Is Ultraprocessed Food?

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We seem to be surrounded by them ultraprocessed foods

Framing of ultraprocessed food

from an anthropological perspective

For an anthropologist, food is more than nutrition

Includes:

- **health and well-being**
- **cultural values**
- **social organisation and material cultures that surround it**
- **identity**
- **environmental connections and economic systems**
- **food systems in both broad and narrow senses**

Ultraprocessed foods and anthropological framings of food

What are they – ultraprocessed foods?

Ultraprocessed foods and:

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What are they, ultraprocessed foods?

foods high in fats and oils,
refined carbohydrate and sugars

as well as

a wide range of possible additives
for preservation, long shelf-life,
taste and palatability

UPFs: readily identified by their list of ingredients*

UPF markers

- Food substances of exclusive industrial use

(protein isolates, gluten, casein, whey protein, 'mechanically separated meat', high-fructose corn syrup, 'fruit juice concentrate', invert sugar, maltodextrin, dextrose, lactose, soluble or insoluble fibre, hydrogenated or interesterified oil)

- Cosmetic additives

(flavors, flavor enhancers, colors, emulsifiers, sweeteners, thickeners, and anti-foaming, bulking, carbonating, foaming, gelling and glazing agents)

Ultraprocessed foods in broader context

Rapidly changing and growing category, building on existing categories of processed foods, which have a deep history

Some components of processed foods also key to ultraprocessed foods

A distinction is that most ultraprocessed foods are industrial products, with components unlikely to be found in any everyday kitchen

Historical context - nutritionism

Some crimes of nutritionism ?

Nutritionism

- Reducing food to nutrients
- Interchanging calories from protein, fat and carbohydrate (common energetic currency for monitoring food security)
- Setting minimum standards for population consumption (calories, macro- and micro-nutrients)
- Regulating State-level food production
- Relating nutrition to health and disease
- Regulating global food security

Defining ultra-processed foods

NOVA Food classification

Unprocessed or minimally processed foods	Processed culinary ingredients	Processed foods	Ultra-processed foods
Foods which did not undergo processing or underwent minimal processing technics, such as fractioning, grinding, pasteurization and others.	These are obtained from minimally processed foods and used to season, cook and create culinary dishes.	These are unprocessed or minimally processed foods or culinary dishes which have been added processed culinary ingredients. They are necessarily industrialized.	These are food products derived from foods or parts of foods, being added cosmetic food additives not used in culinary.
			
Legumes, vegetables, fruits, starchy roots and tubers, grains, nuts, beef, eggs, chicken, milk	Salt, sugar, vegetable oils, butter and other fats.	Bottled vegetables or meat in salt solution, fruits in syrup or candied, bread, cheeses, purees or pastes.	Breast milk substitutes, infant formulas, cookies, ice cream, shakes, ready-to-eat meals, soft drinks and other sugary drinks, hamburgers, nuggets.

Evolution of definitions of the term ultra-processed foods (2010–2017) (Ulijaszek 2023, modified from Gibney 2019)

2009	Substances extracted from whole foods to which either no or relatively small amounts of minimally processed foods are added, plus salt, and other preservatives, and cosmetic additives.
2010	Mixes of processed culinary or food industry ingredients with unprocessed or minimally processed foods to make durable, accessible, convenient, and palatable ready-to-eat or ready-to-heat food products liable to be consumed as snacks or desserts or to replace home-prepared dishes.
2012	Formulated mostly or entirely from ingredients and typically contain no whole foods, to devise durable, convenient, high- or ultra-palatable, and profitable products. Not recognized as versions of existing foods. Designed to be consumed by themselves or in combination as snacks or drinks. Most ingredients used by manufacturers not available in supermarkets or other retail outlets.. Majority of ingredients, by number, are additives that include bulkers, sweeteners, sensory enhancers, flavours, and colours.
2014	Formulated mostly or entirely from substances derived from foods. Typically contain little or no whole foods. Durable, convenient, accessible, highly or ultra-palatable, often habit-forming. Usually not recognizable as versions of existing foods, but may imitate the appearance, shape, and sensory qualities of existing foods. Many ingredients not available in retail outlets. Some ingredients directly derived from foods, such as oils, fats, flours, starches, and sugar. Others obtained by further processing of food constituents. Numerically the majority of ingredients include preservatives; stabilizers, emulsifiers, solvents, binders, bulkers; sweeteners, sensory enhancers, colours and flavours, and processing aids. Bulk may come from added air or water. Micronutrients may be added. Most are designed to be consumed by themselves or in combination as snacks. They displace food-based freshly prepared dishes, meals. Processes include hydrogenation, hydrolysis; extruding, moulding, reshaping; preprocessing by frying or baking.
2015	Industrial products that are made entirely or mostly made from substances that have been extracted from food (oils, fats,sugar, starch, proteins), derived from food constituents (hydrogenated fats, modified starches), or synthesized in a laboratory based on organic materials such as oil and coal (colourants, flavourings, flavour enhancers, and additives for attractive sensory properties).
2016a	Industrial formulations typically with 5 or more and usually many ingredients. Such ingredients often include those also used in processed foods, such as sugar, oils, fats, salt, antioxidants, stabilizers, and preservatives. Ingredients only found in ultra-processed products include substances not commonly used in culinary preparations, and additives whose purpose is to imitate sensory qualities of group 1 foods or of culinary preparations of these foods, or to disguise undesirable sensory qualities of the final product.
2016b	Formulations of several ingredients that, besides salt, sugar, oils and fats, include food substances not used in culinary preparations, in particular, flavours, colours, sweeteners, emulsifiers, and other additives used to imitate sensorial qualities of unprocessed or minimally processed foods and their culinary preparations or to disguise undesirable qualities of the final product.
2017	Industrial formulations containing with some mix of salt, sugar, oils, and fats, and food substances not commonly used in culinary preparations, such as hydrolyzed protein, modified starches, and hydrogenated or interesterified oils, and additives which imitate sensorial qualities of unprocessed or minimally processed foods and their culinary preparations, or to disguise undesirable qualities of the final product, such as colourants, flavourings, non-sugar sweeteners, emulsifiers, humectants, sequestrants, and firming, bulking, de-foaming, anticaking, and glazing agents.

Classification of ultraprocessed foods (Ulijaszek 2023, modified from Gibney 2019)

	Year							
	2009	2010	2012	2014	2015	2016 a	2016 b	2017
Cereal-based products.	Breads; breakfast cereals; cereal bars	Breads; Breakfast cereals with added sugar; cereal bars	Sweetened breads and buns; bread and other cereal products; breakfast cereals, 'energy' 'cereal' bars	Breads, buns; breakfast cereals	Sliced bread, hamburger or hot dog processed bread; sweet breads; cereal bars	Breads and baked goods which include hydrogenated vegetable fat, whey, emulsifiers, and other additives; morning cereals, cereal bars	Mass produced breads and buns; breakfast cereals	Mass-produced packaged breads and buns; breakfast cereals, 'cereal' and 'energy' bars
Cakes & pastries.	Cookies (biscuits)	Cakes & pastries; biscuits (cookies)	Cookies (biscuits); pastries, cakes and cake mixes; desserts	Cookies (biscuits); pastries, cakes & cake mixes; desserts	Sweet and savoury biscuits	Cake mixes	Cookies (biscuits); pastries, cakes and cake mixes; desserts	Cookies, pastries, cakes, and cake mixes
Sweets & confectionery .	Chocolates, candies and sweets	Chocolates; confectionery (candies)	Chocolates; candies (confectionery)	Chocolates; candies (confectionery)	Processed sweets and treats in general (candies, ice creams, chocolates)	Confectionery; sugar substitutes and sweeteners and all syrups (excluding 100% maple syrup)	Chocolates; candies (confectionery) .	Chocolates; candies
Jams & preserves.		Jams (preserves)	Preserves (jams)	Preserves (jams)				
Snacks.	Chips (crisps); savoury and sweet snacks	Chips (crisps); savoury and sweet snacks	Chips (crisps); many other types of sweet, fatty or salty snack products	Chips (crisps); sweet, fatty or salty snack products; energy bars	Chip-like snacks	Packaged snacks	Sweet or savoury packaged snacks; cereal and energy bars	Sweet or savoury packaged snacks
Dairy products & substitutes.	Ice cream.	Cheeses; ice cream.	Ice-cream; margarines and spreads; fruit yogurts.	Ice cream; margarines.	Margarine,	Not listed.	Margarine and spreads.	Ice cream; margarines and spreads; 'fruit' yoghurts.

Ultraprocessed foods and anthropological framings of food

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The 32 damaging health outcomes linked to ultra-processed food

Credibility
- Convincing
- Highly suggestive
- Suggestive
- Weak
- No evidence

Grade
- Moderate
- Low
- Very low

Mortality
- All cause mortality
- Cancer related mortality
- Cardiovascular disease related mortality
- Heart disease related mortality

Cancer
- Breast cancer
- Cancer overall
- Central nervous system tumours
- Chronic lymphocytic leukaemia
- Colorectal cancer
- Pancreatic cancer
- Prostate cancer

Gastrointestinal health
- Crohn's disease
- Ulcerative colitis

Mental health
- Adverse sleep related outcomes
- Anxiety outcomes
- Combined common mental disorder outcomes
- Depression outcomes

Respiratory health
- Asthma
- Wheezing

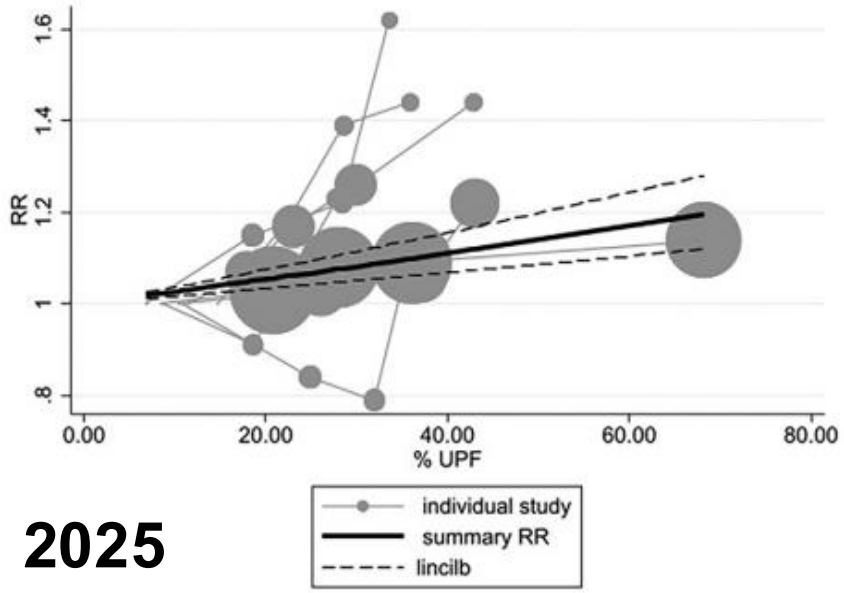
Cardiovascular health
- Cardiovascular disease events combined (morbidity+ mortality)
- Cardiovascular disease morbidity
- Hypertension
- Hypertriglyceridaemia
- Low high density lipoprotein cholesterol levels

Metabolic health
- Abdominal obesity
- Hyperglycaemia
- Metabolic syndrome
- Non-alcoholic fatty liver disease
- Obesity
- Overweight
- Overweight + obesity
- Type 2 diabetes

Available evidence strong enough to support limiting ultraprocessed food consumption (Juul and Bere 2024)

Ultraprocessed food consumption associated with weight gain, increased risk of obesity, cardiovascular disease, type 2 diabetes, and all-cause mortality

Associations with hypertension, cancer, and depression, but limited number of studies and subjects investigated preclude strong conclusions



Nilson et al 2025

Figure 1. Dose–response meta-analysis for the association between the dietary share of UPF (percentage of UPF on total energy intake) and all-cause mortality in 7 prospective cohort studies, including 239,982 participants and 14,779 deaths.
UPF, ultraprocessed food.

Ultra-processed food staples dominate mainstream U.S. supermarkets (Amaraggi et al 2025)

Category	Walmart (n= 1821)	Target (n= 933)	Walmart + Target (n= 2754)	Whole Foods (n= 638)
UPFs with 1 UPF marker	386 (21%)	240 (26%)	626 (23%)	283 (44%)
UPFs with 2 UPF markers	320 (18%)	169 (18%)	489 (18%)	152 (24%)
UPFs with 3 UPF markers	267 (15%)	135 (14%)	402 (15%)	85 (13%)
UPFs with ≥ 4 UPF markers	848 (47%)	389 (42%)	1237 (45%)	118 (18%)
UPFs ≥ 3 UPF markers	1115 (61%)	524 (56%)	1639 (60%)	203 (32%)

Amount of UPFs per number of UPF markers.

Americans more than Europeans forced to choose between health and cost

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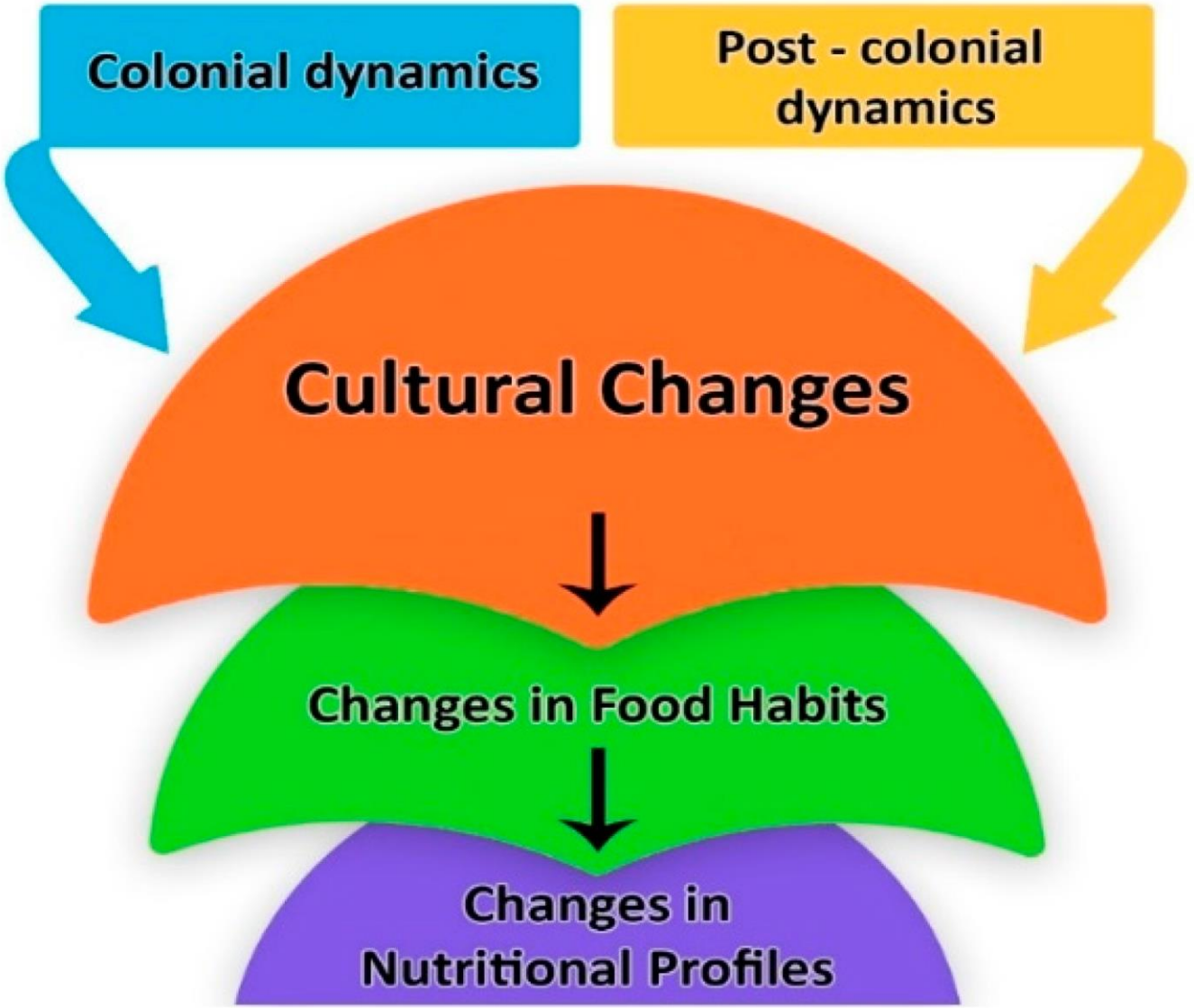
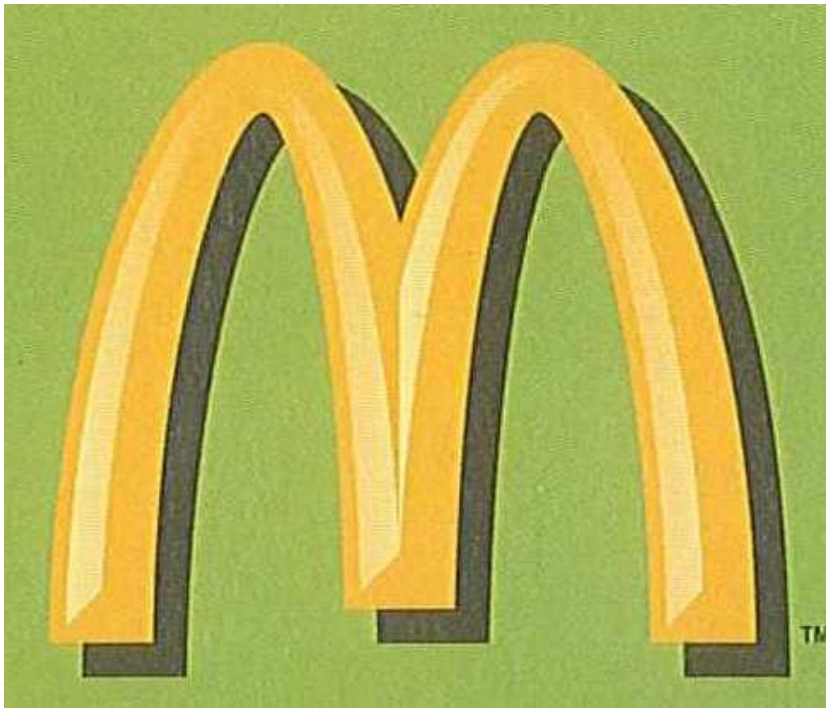
Post-colonial perspective on nutrition transition

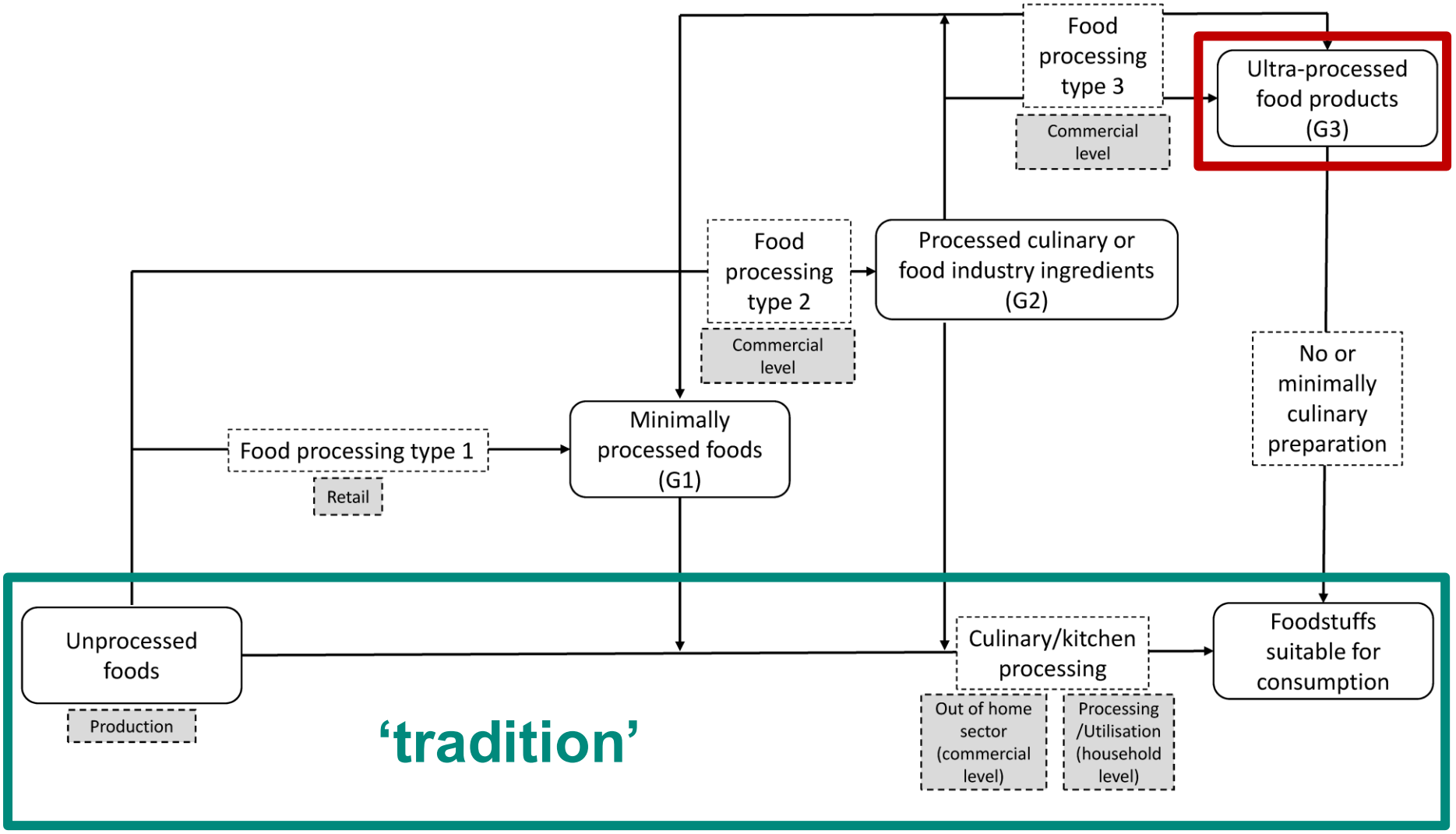
Weerasekara et al (2018) Nutrition Transition and Traditional Food Cultural Changes in Sri Lanka during Colonization and Post-Colonization. *Foods* 2018, *7*, 111.



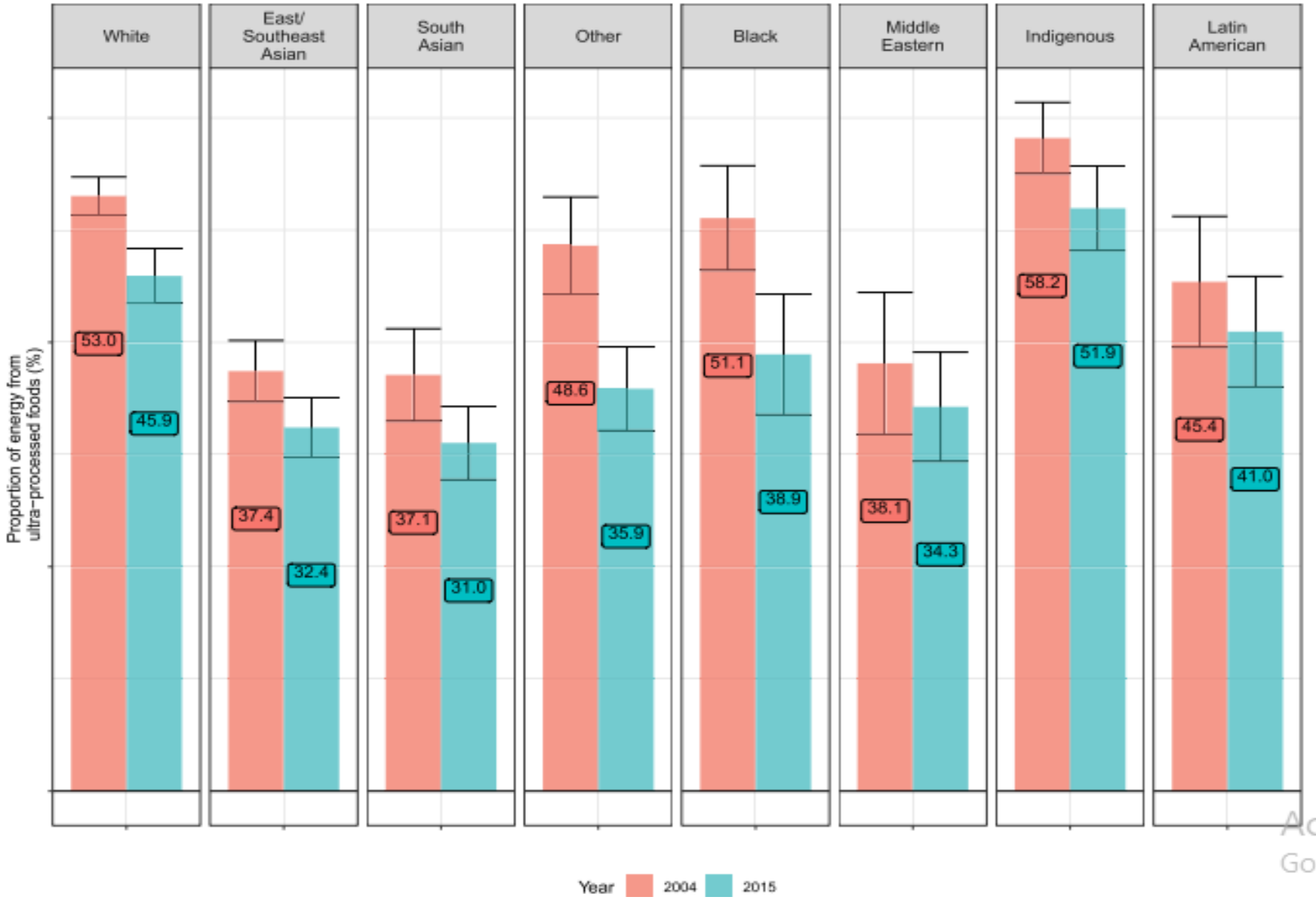


Macdonaldization?

Forms of food processing (Fardet and Rock 2020)



Proportion of energy from ultraprocessed foods by Indigenous status and race/ethnicity among participants in the Canadian Community Health Survey - Nutrition, 2004 and 2015 (Olstad et al 2023)



DINNER

Cola-Braised Brisket Tacos Recipe

★★★★★

The Mexican brisket recipe you've been waiting for.

BY EITAN BERNATH

LIVELIGHTER®

JUNK FOOD HEALTH FACTS FOR ABORIGINAL PEOPLE*

TWO IN THREE ABORIGINAL PEOPLE HAVE RISK FACTORS FOR HEART DISEASE

EATING AND DRINKING TOO MUCH JUNK BRINGS HEART DISEASE, CANCER, TYPE 2 DIABETES AND FATTY LIVER DISEASE CLOSER. THERE IS NO ROOM FOR JUNK FOOD IN A HEALTHY DIET.

41% OF ABORIGINAL PEOPLE'S ENERGY INTAKE COMES FROM JUNK FOODS AND SUGARY DRINKS

58 CENTS OF EVERY FOOD DOLLAR IS SPENT ON JUNK FOOD AND DRINK

CANCER CAUSES ONE IN FIVE ABORIGINAL **DEATHS**

36% of Aboriginal children have had a sugary drink by age three

ABORIGINAL PEOPLE ARE THREE TIMES MORE LIKELY TO HAVE DIABETES THAN NON ABORIGINAL PEOPLE

6.5KG WEIGHT GAIN IN ONE YEAR

is estimated if one can of soft drink is consumed per day (if these drinks are consumed in addition to the food your body needs and you don't increase your physical activity)

THERE ARE ABOUT 16 TEASPOONS OF SUGAR IN A 600ml BOTTLE OF REGULAR SOFT DRINK. TWO IN FIVE ABORIGINAL PEOPLE DRINK SUGARY DRINKS ON ANY GIVEN DAY

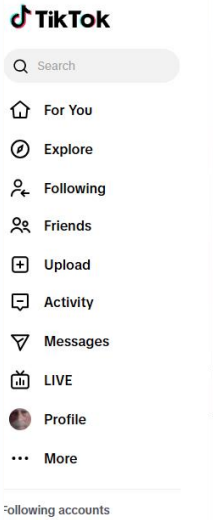
ONE MEAT PIE IS 3 SERVES OF JUNK FOOD 4 TEASPOONS OF FAT

Nearly half of an Adult's daily salt limit

TWO IN THREE ABORIGINAL ADULTS ARE OVERWEIGHT OR OBESE

ALMOST ONE IN THREE ABORIGINAL CHILDREN ARE OVERWEIGHT OR OBESE

1 teaspoon sugar = approximately 4 grams
1 teaspoon fat = approximately 3 grams
*One junk food serve is equivalent to 600kJ, as per the discretionary food category in the Australian Dietary Guidelines. These foods should only be consumed occasionally and in small amounts for good health



204blackwolf
@204blackwolf · 2024-3-23
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Deadly uncle brings KFC to the feast #NativeTikTok #nativetiktoks #nativehumor #nativehumour #nativehumor😂😂 #deadly #kfc

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Ultra-Processed Food (UPF), Depletion, and Social Reproduction (Stevano 2024)

Depletion through social reproduction (Rai et al 2013) involves social, economic, and political relations

Food - a resource for social reproduction (through health and biology), and food-related work a form of social reproduction work (through acquisition, processing, preparation)

UPF integrated into existing diets and food practices, transforming modalities of food consumption. Associated with consumption away from home and more individualised than socially oriented consumption practices. Temporal dynamics of everyday life intensified with absence of regular employment and associated fragmentation of work and family life across space. Precarious and gig economy work, associated with growing rates of working poverty, a key process underpinning shifts in everyday use of time, space, and labour organising in the world

Negative implications of UPF consumption in time, income, and health, given more resources for provision of health need to be mobilised by families, communities, and governments. UPFs create new trade-offs in organisation of everyday life

UPF food industry rides on the back of single-nutrient nutrition science, ignoring social reproduction and emphasising convenience

Nutrition transition (Popkin) 'grand narrative'

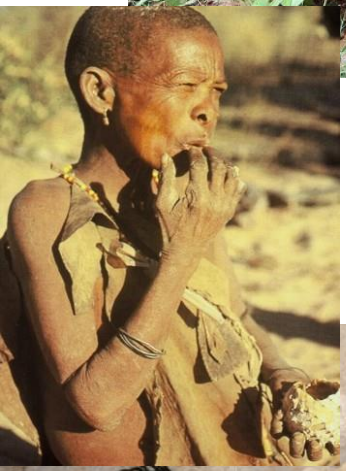
From hunting and gathering

From traditional agriculture, food processing and storage

To modern agriculture, food processing, storage and distribution

From traditional to modern – eg. marketing of food in India

From traditional to modern – eg. eating patterns



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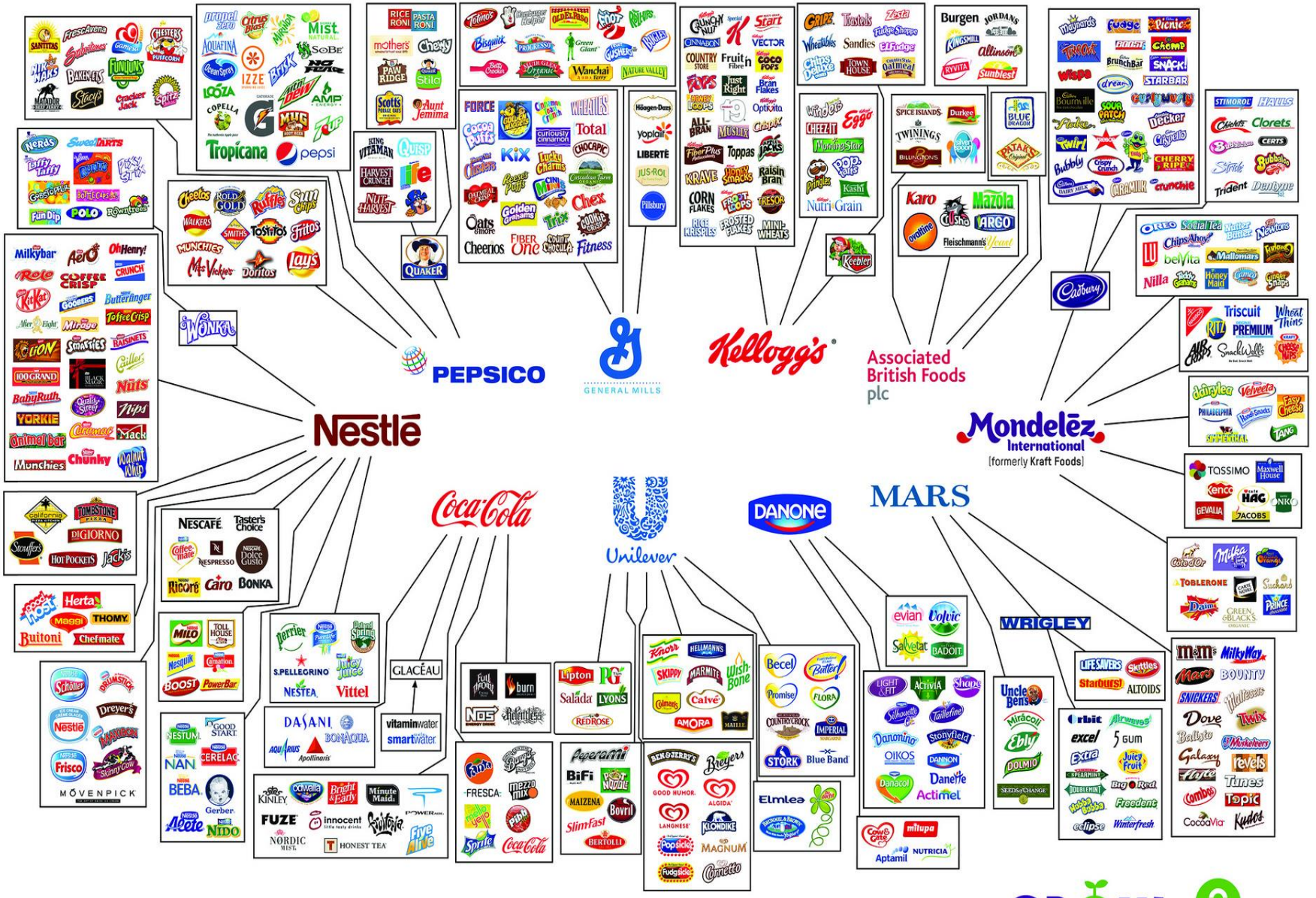
I shop
therefore
I am
Être naive
Être une conne
Fuck
my
look

Ultraprocessed foods and identity

Consumer selfhood

Marketing: systematic moulding of and response to consumer consciousness

Pursuit of brand value


PEPSICO
GENERAL MILLS
Kellogg's
Associated British Foods plc
Nestlé
Mondelēz International (formerly Kraft Foods)
Coca-Cola
Unilever
DANONE
MARS
WRIGLEY
GRO
FOOD. LIFE. PLANET.
OXFAM

(Oxfam 2014)

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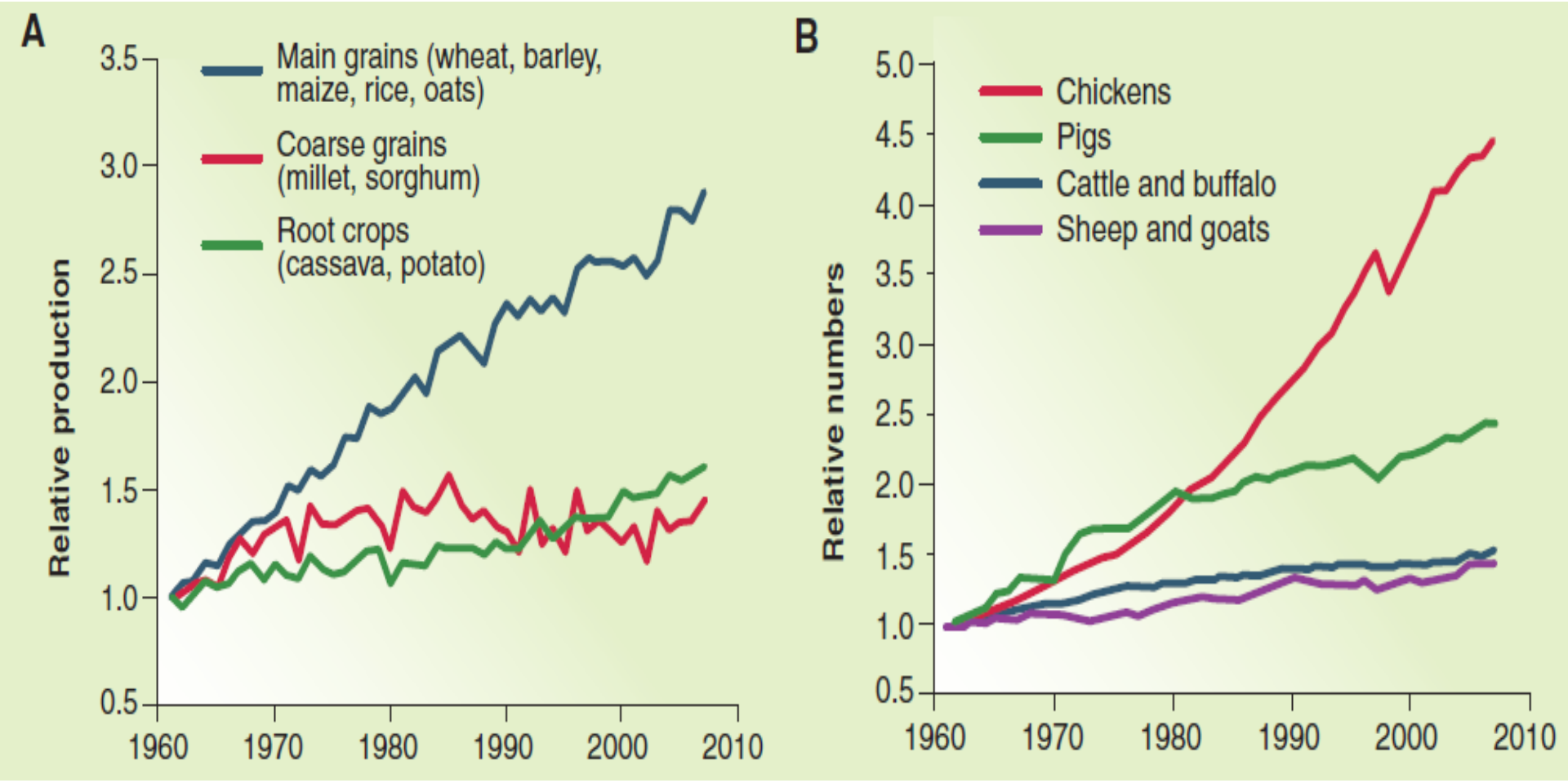
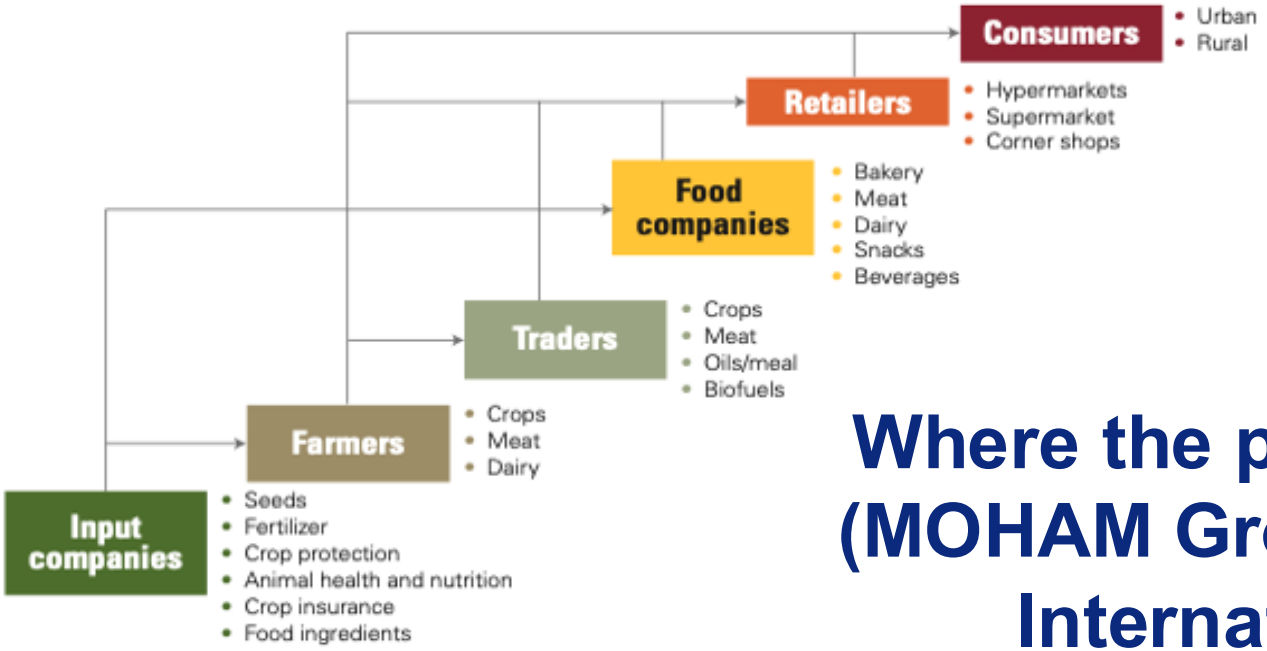
Fig. 1. Changes in the relative global production of crops and animals since 1961 (when relative production scaled to 1 in 1961). (**A**) Major crop plants and (**B**) major types of livestock.



Godfray et al 2010



Where the profit in food lies (MOHAM Group 2020; KPMG International 2013)

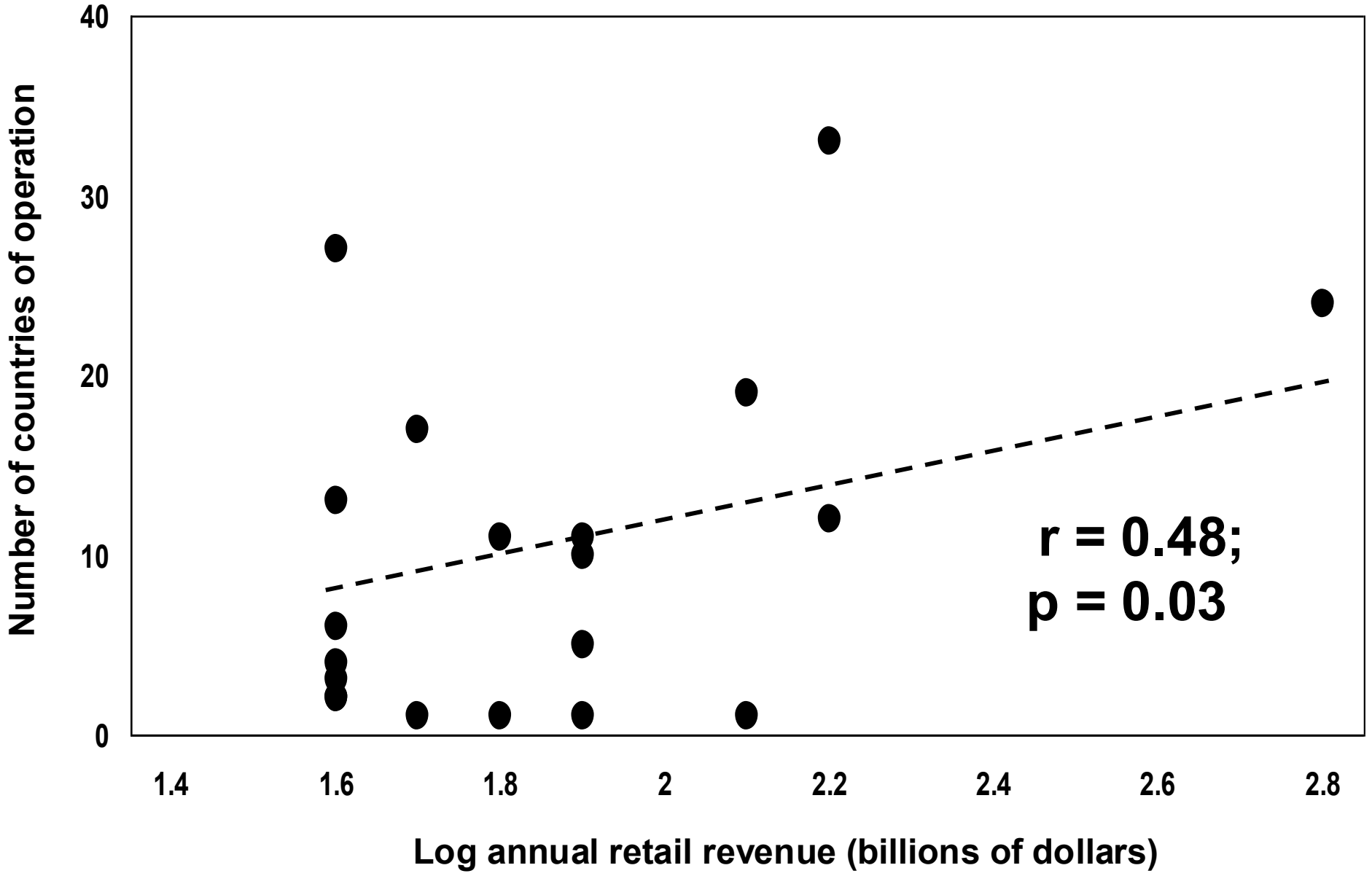
Table 1: Key profitability metrics for the agribusiness value chain

Sector	Input	Farmers	Traders	Food companies	Retailers
Sales: US$bn (*approx.*)	400	3,000	1,000	3,500	5,400
Number of players	100s	450 million	Tens	Thousands	Millions
EBIT %	15%	Variable	2–5%	10–20%	5%
R&D % sales	<1% (fertilizers) – 10% (seeds)	0%	<1%	1–2%	<1%
R&D spend: US$bn	10	–	Low	8	Low
Composition/ Sub-sectors	• Seed • Fertilizer • Crop protection • Machinery • Animal health and nutrition • Crop insurance • Food ingredients	• Grains • Fruit and vegetables • Meat • Dairy	• Handling • Primary processing • Secondary processing	• Bakery • Meat • Dairy • Snacks • Ready meals • Beverages	• Multiples • Discounters • Wholesalers • Independents
Range	R&D-based majors to generic manufacturers	Smallholders to agroholdings	Global agribusinesses to local middlemen	SMEs to multinationals	Corner shops to hypermarkets

Market globalisation: top food retailers 2020 (Global Powers of Retail, Deloitte 2022)

Rank	Company	Country of origin	No of countries of operation	Retail revenue ($US billion)
1	Walmart	US	24	559
3	Costco	US	12	167
4	Schwarz	Germany	33	144
6	Kroger	US	1	132
8	Aldi	Germany	19	117
13	Ahold Delaize	Netherlands	10	85
14	Aeon Co	Japan	11	75
15	Tesco	UK	5	74
16	Albertsons	US	1	70
17	Edeka	Germany	1	68
18	Rewe	Germany	11	62
19	Seven and I Holdings Co	Japan	17	52
21	Publix Super Markets	US	1	45
22	E Leclerc	France	6	44
23	Woolworths	Australia	2	42
25	Loblaw Companies	Canada	3	39
26	Intermarche	France	4	37
27	J Sainsbury	UK	2	37
27	Casino Guichard-Perrachon	France	27	36
30	Auchan	France	13	36

Number of countries of operation of top food retailers globally, according to annual retail revenue, 2020 (billions of dollars) (calculated from Deloitte 2022)



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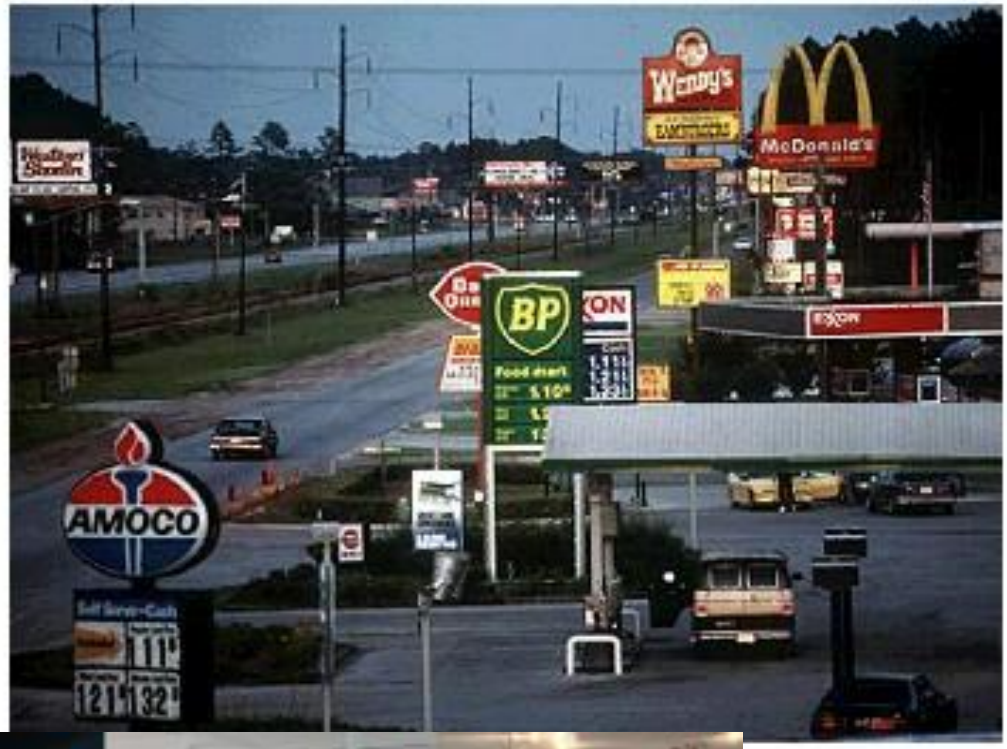
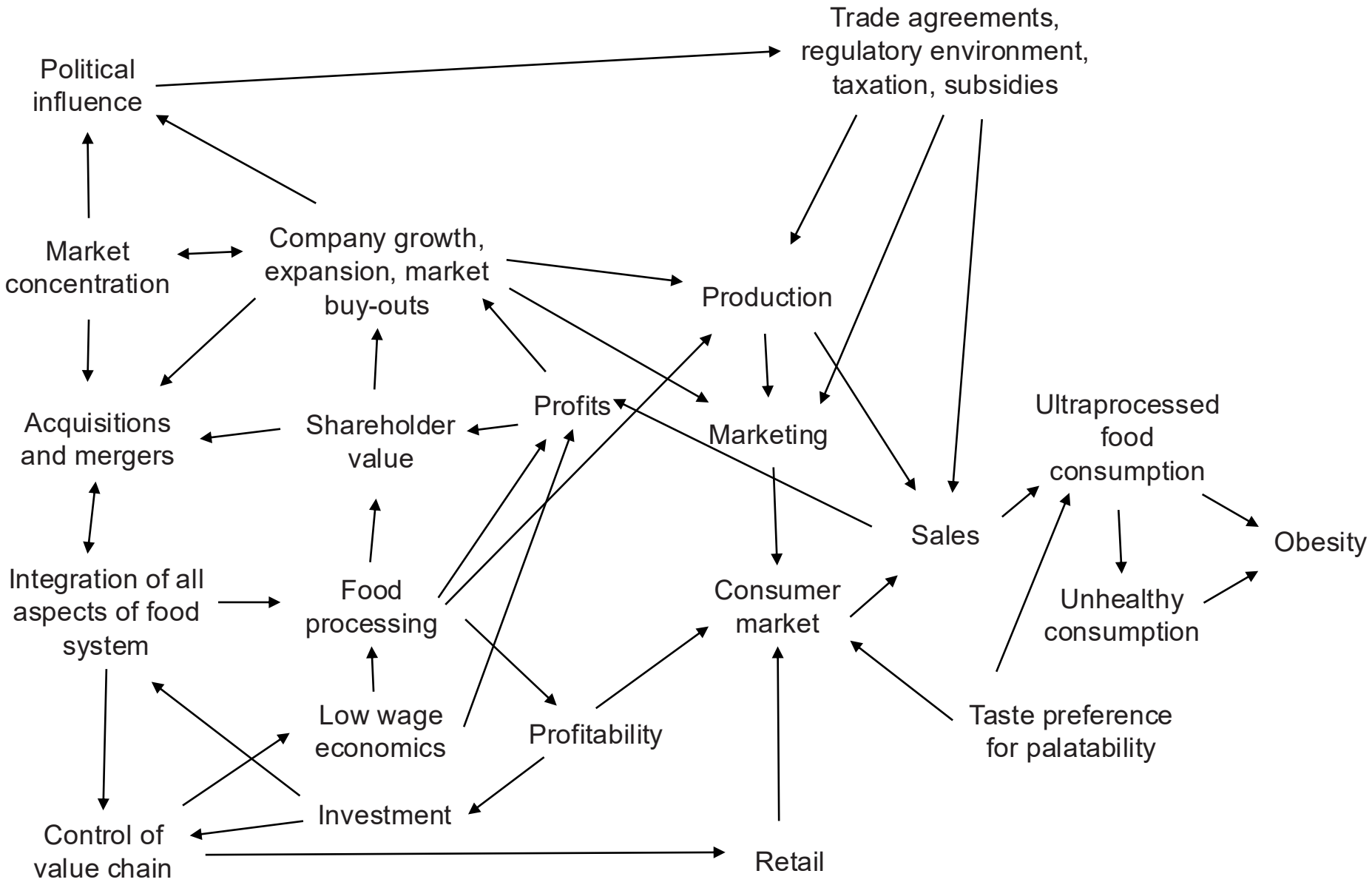
From subsistence to commodity to brand



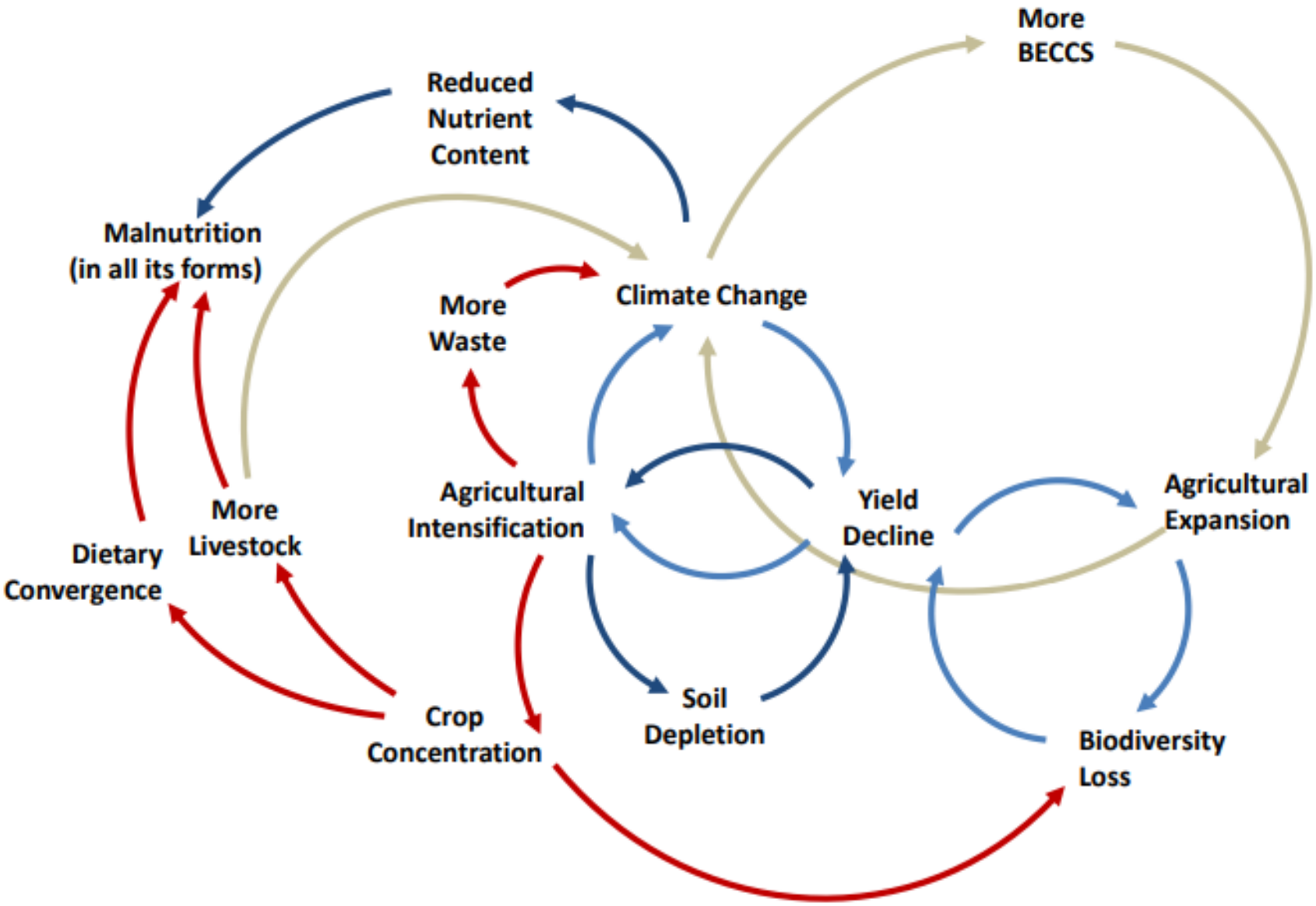
Partners & Brands - Motor Fuel Group

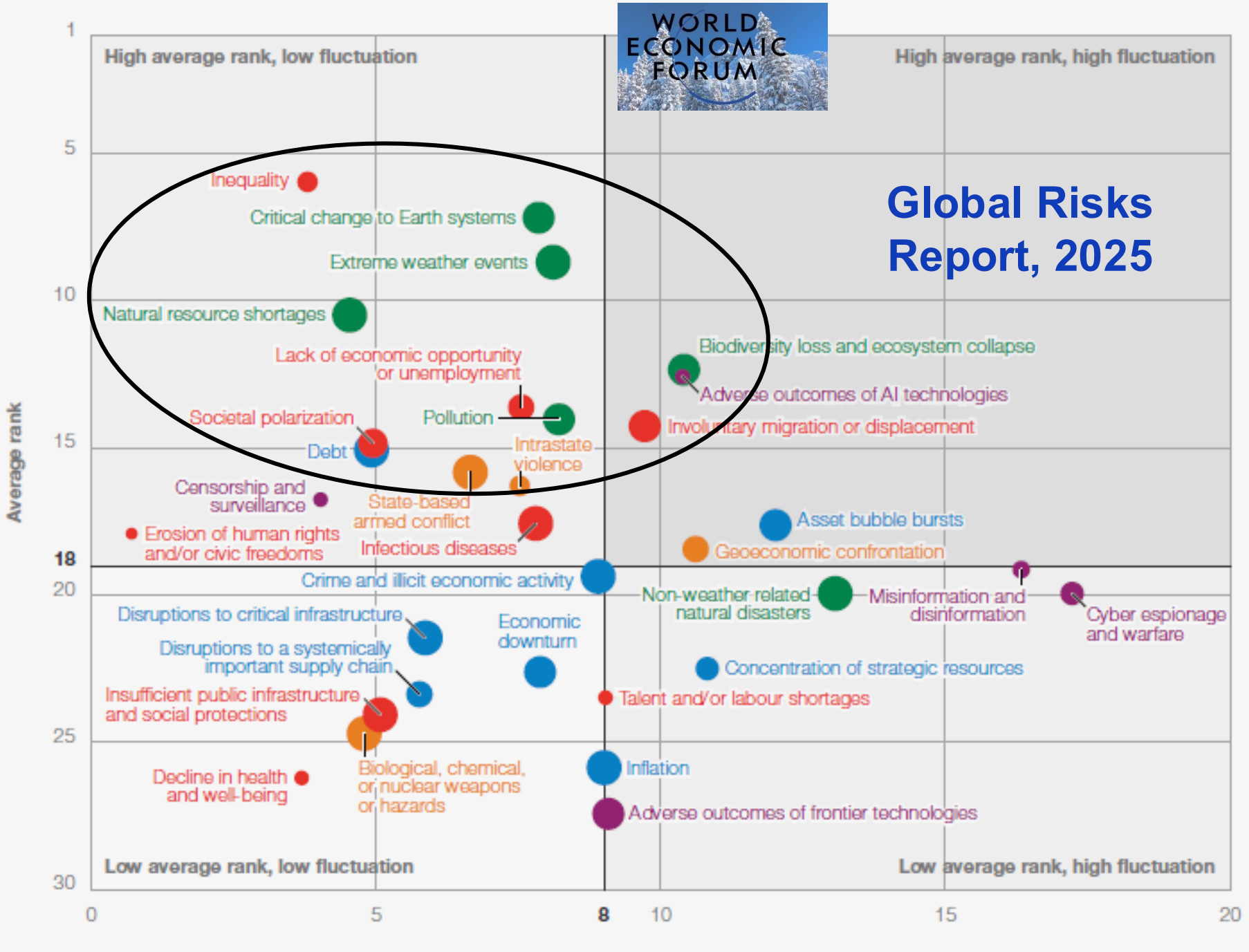
Visit >

The commercial processed food system and obesity (Ulijaszek 2023, modified from White 2020)



The global food system is unsustainable




WORLD ECONOMIC FORUM
Global Risks Report, 2025
High average rank, low fluctuation
High average rank, high fluctuation
Low average rank, low fluctuation
Low average rank, high fluctuation
Average rank
Standard deviation of ranking (the higher the value, the more variable the rank)
1
5
10
15
18
20
25
30
0
5
8
10
15
20
Inequality
Critical change to Earth systems
Extreme weather events
Natural resource shortages
Lack of economic opportunity or unemployment
Societal polarization
Pollution
Debt
Intrastate violence
Censorship and surveillance
State-based armed conflict
Erosion of human rights and/or civic freedoms
Infectious diseases
Biodiversity loss and ecosystem collapse
Adverse outcomes of AI technologies
Involuntary migration or displacement
Asset bubble bursts
Geoeconomic confrontation
Crime and illicit economic activity
Non-weather related natural disasters
Misinformation and disinformation
Cyber espionage and warfare
Disruptions to critical infrastructure
Disruptions to a systemically important supply chain
Economic downturn
Concentration of strategic resources
Insufficient public infrastructure and social protections
Talent and/or labour shortages
Decline in health and well-being
Biological, chemical, or nuclear weapons or hazards
Inflation
Adverse outcomes of frontier technologies

Cornell Future of Food Questionnaire 2025

Please rank the following in order of most aligned [1] to least aligned [5] with what "food systems transformation" means to you.

4
Transformation of food systems technology and innovation including data, AI, robotics, and novel foods.

5
Transformation toward increased productivity and efficiency of food systems and capturing their true costs.

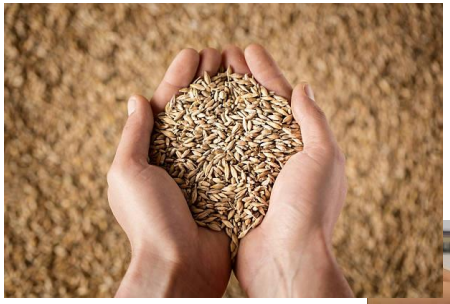
2
Transforming food system power relations and the political and economic systems that underpin them.

1
Transformation as a process of radical change in the structural, functional and relational aspects of the food system that leads to more just socio-ecological relationships, patterns of interactions and outcomes.

3 Transformation toward sustainable food systems with healthy dietary outcomes.

The future of food in the hands of tech

Farm



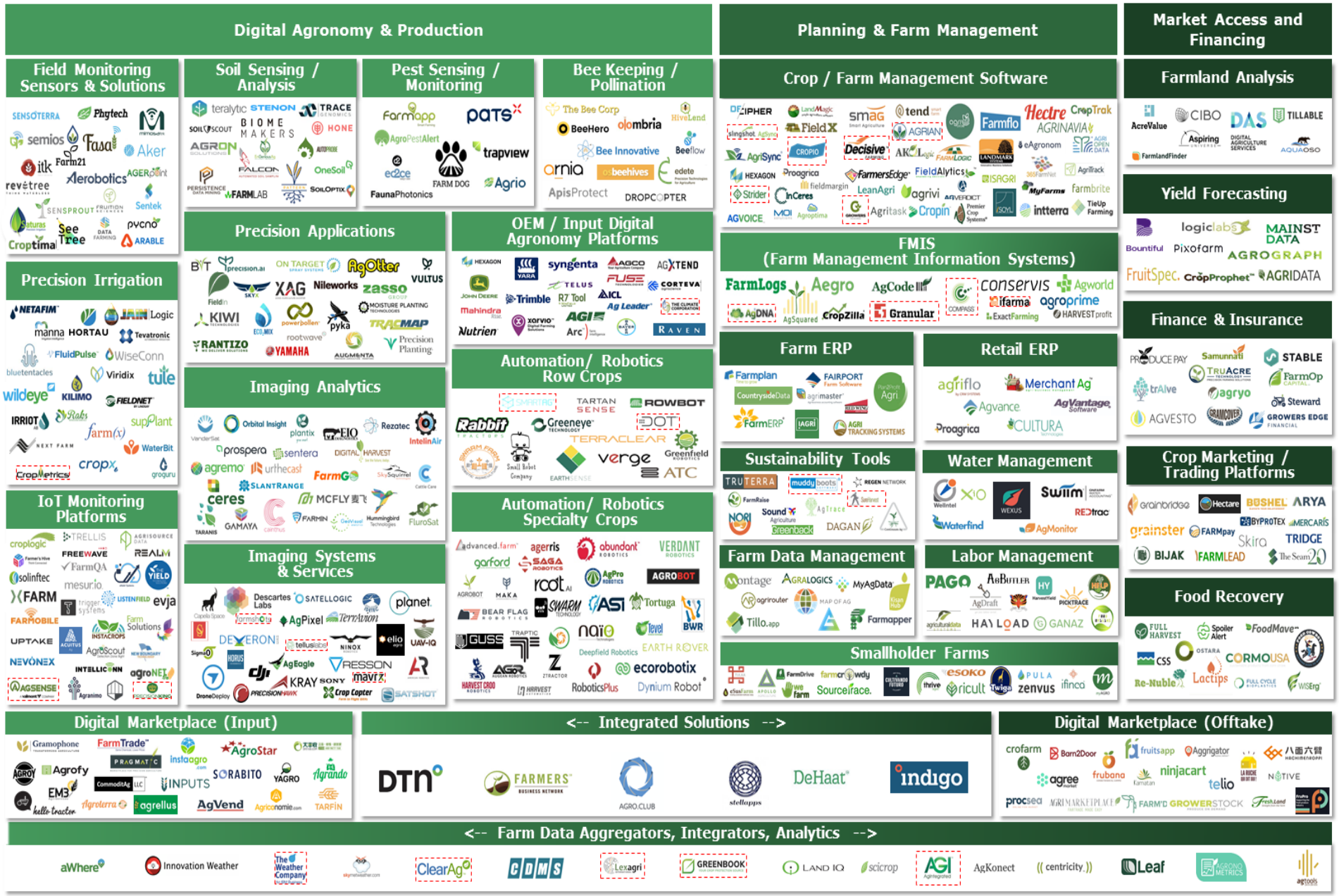
Supply chain

Retail


Technological fix narrative
- technodeterminism

FARMTECH LANDSCAPE 2020

CULTERRA CAPITAL



Recently Acquired Company

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FOOD SUPPLY CHAIN TECH LANDSCAPE 2021

CULTERRA CAPITAL

/// SUPPLY ///

STRATEGY

Yield Forecasting / Harvest Tech
Agrograph · CIBO · CROPTRACKER · CropProphet · fieldin · FruitSpec · GreenAtlas · MAINST DATA · Pixofarm

Supply & Trade Analytics/Strategy
agtools · Athena Intelligence · DecisionNext · ec2ce · STABLE · Bountiful · GRO Intelligence · S4

Trading Platforms
bart · bext · covantis · DIMUTO · Frey · grainster · cmdty · INTELAGE · MERCARIS · PRODUCEPAY · The Seam

First Mile Monitoring
amber · AGI · escavox · Centaur · Haber Technologies · Nanolike · INTELLO LABS · Trellis · SCIO · FreshCloud · TELESENSE · VeriGrain

First Mile: Producer /Order Mgmt
AgriDigital · ALMADS · ALMONDLOGIC · AgrosMilk · BOSHEL · iTradeNetwork · CropTracer · crescent · CropTrak · AMIGOALVM · farmsoft · Ecogistix · fusionware · NutStar · PROCURANT · milk moovement · RADFORDS · RedLine SOLUTIONS · trak · WaudWare

ERP - Commodity & Specialty
AgVision · FAMOUS · AGTRAX · Merchant Ag · CULTURA · Agvance · ProSoftXP · GSS+ · PRODUCE MAGIC · Prophet · Silver Creek · PRODUCE PRO SOFTWARE · SPOKANE SOFTWARE

Food Safety Detection
Clear Labs · ancera · INSPECTO · safetraces · ProteoSense · Swiss DeCode · XIBUS · Varok · SFS · TRACE GENOMICS

Freshness Control/Application
AgroFresh · Apeel · blu.urap · BOOST BIOMES · ecozen · FOOD FRESHNESS TECHNOLOGY · InspiraFarms · It's Fresh! · hazel technologies inc. · purfresh · mori · Rebound Technologies · vericool · STARTCHY

EXECUTION

AI/ML CPG Product Innovation
BLACK SWAN DATA · brightseed · isense · JOURNEY FOODS IO · FlavorWiki · Gastrograph AI · FOODPAIRING · shiru · SIGNALS · SPOONSHOT · tastewise

Cold Chain Monitoring
cooltrax · SMARTSENSE · EVIGENCE SENSORS · FreshCloud · DeltaTrak · Infratab · Inteligistics · NanoThings · FreshSurety · tsenso · VARCODE · sparrows.io · VeroFresh · STRELLA

Quality & Safety Management
CMX · Coinspect · FoodLogiQ · CORVIUM · iFood · Lotpath · HEAVYCONNECT · PROVISION ANALYTICS · rizepoint · OTRAFY · Safefood 360° · SAFETYCHAIN · TRAQTION

Quality & Safety Control
AgShift · ClariFruit · INVISIBLE SENTINEL · impact vision · insart · foodID · LUMACHAIN · tellspec · OZARK TECHNOLOGIES · TOMRA · P&P Optics · NOVOLYZE · QCIFY · VIBE

Production Analytics/Strategy
AUGURY · INFINITE UPTIME · Seeq · falkonry · SIGHT MACHINE · Petasense · senseye · seebo

Production Robotics & Automation
ABI LTD · OAL · PreciTaste · QUEST · Rockwell Automation · STÄUBLI · SOFT ROBOTICS · SANOVO · UNIVERSAL ROBOTS · SCOTT

ERP - Production
BATCHMASTER · Dairy.com · deacom · CSB-System · PARITY FACTORY · FLEXIBAKE · QAD · Minotaur Software · NETYIELD · nulogy · NutraSoft · OSAS · Vormittag Associates, Inc. · WHERE FOUR

Manufacturing Operations Mgmt
ATS · CAT · FOCUS WORKS · DEMAND DRIVEN TECHNOLOGIES · ekos · VICINITYFOOD · INNOVA · MAR-KOV · PLEX · SHICK ESTEVE · ProLeiT · specright

/// LOGISTICS & DISTRIBUTION ///

Supply Chain Analytics/Strategy
AIMMS · backbone AI · ChainPoint · interos · Lamasoft · riskmethods · sourcemap · Riskpulse · Smart Cube · SOLVOYO · SWARM

Transportation Mgmt & Visibility
BLUJAY · DOSSIER · Flock Freight · alpega · ECHO · KUEBIX · LOCUS · foxtrot · HAVEN · freightflow · SwanLeap · TRADELANES

ERP - Distribution
ADS · bop · Aspen · entree · CAI Software · Encompass · FDS Food Decision Software · fresh/byte · iptor · TURNING POINT · sage · Vanguard Ag

Cold Chain-Focused Logistics/3PL
americold · Barrett · BURRIS LOGISTICS · C.H. ROBINSON · CHOPTANK · its · Lineage · GENPRO · GREENRABBIT · NEWCOLD · HAVI · Logistics · MERCURYGATE · REDWOOD · ROMARK · TRADEMARK · Tiger Cool Express · TRANSFIX · LORI · STORD · TQL · VersaCold · WOW · Uber Freight · waresix · XENETA

Warehouse/DC Mgmt & Automation
ALERT INNOVATION · CADRE · DEMATIC · Fabric · KUKA · HORTWORX · KINDRED · LOCUS · KNAPP · IAM ROBOTICS · MYRMEX · symbotic · Softeon · SISTEMA LOGIC · Takeoff · voxware · RIGHTHAND ROBOTICS · WITRON · Westfalia

Business Automation & Vendor/Order Mgmt
basware · BirchStreet · BIG WHEELBARROW · coupa · MarketMan · logicbroker · PEPPERI · orderful · mercad · FOODS CONNECTED · RPA LABS · Supplier.ai · Proagrica · Sweet · Wholesail

Digital Logistics Marketplaces
ARRIVE LOGISTICS · CONVOY · Emerge · FLEXE · fliit · dexFreight · FRS FREIGHTOS · leaf · Kobo · TRANSFIX · nuvo cargo · LORI · STORD · waresix · Uber Freight · XENETA

/// DEMAND ///

F&B/Retail Demand Data Analytics
451 · IRi · RETAIL VELOCITY · Enterra SOLUTIONS · nielsen · SPINS · SKUPOS · TABS Analytics

F&B/Retail Demand Planning & Mgmt
Afresh · BLUE RIDGE · crisp. · AZOTI · invatron · ITASCA RETAIL · LOKAD · ReposiTrak · Mi9 RETAIL · visualfabriq · SHELF ENGINE

Omnichannel/D2C Logistics
AxleHire · CRYSTAL CREEK · Ohi · fulfillment by amazon · Cygnus Frozen 3PL · channel · PSS · sealed · ShipBob · shopify · SKUVAULT · TrueCommerce

Supply Chain Food Recovery
FoodMaven · FULL HARVEST · KDCAg · hub.cycle · IMPERFECT FOODS · HUNGRY HARVEST · Misfits Market · NETZRO · Spoiler Alert · YÜME

VALUE CHAIN PLAYERS

Ag Value Chain Platforms: CERES · FARMERS · stellapps · indigo · SYSPRO

Traceability/3rd Party Verification: AANIKA · CLOUDLEAF · IdentiGEN · arc-net · AgTrace · bsi. · CONNECTING FOOD · LUMACHAIN · muddy boots · MAP OF AG · phylagen · rfxcel · ripe.io · SUPPLYSHIFT · Transparency One · traceregister

Enterprise Supply Chain Platforms: aptean · ArrowStream · DESCARTES · infor · Manthatan Associates · ROYAL4 SYSTEMS · toolsgroup · AMERICAN SOFTWARE · BlueYonder · DASSAULT SYSTEMES · elementum · Microsoft Dynamics 365 · ORACLE NETSUITE · SAP · Vanguard Software Corporation

Integrated Business Planning: afs · Alloy · DynaSys · JOHN GALT · TIBERSOFT · SYMPHONY RETAIL · blueshift · FutuMaster · fractal · KINAXIS · UpClear · unioncrate

B2B Procurement Markets / Platforms (Supply-Focus): agree · barchart · BIJAK · COMBYNE · crofarm · GRAIN · Farmley · AGRO.CLUB · DeHaat · KrishiHub · PartnerSlate · NATIVE · silo · TRIDGE · WAYCOOL

Networked Supply + Trade + Logistics: arviem · CDX · ClearMetal · chain.io · Controlant · E2OPEN · eka · Elemica · FOURKITES · AGRICHAIN · GRAIN CHAIN · KÖRBER · OMNICHAIN · SFL88 · one · OVERHAUL · project44 · TRANSPARENT PATH · envista · samsara · sheer · routeique · roambee · TRANSPLACE · TRADELENS · ZIM

B2B Procurement Markets / Platforms (Demand-Focus): BlueCart · Choco · CODIFY · Collective Food · provi · REKKI · claire · ePallet · procsea · forager · hubba · odeko · SFP · CONSENTIO · GROWERSTOCK · POD FOODS · RANGE.me · Traceone

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FOODTECH & MEDIA LANDSCAPE 2020

CULTERRA CAPITAL

/// IN-HOME ///

Digital-First Recipe/Food Content

allrecipes, BuzzFeed TASTY, cookpad, bing, delish, EATER, epicurious, GENIUS KITCHEN, Google, feedfeed, FOOD52, FOOD+TECH CONNECT, kitchn, PANNA, Kitchen Stories, myrecipes, Tasting Table, THE NEW FOOD ECONOMY, TASTEMADE, Plant Jammer, The Daily Meal, SERIOUS EATS, the spoon, SPOON UNIVERSITY, SORTEDfood, VT FOOD ENVY, YouTube, Simply Recipes

"Smart" / Connected Food Content

amazon alexa, AnyList, ChefSteps, BuzzFeed TASTY, BigOven, Cortana, chicory, Cooklist, HESTAN CUE, emeals, Chefling, drop, kitchen, klove chef, Google Assistant, innit, myxx, PYLON Q, SIDECHEF, thermomix COOKIDOO, relish, whisk, Yummly

Nutrition / Wellness

Diet ID, AVA, EPICURED, EatRx, eat this much, EDAMAM, LIGHTER, EatLove, fatsecret, FOODMAESTRO, habit, FillMyFork, myfitnesspal, kurbo, nutrino, nutritionix, NIMA, noom, Rise, shopwell, platejoy, Savor, Suggestic, Pulse, wellio, zipongo

Digital CPG Mkting, Ad & Sales Insights

AD ADAPTED, basket, CATALINA, chicory, COUPDOG, EVERSIGHT, Checkout 51, Engage3, inmar, GourmetAds, flipp, Fetch, KOUPON MEDIA, kip, ibotta, LINQIA, PURCHASE DECISION NETWORK, Quotient, Numerator, REVTRAX, Profitero, smart commerce, Sampler, shopperations, whisk

Grocery eCommerce

amazonfresh, BRANDLESS, BOXED, CC crowd.com, prime now, good eggs, flashfood, HUNGRY HARVEST, freshdirect, LIGHTER, Milk, mercato, GrubMarket, goPuff, IMPERFECT produce, Misfits Market, jet, instacart, SHIPT, THRIVE MARKET, rosie

Omnichannel Grocery (B2B2C)

APP CARD, Aisle Ahead, Bird, CRAVE, HowGood, GROCERY, HAPPY FOOD CO, mercâtus, HALLA I/O, FreshRealm, MWG, NORTHFORK, superup, MEISTERDISH, MIRAKL, shophero, Spoon Guru, UNATA

Meal Delivery (eCommerce)

Blue Apron, DAILY HARVEST, FARMSTEAD, FRESHLY, GREEN CHEF, goldbelly, foody direct, KETTLEBELL, FARM HILL, GALLEY, Gobble, HelloFRESH, MARLEY SPOON, PURPLE CARROT, HOME CHEF, SUN BASKET, TERRITORY, TOVALA, THISTLE

Catering & Corporate Meals

chewse, EAT CLUB, Cater2.me, ezcater, Byte, FARMER'S FRIDGE, GOGOCATER, foodee, COOKIE, FORKABLE, HUNGRY, FopdtoEat, FOODSBY, Genie, minnow, oh my green, foodify, PLATTERZ, RITUAL, sharebite, Peach, STADIUM, ZeroCater, SNACKNATION, Zesty

Ordering & Delivery Marketplaces

allset, chowbus, bite squad, Bring Me That, delivery.com, EAT24, DOORDASH, EatStreet, FANFOOD, foodjunky, FAVOR, kiwi, foodboss, MEALPAL, GRUBHUB, ORDER, Uber Eats, Snackpass, NOBLE, POSTMATES, Toppings, OrderAhead, WAITR

Wine, Beer & Spirits Content / eCommerce

BRIGHT CELLARS, DELECTABLE, drync, DISTILLER, DRINKS, hellovino, MINIBAR, TapRm, UNTAPPD, SAUCEY, TIPSY, VIVINO, VINEPAIR, VINEBOX, Winc, WINESTYR, wine.com

Restaurant Reviews & Local Discovery

CHEFSFEED, EatWith, journy, THE INFATUATION, Localeur, menuism, FED, Guides, TASTING, trover, tripadvisor, vimbly, yelp, ZAGAT

Local Deals, Loyalty, Rewards

belly, HOOCH, Hooked, GROUPON, mogl, SEATED, SELECT, FIVESTARS

Restaurant CX, Mktng & CRM (B2B)

AppFront, Bridg, Bentobox, bikky, cashstar, fishbowl, Empyr, KABAQ, Index, incentivio, MUNCHADO, MomentFeed, mobivity, OpenMenu, Servy, punchh, PAYTRONIX, relevant, Spendgo, session M, singleplatform, SPARKFLY, Thanx, SEVENROOMS, tattle, Wisely, VENGA, yext, zineOne

Reservations / Event Mgmt

Bookatable, cvent, CATERTEASE, SIXPLUS, hostme, nowait, Gather, TABLELIST, RESY, TOCK, tripleseat, OpenTable, TableUp, RESERVE, WAITLIST ME

Restaurant Staffing/ Workforce Mgmt

7SHIFTS, blanket, GOOD FOOD JOBS, HotSchedules, Culinary Agents, harri, PEOPLE MATTER, Instawork, seasoned, Jolt, POACHED, push, ScheduleIOT, pared, SLING, ShiftPixy, stratex, snag., When I Work

On-Premise + Retail Alcohol Tech (B2B)

binwise, Bevager, DRAFTSERV TECHNOLOGIES, nectar, 1 POUR IT, provi, PUBINNO, pour, BRIDGE, tastry, StarBar.ai, SevenFifty, THIRSTIE

On-Premise Ordering/Payments

bite, Brightloom, freestyle, Bbot, LevelUp, GoTab, TRAY, dynamic yield, onedine, presto, Radtab, SpeedETab, rooam, TableSafe, tillster, XPR, xenial, Kiosk, ZIVELO

Food Rescue / Waste Mgmt (Foodservice)

COPIA, goMkt, FOOD for all, GOODR, Leanpath, replate, OLIO, phood, FEEDBACK, transfernation, yourlocal

Restaurant Mgmt & Business Analytics

86 REPAIRS, avero, BEVSPOT, compeat, Altametrics, CRUNCHTIME!, fourth, DELAGET, Foodager, GALLEY, Immoment, marketing vitals, MarketMan, marginedge, TDnK, meal ticket, OMNIVORE, PathSpot, PeachWorks, PLATE IQ, tenzo, SynergySuite, sourcery, Restaurant365, Upserve, WHAT'S BUSY, xenial, xtraCHEF, yumpingo

/// ENABLING TECHNOLOGIES ///

Supply Chain Transparency/ Sustainability Tracking

arc-net, bext360, CMX, EVRYTHNG, Frequentz, FoodLogiQ, HarvestMark, iTradeNetwork, PROVENANCE, SUPPLYSHIFT, rize, sourcemap, safetraces, Transparency One, ripe.io, WFCF, traceregister

Next Gen In-Store Grocery Tech

aila, bossanova, caper, grabango, SMART SHELF, Mi9 RETAIL, ocado, inmarket, focal systems, Pensa, SCANDIT, [Sc], REVIONICS, SKIP, Shelfbucks, trax, wasteless, Takeoff

Ordering & Delivery Platforms (B2B)

BRINGG, Button, CHOWLY, ChowNow, deliv, CardFree, Habitat, HOMER, MONKEYMEDIA SOFTWARE, CATERTRAX, ItsaCheckmate., MENUDRIVE, Ordermark, GoParrot, onosys, ROADIE, OPEN DINING, onfleet, patronpath, RELAY, SLICE, tillster

Conversational Platforms: Voice & Bots

APPRENTE, BensenAI, BRANDCHAT, clinc, JETSON, ENCOUNTER AI, novo, kea., OpenCity, REDSHIFT, mmuze, ORDERSCAPE, Say2eat, VOIX, VALYANTAI, zingle

AI/ML Food & Bev Product Innovation

Gastrograph, brightseed, FlavorWiki, FOODPAIRING, NURITAS, isense, JOURNEY FOODS.IO, SIGNALS ANALYTICS, SPOONSHOT, THIMUS, tastewise

Food Procurement Marketplaces & Platforms

AFRESH, AZOTI, BlueCart, crisp., natural commerce, Choco, Cheetah, FRESH NATION, FoodMaven, podfoods, Spoiler Alert, FULL HARVEST, DINE MARKET, forager, SHELF ENGINE, simple

Restaurant Cloud POS

clover, LAVU, lightspeed, MenuSifu, par, OrderSnapp, NorthStar, rezku, Revel, SHOPKEEP, Shift4 PAYMENTS, SpotOn, SALIDO, Square, toast, TouchBistro, Upserve POS

Shared / Cloud Kitchen Platforms

2ndKitchen, CLOUD KITCHENS, kitchen united, nextbite, THE FOOD CORRIDOR, THE KITCHEN DOOR, zuul

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ACQUIRED

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Ultraprocessed food consumption data (Nilson et al 2025)

Table 1. UPF Consumption as Percentage of Total Energy Intake in National Dietary Surveys by Country and Year

Country	Survey, year	Age, years	Mean (95%CI)
Brazil	POF, 2017–2018	30–69	17.4 (17.1, 17.7)
U.S.	NHANES, 2017–2018	30–69	54.5 (52.8, 56.1)
United Kingdom	NDNS, 2018–2019	30–69	53.4 (51.6, 55.3)
Canada	CCHS-Nutrition, 2015	30–69	43.7 (42.7, 44.7)
Mexico	ENSANUT, 2016	30–69	24.9 (22.6, 27.1)
Colombia	ENSIN, 2015	30–69	15.0 (14.2, 15.7)
Chile	ENCA, 2010	30–69	22.8 (21.6, 24.0)
Australia	NNPAS, 2011–2012	30–69	37.5 (36.8, 38.2)

ENCA, Encuesta Nacional de Consumo Alimentario; ENSANUT, Encuesta Nacional de Salud y Nutrición; ENSIN, Encuesta Nacional de Situación Nutricional; CCHS, Canadian Community Health Survey; NDNS, National Diet and Nutrition Survey; NHANES, National Health and Nutrition Examination Survey; NNPAS, National Nutrition and Physical Activity Survey; POF, Pesquisa de Orçamentos Familiares; UPF, ultraprocessed food.

Product distribution per NOVA category in selected supermarkets per country (Amaraggi et al 2025)

	Walmart (n= 3114)	Target (n= 1605)	U.S. (n= 4719)	Mercadona (n= 625)	Carrefour (n= 2709)	Europe (n= 3334)
NOVA 1	469 (15%)	204 (13%)	673 (14%)	157 (25%)	426 (16%)	583 (17%)
NOVA 3	824 (26%)	468 (29%)	1292 (27%)	204 (33%)	1171 (43%)	1375 (41%)
NOVA 4	**1821 (58%)**	**933 (58%)**	**2754 (58%)**	**264 (42%)**	**1112 (41%)**	**1376 (41%)**
Bread	190 (92%)	112 (98%)	302 (94%)	67 (69%)	208 (84%)	275 (80%)
Canned goods	479 (42%)	278 (43%)	757 (42%)	19 (13%)	349 (26%)	368 (25%)
Cereals	726 (74%)	277 (73%)	1003 (74%)	31 (72%)	99 (69%)	130 (70%)
Eggs	2 (7%)	0 (0%)	2 (6%)	0 (0%)	0 (0%)	0 (0%)
Milk	46 (37%)	25 (27%)	71 (33%)	48 (45%)	22 (19%)	70 (32%)
Vegetables	8 (3%)	12 (9%)	20 (6%)	0 (0%)	1 (1%)	1 (0%)
Yogurt	370 (94%)	229 (96%)	599 (95%)	99 (89%)	433 (72%)	532 (74%)

The values presented are the number of products per category and the proportion they represent over the total amount. The food groups belong to the NOVA 4 category. U.S.: Target + Walmart; Spain: Mercadona; France: Carrefour; Europe: Mercadona + Carrefour.

Other Possible Futures of Food 2025

Please rank the following in order of most aligned [1] to least aligned [5] with what "food systems transformation" means to you.

4
Transformation of food systems technology and innovation including data, AI, robotics, and novel foods.

5
Transformation toward increased productivity and efficiency of food systems and capturing their true costs.

2
Transforming food system power relations and the political and economic systems that underpin them.

1
Transformation as a process of radical change in the structural, functional and relational aspects of the food system that leads to more just socio-ecological relationships, patterns of interactions and outcomes.

3 Transformation toward sustainable food systems with healthy dietary outcomes.

Alternative World Views 2025

Transforming power relations and political economic systems

Just socio-ecological relations

Sustainable food systems with healthy outcomes

Recent trends in ultraprocessed food (UPF) production and consumption (Ilieva et al 2025)

Expansion of functional UPFs in response to increasing health consciousness; food manufacturers reformulating UPFs by incorporating added vitamins, fibre, probiotics, and protein-enriched alternatives (ultra-nutritionism?).

Growth of plant-based UPFs. Demand for plant-based diets and surge in UPFs marketed as vegetarian or vegan alternatives, such as meat substitutes and dairy-free products. Align with sustainability and ethical consumption trends, but remain highly processed, containing emulsifiers and synthetic ingredients

Ultra-convenience in food innovation. Rise of ready-to-eat meals, instant snacks, and meal replacement products reflecting shift in consumer preferences for faster and more effortless eating? Prioritise convenience over nutritional value, contributing to increased intake of UPFs

Concerns over environmental sustainability prompt some manufacturers to explore eco-friendly packaging, reduce food waste, and develop "clean-label" UPFs with fewer artificial additives

Increased reliance on digital food marketing. Brands leverage social media platforms, food delivery apps, and personalised advertising to target consumers. Use of influencer endorsements and algorithm-driven recommendations contribute to growing acceptance and appeal of UPFs, especially among younger people

In sum - ultraprocessed foods and anthropological framings of food

All pervasive

Impact on health and well-being

Have become indigenised or at least normalised

Impact on social organisation and impose new material cultures

Promoted through consumption as identity

Linked to environmental issues and economic systems

Part of calorie-driven (unsustainable) food systems

End note -

Definitions are Key (Prescott et al 2024)

Language that positions ultraprocessed products as “food”
part of a mindset that privileges technology and continued application
of isolated nutrients
as a means to remedy
deeply rooted socioeconomic problems

Thank you