
Op weg naar duurzame logistiek - maar nemen we wel de goede route?

Prof.dr.ir Sander de Leeuw

22 september 2022



Agenda

- Sustainability is difficult: food processing
- Nudging towards sustainability is possible: online retail
- Key challenge: incorporate human behavior in operations decision-making

Health and sustainability are priority for all agri-food stakeholders

NOS NIEUWS · BINNENLAND · MA 4 APRIL, 20:33

'Consument wil wel veranderen, maar wacht op politiek en bedrijven'



Een vleestaks wordt geregeld genoemd als een manier om te verduurzamen. ANP

<https://nos.nl/collectie/13871/artikel/2423917-consument-wil-wel-veranderen-maar-wacht-op-politiek-en-bedrijven>



Nieuws

Agrifoodmonitor 2021: Duurzaam voedsel steeds belangrijker

9 oktober 2021

Duurzaamheid gaat een steeds belangrijkere rol spelen voor consumenten. Dit blijkt uit de nieuwste Agrifoodmonitor die werd gepresenteerd bij de opening van Dutch Food Week. Mensen vinden rechtvaardigheid, diervriendelijkheid, milieuvriendelijkheid en begrippen als transparantie, natuurlijk en regionaal belangrijker dan ooit als het om

<https://www.wur.nl/nl/Onderzoek-Resultaten/Onderzoeksinstituten/Economic-Research/show-wecr/Agrifoodmonitor-2021-Duurzaam-voedsel-steeds-belangrijker.htm>

Food supply chains have been global for long, but is this sustainable? - Nutella example



Large & centralized vs small & decentralized?



Source: <https://bmcontent.affino.com/AcuCustom/Sitename/DAM/013/sugarbeefactoryallscott.jpg>

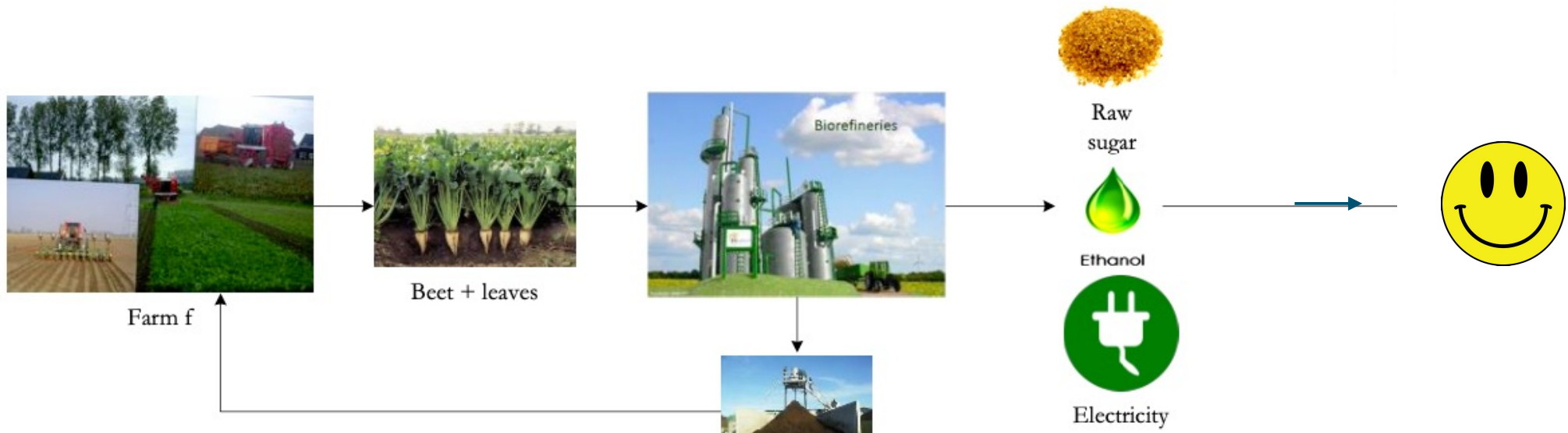


Source: <https://www.wur.nl/en/Research-Results/Themes/theme-biobased-economy/Biorefinery.htm>

Current sugar supply chain heavily centralized



Decentralized sugar beet pre-processing leads to new supply chain opportunities



Local for local supply through containerized farms?



Alternative dietary choices affect supply chains



Targeted impact affects sources for alternative diets

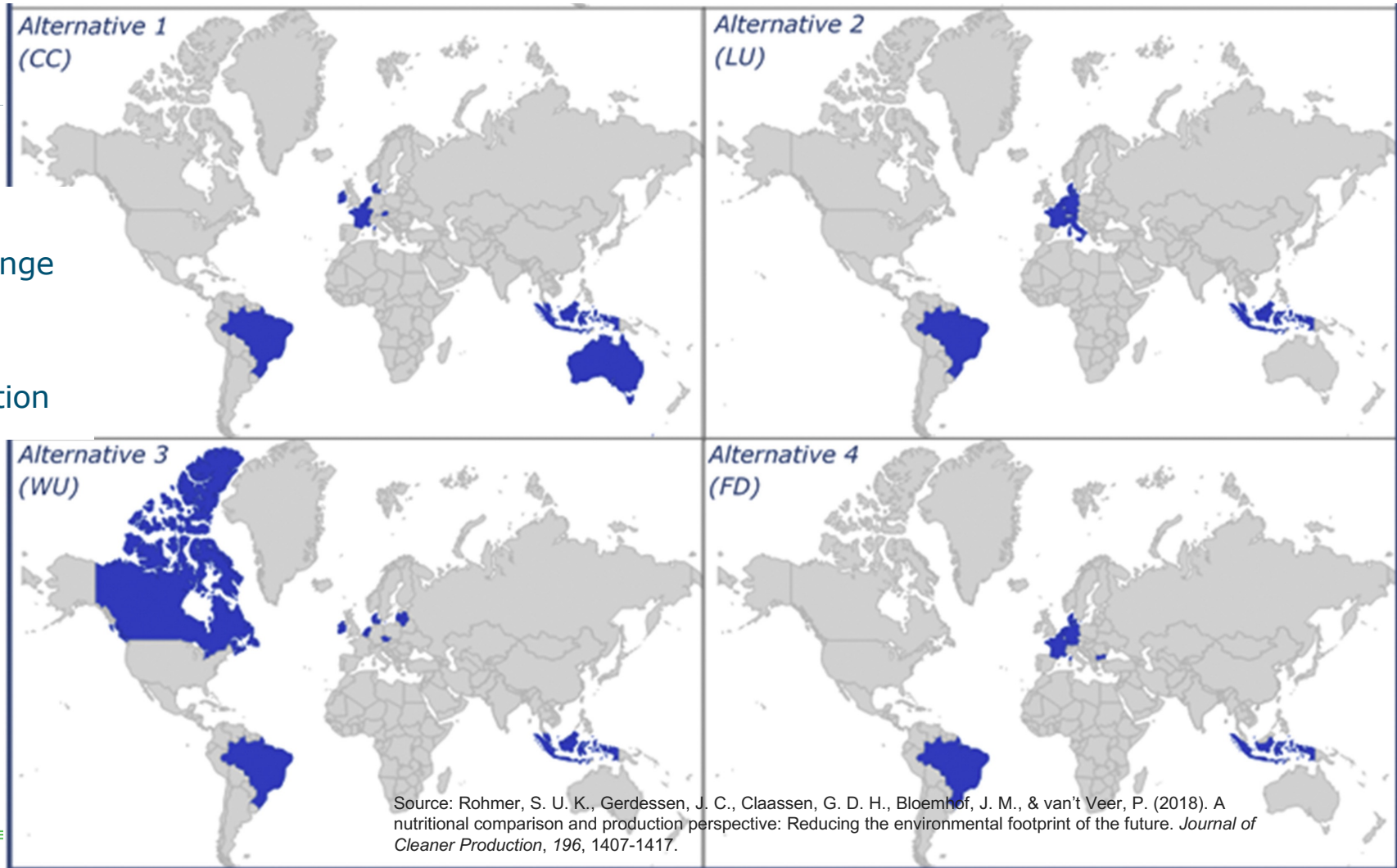
Legend:

CC: climate change

LU: land use

WU: water use

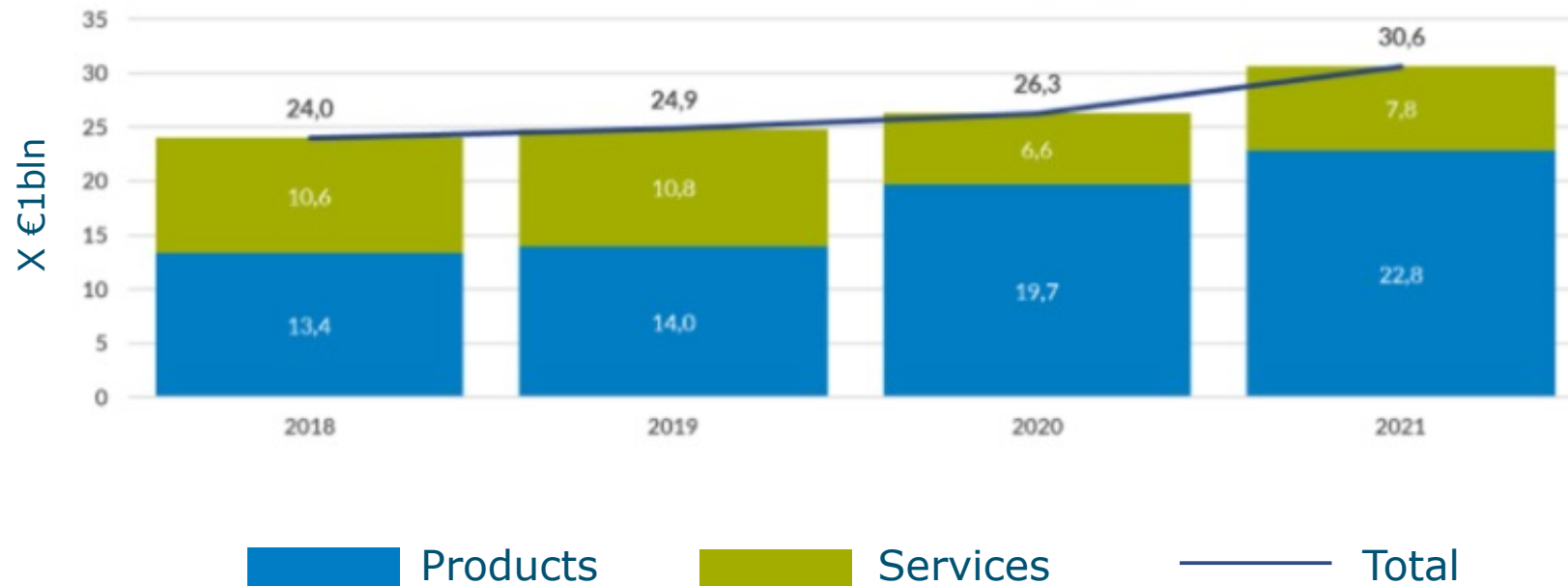
FD: fossil depletion



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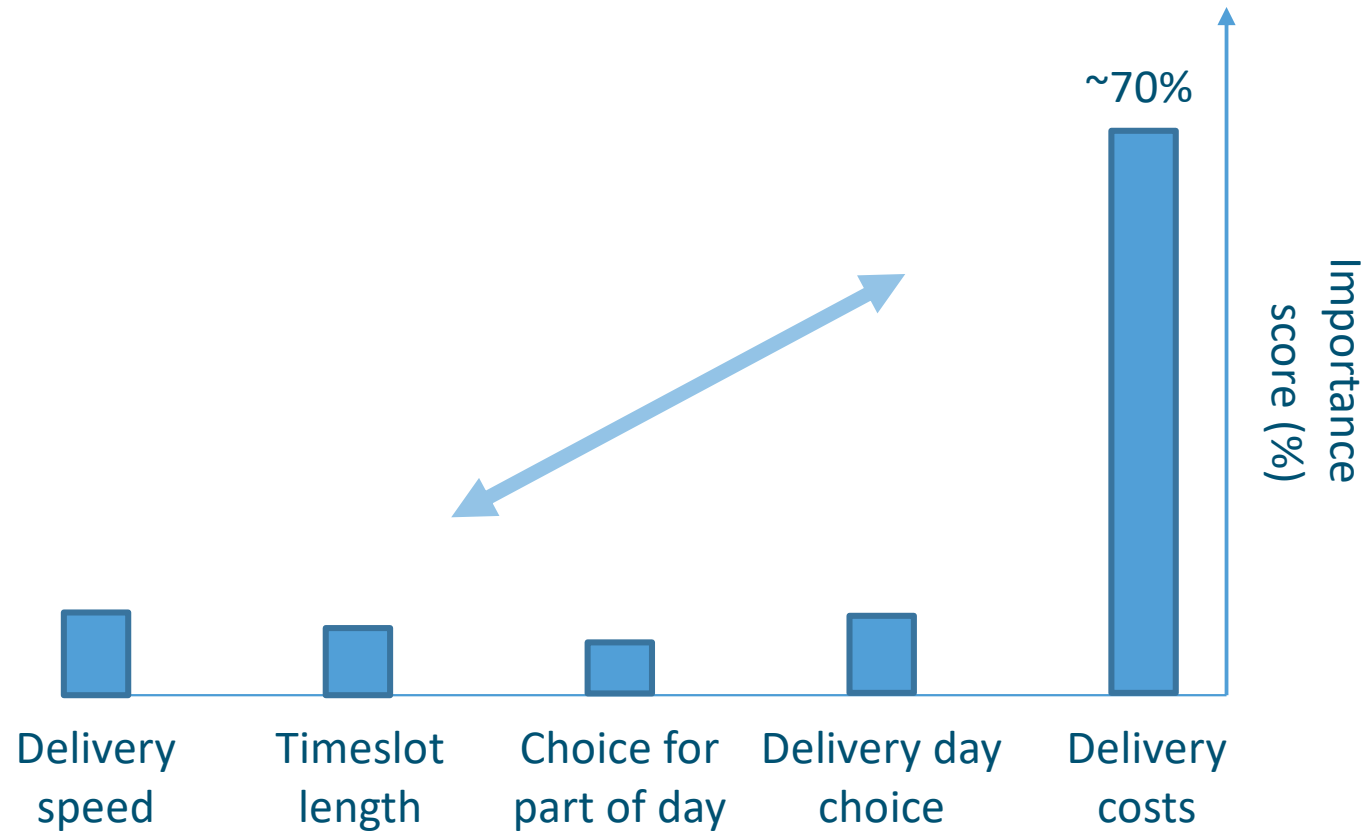
Considerable growth in online retail – 2018-2021 (Netherlands)



New entrants focus on short delivery lead-times in online grocery retail

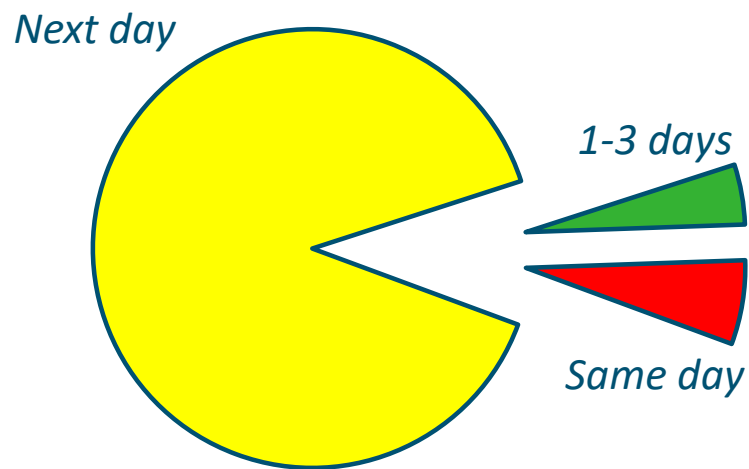


For their online orders most consumers choose delivery options with their wallet in mind

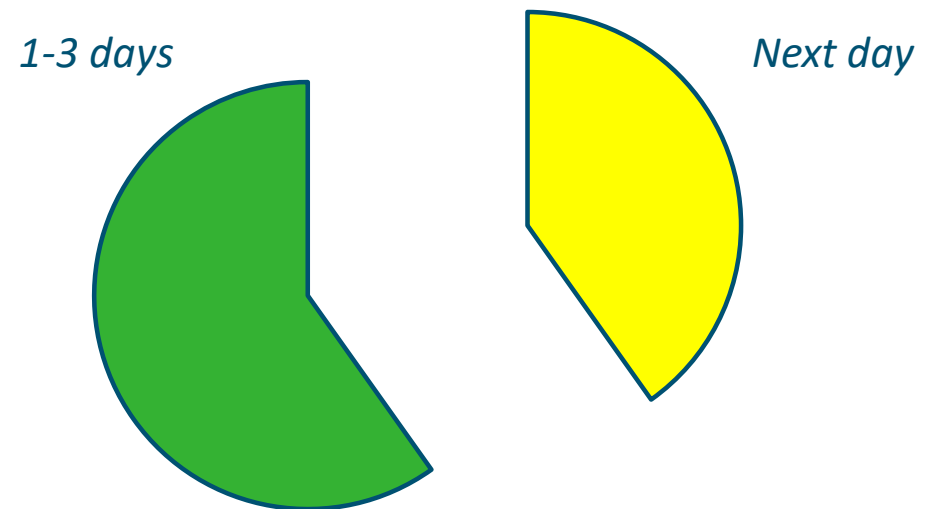


Consumers are willing to wait when provided with information on sustainability effects of options!

*Preferred options
without information*










*Preferred options
with information*



What can you do as a retailer

- Share information on sustainability of options (eg. longer delivery times are more sustainable)
 - Social and environmental sustainability
- Grocery retail: 'green' time slots

10:30 - 11:30am  £3.99		10:30 - 11:30pm  £0.00
11:00 - 12:00pm  £3.49		
11:30 - 12:30pm  £3.49		

Key:  Available  These little vans show our greener delivery slots.  Unavailable

Source: ocado.co.uk

Flash delivery - several products are much more expensive*

Boni Product	Selling price(via Colruyt) (€)	Selling price Gorillas (€)	Mark-up (%)
Raspberries 1kg (frozen)	3,98	4,89	22,9%
Spinach 400g (fresh)	1,59	1,95	22,6%
White baguettes 250g	0,74	0,99	33,8%
Bio spelt flour 1kg	3,29	2,99	-10%

*Data from December 2021;
NOTE: not a representative sample

Flash delivery – not a profitable business any time soon

Component	Costs	Revenue
Average order value		€20,-
Purchasing value order	-€17,05	
Delivery fee per order		€1,80
Labour costs per order	-€6,16	
Loss per order		€-1,41

(Gross margin €4.75 per order)

(all 2021 data/estimates)

Sources used:

Crefcoeur, D. (2021, 30 november). Ik werkte 3 dagen als flitsbezorger (en verdiende €__) [Video]. YouTube.

<https://www.youtube.com/watch?v=TC20jvSFZTE>

Schwär, H., & Schlenk, C.T. (2021, 13 juli). „Gorillas 2.0“ – der Geheimplan des Liefer-Start-ups. Capital.de. Reviewed 1 december 2021, from <https://www.capital.de/wirtschaft-politik/gorillas-2-0-der-geheimplan-des-liefer-start-ups>

Firmfocus Business Solutions. (z.d.). Branchecijfers supermarkten, warenhuizen en dergelijke winkels met een algemeen assortiment. Reviewed 10 december 2021, from <https://www.firmfocus.biz/NL/BI/branche/supermarkten-warenhuizen-en-dergelijke-winkels-met-een-algemeen-assortiment>

Flash delivery – side effects



First cracks appear in the flash delivery system

NOS NIEUWS · ECONOMIE · VRIJDAG, 15:50

22 April 2022

Amsterdam eist sluiting 'darkstores' van flitsbezorgers om overlast



Flitsbezorgers van Gorillas NOS

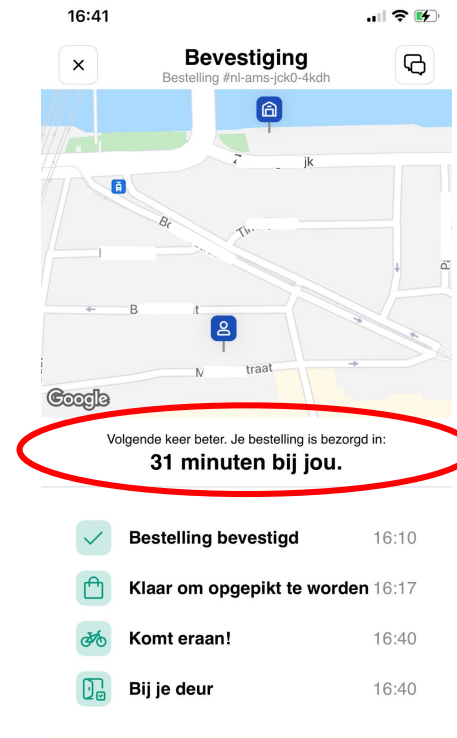
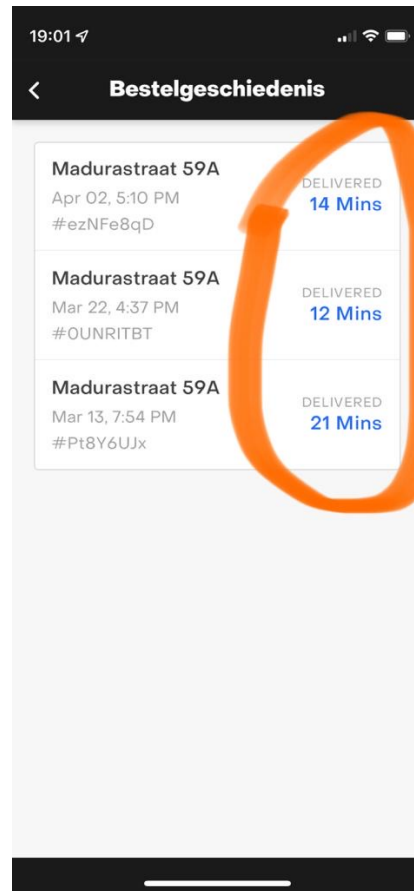
NOS NIEUWS · BINNENLAND · VANDAAG, 12:36 · AANGEPAST VANDAAG, 13:10

25 April 2022

Vestiging flitsbezorger A'dam moet dicht, gevoelige nederlaag darkstores



Flash delivery: target lead-times not (yet) met



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We are made to believe local for local is the solution

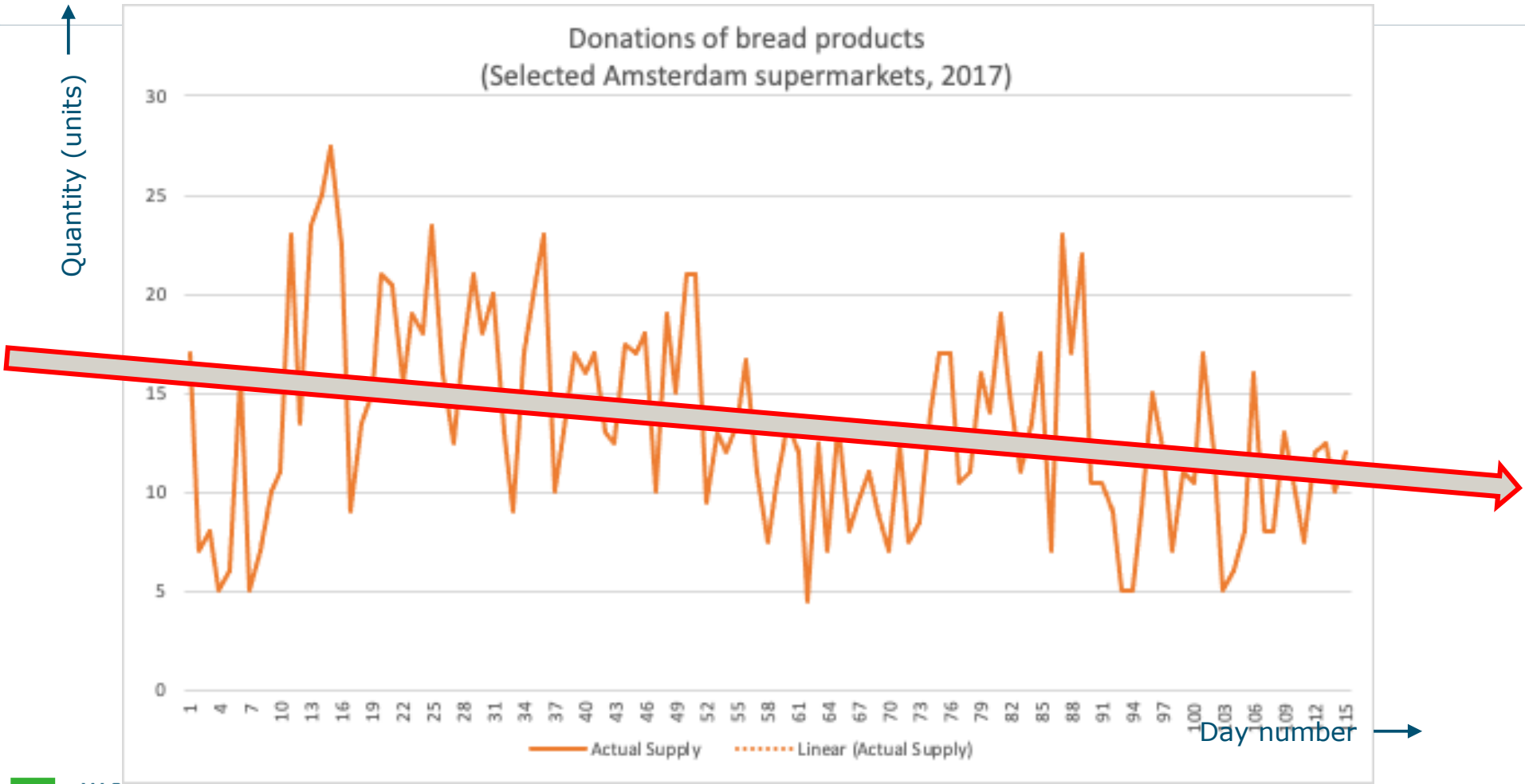


Local for local does not reduce CO2 emissions*

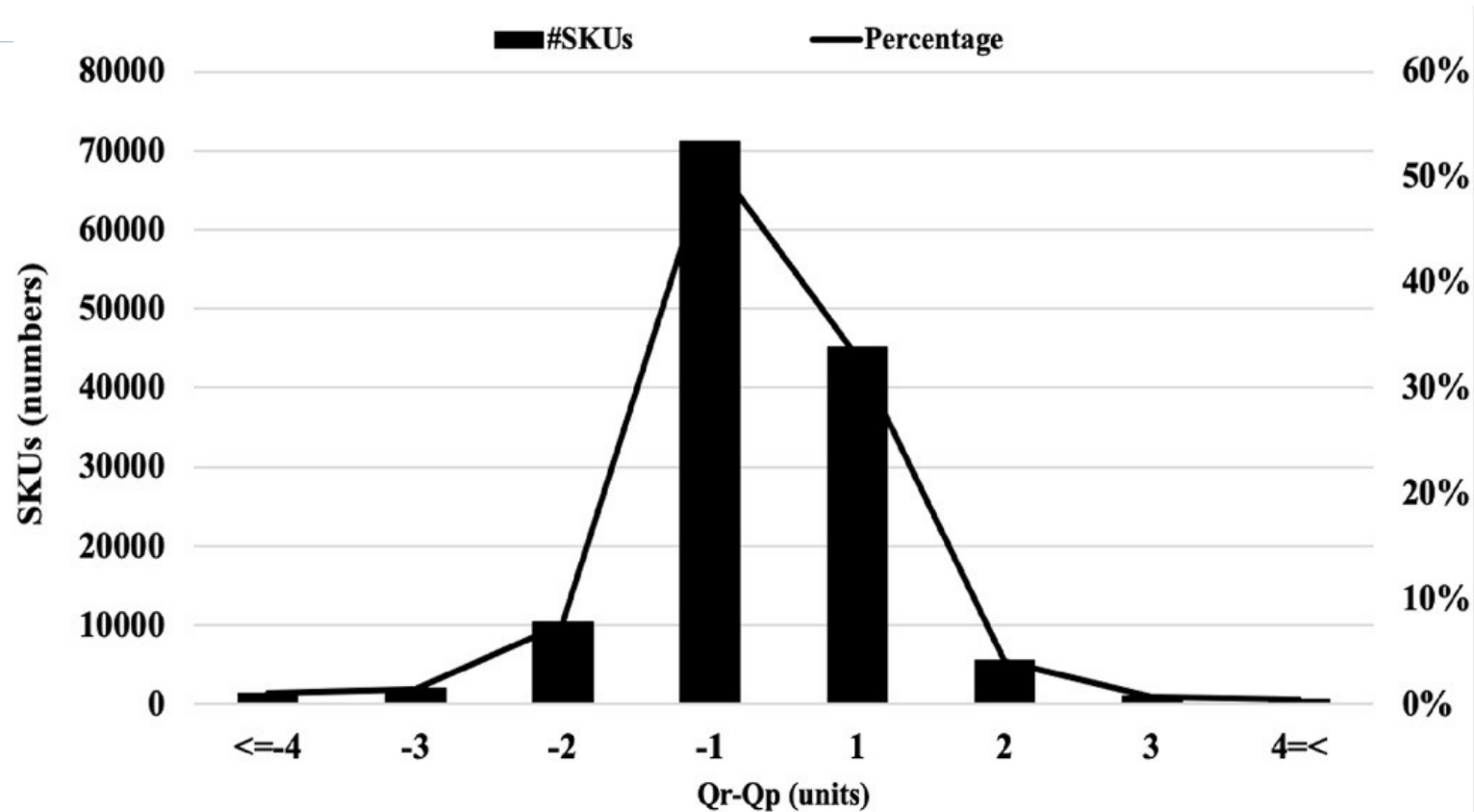


Photo: Utrecht, Apr 2022

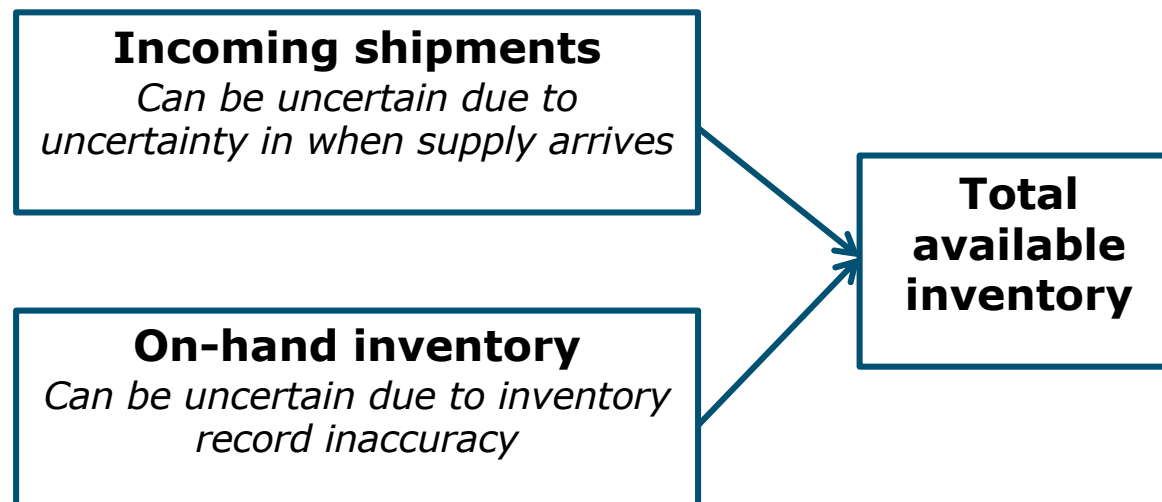
Trend in supermarket donations to foodbanks



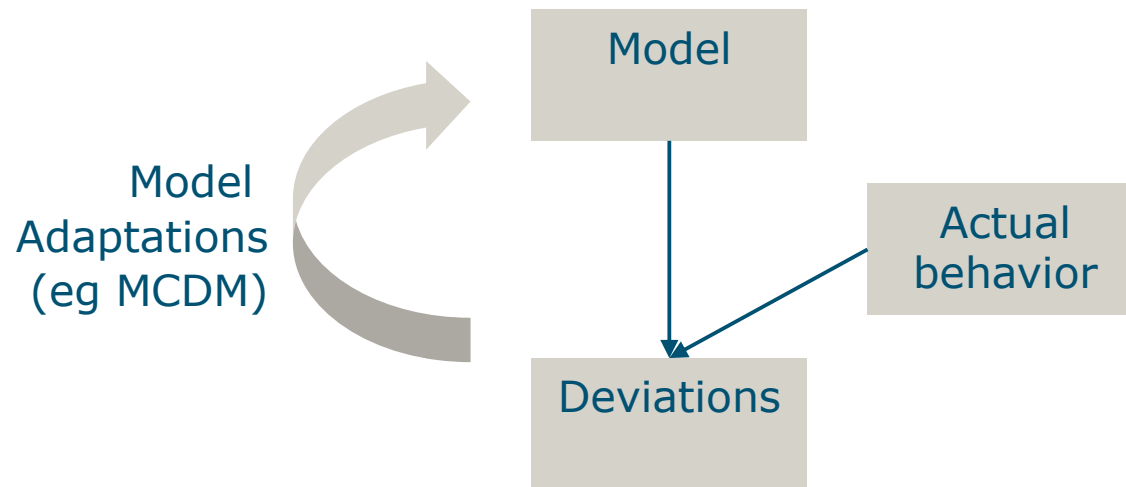
Inventory record inaccuracy in inventory – whose problem?



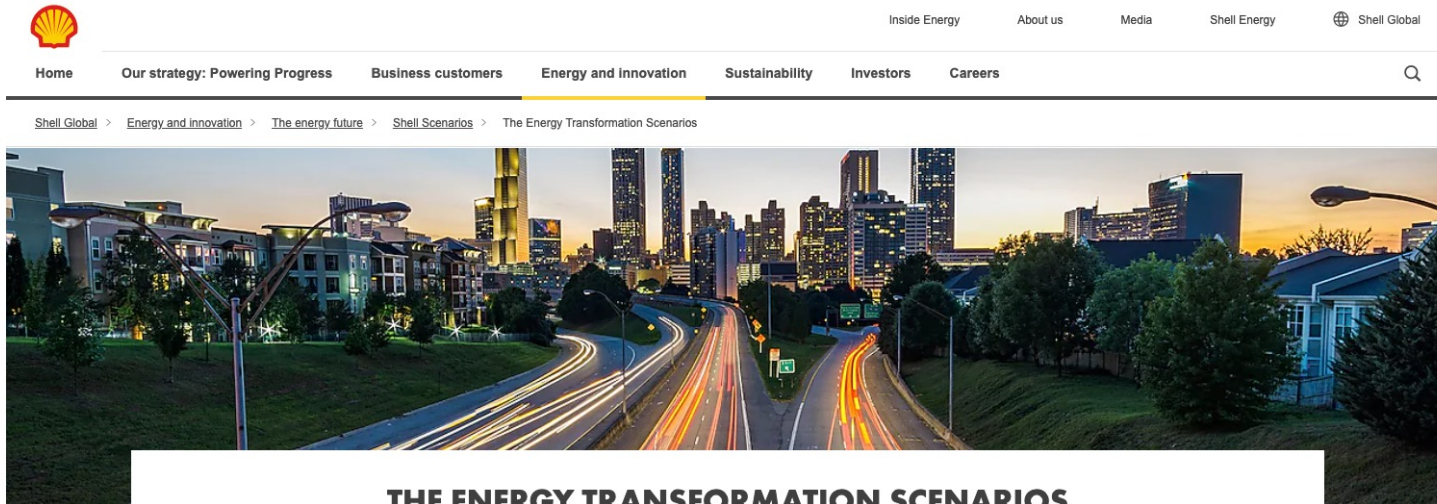
Human behavior in inventory decision-making



If we understand behavior next step is how to incorporate behavior in models



Challenge – think scenarios, analyse data and act fast



The world remains turbulent and full of uncertainties, but the current crises may be a trigger for faster change. Choices today will shape the future global landscape and the energy system for decades to come. In all three of our new scenarios the energy system is transformed, the issue is speed.

Recovery, resilience and transformation

The COVID-19 pandemic has generated significant turning points, with shifts across almost all societies and economies. It has exposed tensions and weaknesses in the global systems – but also shifted policy and behaviour in ways that open new possibilities for the future.

There will be different recovery objectives at the front of people's minds – the recovery of *economic strength*, the recovery of a sense of *security* and the recovery of a sense of *well-being*. These different objectives form the driving forces behind our new scenarios. People will be seeking all of these to some extent – wealth, security and health. But what they choose to prioritise may differ.

Over time, attention will turn from short-term recovery to long-term resilience, the capacity to survive, adapt and grow in the face of change and uncertainty. The current crisis may provide a window of opportunity for the deep changes distinct to transformative resilience – the ability to transition deeply to thrive in new circumstances.

Thank you for your attention

Email: sander.deleeuw@wur.nl

