TITAN

Transparency solutions for transforming the food system

Summary of interesting publications on topics relevant to the TITAN project

November 2024

ENABLING INFORMED CHOICES BY CONSUMERS

Publications

ARTICLE **Future of Food Safety Tasting**

New Food Magazine — Latest NFM newsletter

PAPER **Comprehensive analysis of PFAS presence from environment to plate**

Nature — Per- and polyfluoroalkyl substances (PFAS) pose an emerging environmental risk impacting food products and ecosystems. This study analyzes over 150,000 entries from food safety authorities and scientific publications from 2017 onwards.

Dimitrakopoulou, ME., Karvounis, M., Marinos, G

PAPER **Antimicrobial resistance: a concise update**

The Lancet — In this rapidly advancing field, this Review provides a concise update on AMR, encompassing epidemiology, evolution, underlying mechanisms (primarily those related to last-line or newer generation of antibiotics), infection prevention and control measures, access to antibiotics, antimicrobial stewardship, AMR surveillance, and emerging non-antibiotic therapeutic approaches.

ARTICLE

WPHNA

Unpacking front-of-pack nutrition labelling research: when the food industry produces 'science' as part of its lobbying strategies

This article covers the state of the art on behaviour change and how this relates to the success of digital nutrition solutions.

A. Garde, N. Gokani, S. Besançon, M. Mialon

ARTICLE

Science Daily

Foods with low Nutri-Scores associated with an increased risk of cardiovascular diseases, study finds

In a new article, reesearchers report an increased risk of cardiovascular diseases associated with the consumption of foods that rank less favorably on the Nutri-Score scale (new 2024 version) within the European cohort EPIC.

ARTICLE

WPHNA

Unpacking front-of-pack nutrition labelling research: when the food industry produces 'science' as part of its lobbying strategies

This article covers the state of the art on behaviour change and how this relates to the success of digital nutrition solutions.

A. Garde, N. Gokani, S. Besançon, M. Mialon

ARTICLE

Oxford Academic

Development of an online food safety toolbox based on the Codex Alimentarius General Principles of Food Hygiene: engaging users through mapping, chunking, and learning-by-asking

The paper describes designing and developing an online food safety toolbox that aims to elevate the food safety knowledge of food business operators, competent authorities, and trainers.

M. Hasani, S. V. Camacho-Martinez, B. Zai, L. J. Warriner, C. Boesch, C. Kopko, F. Marafiotti, K. Warriner

PAPER

ScienceDirect

The changing food allergen landscape in Europe calls for harmonised food allergen monitoring: Position paper

This position paper argues for the introduction of harmonised guidelines for food allergen monitoring on the European level based on a discussion of the wide-ranging implications their lacking entails.

Smits, N. G.E., Ballin, N. Z., Bruggeman, C., Fæste, C.K., Pastorelli, A.A., van Poucke, C., Voorhuijzen-Harink, M.M., Westphal, Y., Walker, M., Winkel, M., Koops, A.J.

PAPER

PubMed

Voluntary versus mandatory food labels, Australia

This paper compares uptake of the voluntary Health Star Rating front-of-pack nutrition labelling system with uptake of a mostly mandatory country-of-origin label in Australia over a similar period.

Jones, A., Maganja, D., Shahid, M., Neal, B., Pettigrew, S.

PAPER

Nature

Opportunities and challenges for global food safety in advancing circular policies and practices in agrifood systems

This review provides a synthesis of the current and emerging risks, data gaps, and opportunities for food safety in agrifood initiatives aiming to advance circular economy models.

Pearson, A.J., Mukherjee, K., Fattori, V.

ARTICLE

ScienceDirect

Time to ACT-UP: Update on precautionary allergen labelling (PAL)

This study investigates the efficacy of Front-of-Pack Nutrition Labels (FOPNLs) as a cost-effective tool for improving dietary choices among Greek consumers. The purpose of the study was to investigate Greek customers' preferences and comprehension of commonly used European FOPNL schemes.

Turner, P.J., Bognanni, A., Arasi, S., Ansotegui, I.J., Schnadt, S., La Vieille, S., Hourihane, J., Zuberbier, T., Eigenmann, P., Ebisawa, M., Morais-Almeida, M., Barnett, J., Martin, B., Monaci, L., Roberts, G., Wong, G., Gupta, R., Tsabouri, S., Mills, C., Brooke-Taylor, S., Bartra, J., Levin, M., Groetch, M., Tanno, L., Hossny, E., Ballmer Weber, B., Fierro, V., Remington, B., Gerdts, J., Gowland, M.H., Chu, D., Van Ravenhorst, M., Koplin, J., Fiocchi, A.

PAPER

SSRN

What Shapes Sustainable Food Choices? A Field Experiment on the Impact of a Behaviorally Informed Intervention and a Price Variation on Sustainable Food Choices

This paper analyzes actual food choices at a public festival with a food market area, where participants receive information on the carbon footprint of food options and financial incentives in the form of food vouchers. The analysis reveals no significant effect of the informational treatment, but evidence shows that the price intervention significantly reduces the likelihood of choosing meat-based options over vegetarian ones.

Pizzo, A., Bauer, J. M., & Reisch, L. A. (2024).

PAPER

Nature Food

The full picture of people's realities must be considered to deliver better diets for all

This paper argues that to get policies and interventions working more effectively and equitably, a fresh approach is needed—one that considers the full picture of people's realities.

Hawkes, C., Gallagher-Squires, C., Spires, M., Hawkins, N., Neve, K., Brock, J., Isaacs, A., Parrish, S., & Coleman, P. (2024).

PAPER

Oxford Academic

Choice architecture promotes sustainable choices in online food-delivery apps

This study empirically tests the effectiveness of different interventions to reduce the carbon footprint of food choices made on food-delivery apps, using an incentive-compatible online randomized controlled trial with 4,008 participants.

Lohmann, P. M., Gsottbauer, E., Farrington, J., Human, S., & Reisch, L. A. (2024).

ARTICLE

Science

Exposure to sugar rationing in the first 1000 days of life protected against chronic disease

This paper examined the impact of sugar exposure within 1000 days since conception on diabetes and hypertension, leveraging quasi-experimental variation from the end of the United Kingdom's sugar rationing in September 1953. Rationing restricted sugar intake to levels within current dietary guidelines, yet consumption nearly doubled immediately post-rationing.

Gracner, T., Boone, C., & Gertler, P. J. (2024).

JOURNAL

Frontiers

A global analysis of portion size recommendations in food-based dietary guidelines

Since large food portion sizes (PS) lead to overconsumption, the objective of this paper was to review PS recommendations for commonly consumed food groups reported in Food-Based Dietary Guidelines (FBDGs) globally and to assess variation in PS across countries and regions.

Salesse, F., Eldridge, A. L., Mak, T. N., & Gibney, E. R. (2024).

Reports

REPORT

BEUC

Europe, Consumers count on you

BEUC priorities for the next European Commission (2024-2029).

REPORT

The Nutri Source

Healthy Living Guide 2023/2024: A Digest on Healthy Eating and Healthy Living

This year's guide focuses on mindful eating and its impact on both personal and planetary health.

REPORT

FAO

Ensuring food safety in a circular economy

This report provides an analysis of current and emerging evidence on food safety risks in circular food production systems. The report examines in depth four major dimensions of concern – water scarcity, food loss and waste, food packaging waste, and land use efficiency.

NEWS

EFSA

Navigating Novel Foods: what EFSA's updated guidance means for safety assessments

The European Commission tasked EFSA with updating the guidance on how to prepare and submit applications to market novel foods in the EU.

REPORT

Access to Nutrition Initiative

Sector Alignment on the Use of Nutrient Profile Models

The Access to Nutrition Initiative (ATNI) conducted a research series in 2023 and 2024 to bring increased understanding and harmonization to the sector on defining and measuring healthy foods. A three-round Delphi process, inclusive of three surveys and two roundtable events, has been completed..

REPORT

Gates Foundation

The Race to Nourish a Warming World

In 2015, 193 world leaders agreed to 17 ambitious goals to end poverty, fight inequality, and stop climate change by 2030. Goalkeepers focuses on accelerating progress toward those goals, with a focus on Goals 1–6.

PUBLICATION

Food Safety Authority of Ireland

The suitability of analytical methods for assessing food authenticity

This publication identifies a range of analytical techniques that, when performed by expert laboratories incorporating suitable controls, could identify anomalies within a food which may help to determine the authenticity of that food.

Publications

PAPER

ScienceDirect

A new dataset on climate distance for trade analyses

In this research, the goal is to present a math-ematical programming model for designing a resilient food supply chain that can withstand disruptions caused by pandemics and their ripple effects. A hybrid robust- stochastic optimization approach is proposed to handle random as well as deep uncertainties, and three resilience strategies are applied to make the model resilient.

Bozzola, M., Lamonaca, E., Santeramo, F. G.

ARTICLE

ScienceDirect

Designing policies to promote the adoption of digital phytosanitation towards sustainability: The case of the olive sector in Andalusia

This article examines the adoption of digital phytosanitary systems (DPS) in the Andalusian olive sector, the world's leading olive producing region, focusing on the use of the Adoption and Diffusion Outcome Prediction Tool (ADOPT) to predict adoption rates and identify sensitive factors affecting the diffusion process.

Parra-López, C., Reina-Usuga, L., Garcia-Garcia, G., Carmona-Torres, C.

Reports

ARTICLE

Renoster

Renoster's Review of Open Forest Protocol's ARR Methodology

OFP's ARR framework introduces several significant innovations that promise to enhance the quality and address some of the most pressing challenges within the carbon markets.

REPORT

EFRAG

Materiality Assessment Implementation Guidance

The objective of this non-authoritative Guidance is to support the implementation activities of preparers and others using or analysing ESRS reports with regard to the double materiality assessment (referred to as ‘the materiality assessment’, ‘the assessment’ and ‘the MA’ in this document).

REPORT

Planetary Boundaries Science

Planetary Health Check: A Scientific Assessment of the State of the Planet

The PBs framework analyses and monitors the nine PB processes and systems that scientifically are proven to regulate the health of our planet. Each of these processes, such as Climate Change or Ocean Acidification, is currently quantified by one or two different control variables.

REPORT

FAO

Advancing climate action on agriculture and food security

The purpose of this technical note is to provide an update on the UNFCCC negotiations on agriculture and food security since the adoption of the SJWA at COP27 in 2022. The note outlines the various agreed elements of the SJWA, the submission of views by Parties and observers to the UNFCCC in 2023, and the key elements of the new SJWA road map agreed at SB60 in 2024.

REPORT

BioScience

The 2024 state of the climate report: Perilous times on planet Earth

This report analyzes the latest trends in a wide array of planetary vital signs, and also reviews notable recent climate-related disasters, spotlight important climate-related topics, and discuss needed policy interventions.

GUIDE

CETEX

Taking the lead on climate action and sustainable development

This report develops a set of principles-based recommendations for strategic national transition planning – designed to steer, accelerate and coordinate whole-ofgovernment and whole-of-economy action towards a fair transition, while advancing resilience to climate change impacts, sustainable development and energy security goals.

REPORT

FERN

Coffee's Regulatory Blend

The coffee industry is facing a pivotal moment as new mandatory sustainability regulations come into effect across Europe.

ARTICLE

Greenpeace

REPORT: Turning down the heat

Pulling the climate emergency break on big meat and dairy

REPORT

Sucafina

Sucafina's 2023 Sustainability Report

This guide takes us on a journey through five IMPACT supply chains, from carbon mapping in Vietnam to supporting farming households in Uganda towards a living income.

ARTICLE

BCG

Bringing ESG Accountability to Global Supply Chains

By adhering to a simple six-step process, business can systematically identify and mitigate ESG risks in global supply chains.

REPORT

Copernicus

Copernicus Ocean State Report 8 Release

This year's report reveals — among many findings — an ocean facing record-breaking extreme events, including deep and intense marine heatwaves, unexpected phytoplankton blooms, as well as increased ocean warming.

DATABASE

Planet Tracker

Seafood Database

Using Planet Tracker's Seafood Database, you can identify to what extent companies are exposed to overfishing, illegal fishing, and many other ocean sustainability risks, and compare their environmental health with their financial health.

REPORT

Eionet Portal

ETC BE Report 2024/2: Exploring the societal factors enabling to halt and reverse the loss and change of biodiversity

This report explores the societal factors that either hinder or enable efforts to reverse biodiversity loss and change. It identifies eight key societal barriers spanning socio-economic, political, and cultural domains, such as knowledge gaps, misinformation, a utilitarian mindset, short-termism, governance challenges, social norms, perception of others, and the filtering of information.

DEVELOPMENT & IMPLEMENTATION OF NEW TECHNOLOGIES

Publications

ARTICLE

ScienceDirect

Responsible metaverse: Ethical metaverse principles for guiding decision-making and maintaining complex relationships for businesses in 3D virtual spaces

This study aims to identify ethical principles within the metaverse to guide decision-making and maintain complex relationships between users and businesses.

Behera, R. K., Janssen, M., Rana, N.P., Bala, P. K., Chakraborty, D.

ARTICLE

Sage Journals

Open Innovation in the Age of AI

This article provides a comprehensive framework to analyze AI's influence on OI, supported by illustrative examples, and outlines the key implications for organizations and researchers.

Holgersson, M., Dahlander, L., Chesbrough, H., & Bogers, M. L. a. M. (2024).

REVIEW

Heliyon

Unveiling the relationship between food unit operations and food industry 4.0: A short review

This review highlights innovative applications and key findings that showcase how these technologies can streamline processes, minimize waste, and improve food product quality.

Hassoun, A., Dankar, I., Bhatc, Z., Bouzembrak, Y. (2024).

ARTICLE

Science Direct

The implications of blockchain for logistics operations and sustainability

This study provides an overview of blockchain applications in logistics management, employing a comprehensive theoretical framework.

Aslam, J., Lai, K.H., Kim, Y. B., Treiblmaier, H. (2024).

ARTICLE

BioRxiv

Portable In-Field DNA Sequencing for Rapid Detection of Pathogens and Antimicrobial Resistance: A Proof-of-Concept Study

This study conducted a proof-of-concept study to evaluate a portable in-field microbial lab against a traditional molecular lab for DNA isolation, sequencing, microbial detection, antibiotic resistance gene identification, and plasmid classification.

Pillay, S., Calderón-Franco, D., Abeel, T. (2024).

ARTICLE

Science Direct

Integrating near-infrared hyperspectral imaging with machine learning and feature selection: Detecting adulteration of extra-virgin olive oil with lower-grade olive oils and hazelnut oil

This study conducted a proof-of-concept study to evaluate a portable in-field microbial lab against a traditional molecular lab for DNA isolation, sequencing, microbial detection, antibiotic resistance gene identification, and plasmid classification.

Malavi, D., Raes, K., Van Haute, S. (2024).

Reports

ARTICLE

Simone Cicero

A Common Language for The Platform Organization

This speech was delivered as the final keynote of Intersection's 2024 Conference in Rome.

REPORT

Watershed Guide

How to prepare for the CSRD

This book distilles insights from our recent CSRD Readiness series of expert panel discussions into a practical guide to navigating the CSRD era. You'll find actionable advice from CSRD specialists at Watershed, Deloitte, KPMG, and top global law firms.

REPORT

WHO

Going digital for noncommunicable diseases

This report summarizes initial systematic work to make the economic case for implementing a set of evidence-based digital health interventions for NCD prevention and management, including telemedicine, mobile health and health chatbots.

REPORT

EU Commission

An information-based risk analysis IT tool protecting the European food system(s)

The report recommends incentivising food integrity data sharing among Member States' competent authorities and the European Commission, creating a public-private partnership for transitioning the supply chain to digital traceability, and developing an AI-driven predictive analytics system to support targeting control activities to supply chains where fraud is most likely.

REPORT

LCGC

RAFA 2024 Companion: Hot Topics in Food Analysis

LCGC International has created a comprehensive e-book featuring cutting-edge topics in food analysis. This collection includes articles on the latest analytical and bioanalytical methods for ensuring food quality and safety, along with interviews with this year's presenters.

TAKING THE FOOD SYSTEM APPROACH

Publications

ARTICLE

Open Access

An unequal health policy landscape? Examining socioeconomic differences in acceptability and preferences for policies that aim to reduce socioeconomic inequalities in health

This study explores socioeconomic differences in acceptability and preferences for policies that aim to reduce socioeconomic health inequalities. The investigated policies range from structural policies, requiring no individual agency, to agentic policies, which depend on the individual agency for behaviour change.
Verra, S. E., Poelman, M. P., De Wit, J., & Kamphuis, C. B. M. (2024).

ARTICLE

Nutrition Reviews

Prospects of Food Taxes for Planetary Health: A Systematic Review of Modeling Studies

The aim of this study was to analyze the modeling methodologies of fiscal policies on food with health or environmental outcomes.

Mészáros, Á., Dósa, N., Péterfi, A., Horváth, K., Szarvas, Z., Balogh, J. M., Munkácsy, B., & Vokó, Z. (2024).

ARTICLE

Tampere University

Transformative Innovation Ecosystems : Fostering innovation to address grand challenges

This dissertation contributes to the discourse on transformative innovation policy by providing a robust conceptual and theoretical foundation for analysing and structuring innovation ecosystems. It explores the potential of utilising innovation ecosystems as strategic tools to achieve broad, transformative goals. The dissertation offers insights into the development and implementation of transformative innovation policy.

Nordling, N. (2024).

ARTICLE

Science Direct

Will the protein transition lead to sustainable food systems?

To achieve a sustainable food system utilizing the proposed solutions: animal derived products in high-income countries must be reduced, a whole diet approach is necessary, pathways for implementation must be better explored, and a food systems transformation supported by policy will ultimately be required

Jenkins, W. M. N., Trindade, L.M., Pyett, S., van Mierlo, B., Welch, D., van Zanten, H. H.E. (2024).

ARTICLE

Science Direct

Defining and measuring policy coherence for food system transformation: A scoping review

The strategic alignment between business and corporate foundations, impact funds, and accelerators shows enormous potential for achieving social impact. But they can align in different ways, each with its strengths and weaknesses.

Dewi, D., Aytekin, D., Schneider, K.R., Covic, N., Fanzo, J., Nordhagen, S., Resnick, D. (2024).

ARTICLE

Frontiers

True Cost Accounting of a healthy and sustainable diet in Italy

This article contributes to advancing knowledge on sustainable diets by proposing a True Cost Accounting method to assess the cost and impact of the adoption of a more sustainable and healthier diet, using Italy as an illustration. The research analyses the complexity of a diet from an environmental, health, and socioeconomic point of view and defines a new assessment framework that can be replicated and adapted to other contexts.

Minotti, B., Antonelli, M., Dembska, K., Marino, D., Riccardi, G., Vitale, M., Calabrese, I., Recanati, F., & Giosuè, A. (2022).

Reports

REPORT
ECA

Special report 20/2024: Common Agricultural Policy Plans – Greener, but not matching the EU's ambitions for the climate and the environment
The new CAP for the period 2023-2027 aims for increased environmental and climate ambition. It builds on Plans defined by each member state.

REPORT
FSEC

The Economics of the Food System Transformation
The report summarizes the findings of a four-year investigation by the Food System Economics Commission (FSEC), an independent commission expressly created to assess options for comprehensive food system transformation. FSEC findings are based on rigorous economic modeling, in-depth literature reviews, and case studies.

WHITE PAPER
WEF

Mainstreaming Food Innovation: A Roadmap for Stakeholders
Developed in collaboration with Boston Consulting Group, this white paper provides a roadmap for stakeholders to mainstream food innovations.

REPORT
NZBA

2024 Progress Report
The Net-Zero Banking Alliance (NZBA) is halfway through its fourth year and this report provides an opportunity to take stock of overall progress and growth. It summarises information received from 122 NZBA member banks on their progress up to the end of May 2024 on target setting and transition planning, two key aspects of the voluntary commitment they chose to make when joining NZBA.

REPORT
Skoll Centre

New Report on Global Food Systems
This report shares insights from a January 2024 convening. This event brought together over 80 expert participants from across the private, public, and social sectors to explore how to scale a just transition in global food systems.

REPORT
GAIN

Communities of Practice for Food Systems Transformation and Governance
This convening paper summarises the contents and outcomes of a meeting series jointly organised by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and the Global Alliance for Improved Nutrition (GAIN). The initiative aimed to foster exchange between policy advisors from both organisations who provide policy advice to governments on topics related to food systems transformation and governance.

STUDY

Current challenges and opportunities for addressing obesity

EU Parliament

This in-depth analysis provides an overview over the current situation, main developments, and available options for effective policies against obesity

ARTICLE

Nature

A comprehensive Beyond-GDP database to accelerate wellbeing, inclusion, and sustainability research

This article presents the 'WISE database' – the first extensive collection of important Beyond-GDP metrics organized by Wellbeing, Inclusion, and Sustainability (WISE) dimensions. The WISE database consolidates data from a variety of sources, including international institutions and academic publications.

REVIEW

The Lancet

The 2024 report of the Lancet Countdown on health and climate change: facing record-breaking threats from delayed action

Despite the initial hope inspired by the 2015 Paris Agreement, the world is now dangerously close to breaching its target of limiting global multiyear mean heating to 1·5°C. Annual mean surface temperature reached a record high of 1·45°C above the pre-industrial baseline in 2023, and new temperature highs were recorded throughout 2024. The resulting climatic extremes are increasingly claiming lives and livelihoods worldwide.

REPORT

EIT Food

Reducing Risk for a Fair & Resilient Food System

Within this report, we are focusing on EIT Food's Mission "Reducing Risk for a Fair and Resilient Food System" whose aim is to identify trends, opportunities, capabilities and enablers as a roadmap to gain trust for the consumer and the wider society.

Co-funded by the European Union

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Research Executive Agency (REA). Neither the European Union nor the granting authority can be held responsible for them. Project number 101136754.

Project funded by

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs, Education and Research EAER
State Secretariat for Education, Research and Innovation SERI

UK Research and Innovation

This project has received funding from UK Research and Innovation (UKRI)