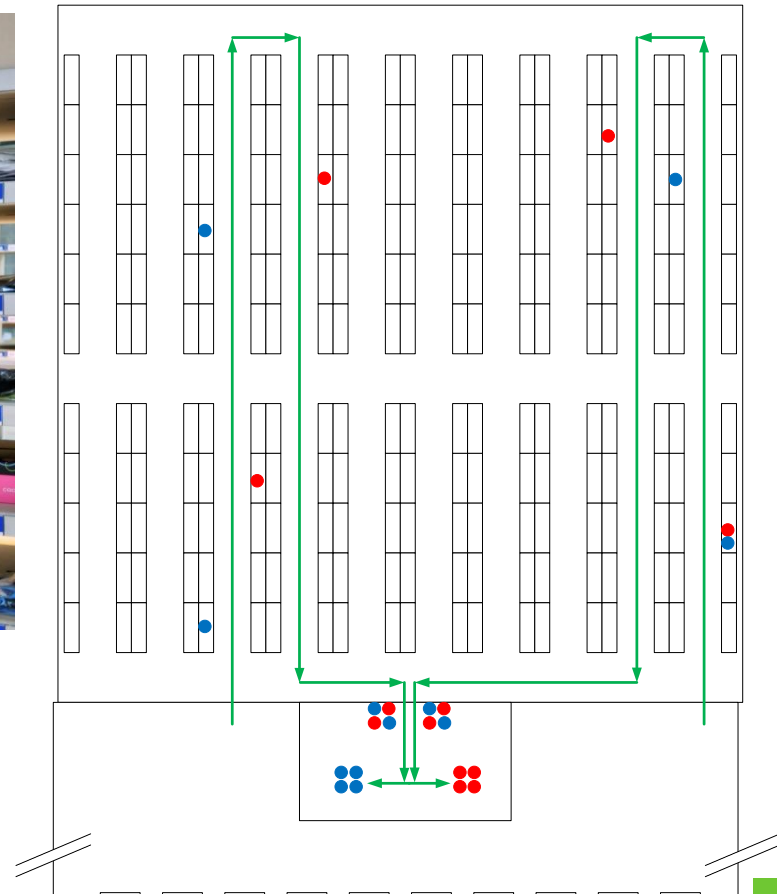
Pick per order:



LOGISTIEKE PARAMETERS : PICK METHODIEK

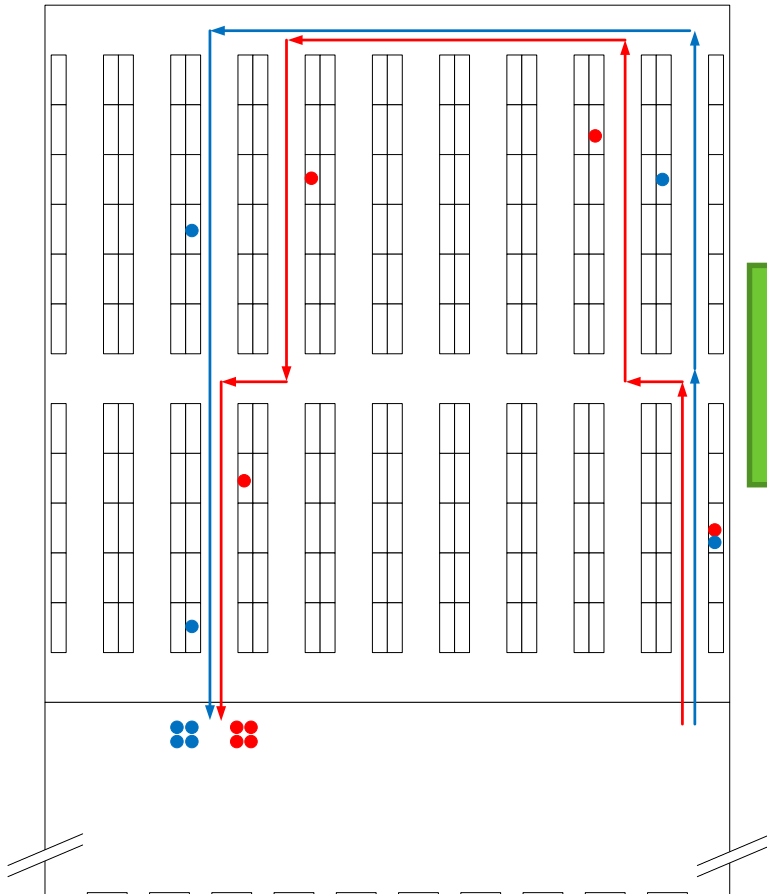


B) Batch pick:
step 1: pick per artikel
step 2: sorteer naar order



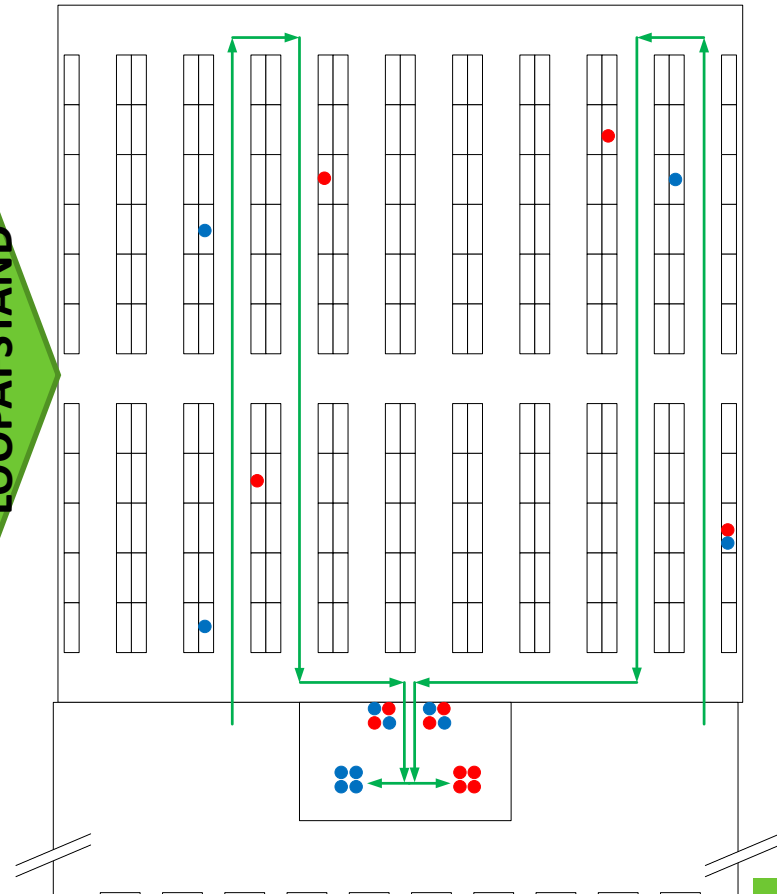
LOGISTIEKE PARAMETERS : PICK METHODIEK

A) Pick per (multiple) order:
sorteer naar order tijdens pick



REDUCTIE
LOOPAFSTAND

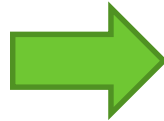
B) Batch pick:
stap 1: pick per artikel
stap 2: sorteer naar order



PICK METHODIEK VERSUS ORDERPROFIEL

E-com, kleine assortiment

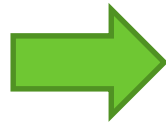
SKUs	10.000
orders/week	10.000
orderlines	15.000
pieces	16.500
lines / order	1,5
pieces / line	1,1



	Order picking		Minibatch pick & order sort	
	Productiviteit per hr	# werkuren hrs	Productiviteit per hr	# werkuren hrs
Picken	80	187,5	120	125
Sorteren		0	300	55
Uren/week		188		180
Uren/dag		27		26

E-com, groot assortiment

SKUs	100.000
orders/week	34.000
orderlines	50.000
pieces	55.000
lines / order	1,5
pieces / line	1,1



	Order picking		Minibatch pick & order sort	
	Productiviteit per hr	# werkuren hrs	Productiviteit per hr	# werkuren hrs
Picken	60	833	120	417
Sorteren	0		300	183
Uren/week		833		600
Uren/dag		119		86

Technische groothandel

SKUs	100.000
orders	12.500
orderlines	50.000
pieces	225.000
lines / order	4
pieces / line	4,5



	Order picking		Minibatch pick & order sort	
	Productiviteit per hr	# werkuren hrs	Productiviteit per hr	# werkuren hrs
Picken	60	833	180	278
Sorteren	0		300	750
Uren/week		833		1028
Uren/dag		119		147

BUSINESS CASE : HEALTHCARE

BUSINESS CASE EVALUATION CRITERIA

NON QUANTITATIVE MEASURES

Order Lead Time

Future profiles of SKU assortment

Redundancy

Availability the system

Availability of People

Error Rate

Flexibility

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GROENEWOUT



DRIVEN BY KNOWLEDGE