

Authent-Net Member State (MS) National Status Report

Country: UK

Please note that the information provided here below will be put on the Food Authenticity Research Network Hub (FARNH) which will be publically accessible. So please do not include any confidential information.

List of organisations that fund food anti- fraud/food authenticity research and the type of research they fund

Please provide a list of organisations (Government + NGO whatever the nationality) that are funding projects on food authenticity in your MS

1. Name (*Categorise into government/NGO, public/public-private*)

Address

Web site link

Type of research funded: APPLIED RESEARCH/DEVELOPMENT

Short description of the funder

Click here to privately contact the persons responsible for Food Authenticity funding.

(This would take you to a secure location [eg. LinkedIn private chat] to contact relevant funder, only once you are able to prove that you are from another funding organisation).

1. DEFRA: Department for Environment, Food & Rural Affairs (Government, public)

Nobel House, 17 Smith Square, London SW1P 3JR

<https://www.gov.uk/government/organisations/department-for-environment-food-rural-affairs>

Type of research funded: STRATEGIC/APPLIED RESEARCH

The Department for Environment, Food and Rural Affairs (Defra) is the government department responsible for environmental protection, food production and standards, agriculture, fisheries and rural communities in the United Kingdom of Great Britain and Northern Ireland.

Contact: Lucy Foster / Sophie Rollinson

2. FSA: Food Standards Agency (Government, public)

125 Kingsway, London WC2B 6NH

<http://www.food.gov.uk/>

Type of research funded: STRATEGIC/APPLIED RESEARCH

The Food Standards Agency is a non-ministerial government department of the Government of the United Kingdom. It is responsible for protecting public health and other consumer interests in relation to food in England, Wales and Northern Ireland.

Contact: Penny Bramwell

3. Innovate UK (Government, public)

North Star House, North Star Avenue, Swindon, SN2 1UE

<http://www.innovateuk.gov.uk>

Type of research funded: APPLIED RESEARCH

Innovate UK is the operating name of the Technology Strategy Board (TSB), the UK's innovation agency. It is an UK non-departmental public body operating at arm's length from the Government reporting to the Department for Business, Innovation and Skills (BIS).

4. BBSRC: Biotechnology and Biological Sciences Research Council (Government, public)

Polaris House, North Star Avenue, Swindon, Wiltshire, SN2 1UH

<http://www.bbsrc.ac.uk/>

Type of research funded: BASIC RESEARCH

Biotechnology and Biological Sciences Research Council (BBSRC) is an UK Research Council and Non-Departmental Public Body (NDPB), which is the largest UK public funder of non-medical bioscience. It predominantly funds scientific research institutes and university research departments in the UK.

5. EPSRC: Engineering and Physical sciences research council (Government, public)

Polaris House, North Star Avenue, Swindon SN2 1ET

<https://www.epsrc.ac.uk/>

Type of research funded: APPLIED RESEARCH

The Engineering and Physical Sciences Research Council (EPSRC) is a British Research Council that provides government funding for grants to undertake research and postgraduate degrees in engineering and the physical sciences mainly to universities in the United Kingdom.

6. AHDB: Agriculture and Horticulture Development Board (Government, public)

Stoneleigh Park, Kenilworth, Warwickshire CV8 2TL

<http://www.ahdb.org.uk/>

Type of research funded: STRATEGIC/APPLIED RESEARCH

The Agriculture and Horticulture Development Board (AHDB) is a statutory levy board, funded by farmers, growers and others in the supply chain and managed as an independent organisation (independent of both commercial industry and of Government).

7. FSS: Food Standards Scotland (Government, public)

Food Standards Scotland, 4th floor, Pilgrim House, Aberdeen AB11 5RL

<http://www.foodstandards.gov.scot/>

Type of research funded: STRATEGIC/APPLIED RESEARCH

Food Standards Scotland (FSS) is the public sector food body for Scotland. We are here to ensure that information and advice on food safety and standards, nutrition and labelling is independent, consistent, evidence-based and consumer-focused. We are defined in law as a 'competent authority' and an 'enforcement authority' to implement and monitor Scottish and EU food and feed regulations. We ensure that Scottish Ministers' policy is fed into European Union policy making on the regulation of food and animal feed.

8. DEFA: Isle of Man government - Department of Environment, Food and Agriculture

(Government, public)

Thie Slieau Whallian, Foxdale Road, St John's, Isle of Man IM4 3AS

<https://www.gov.im/about-the-government/departments/environment-food-and-agriculture/>

Type of research funded: STRATEGIC/APPLIED RESEARCH

The Department of Environment, Food and Agriculture (DEFA) works to protect and enhance the Island's natural assets within the core principles of environmental, economic and social sustainability; whilst optimising quality of life, international reputation, food production energy security and outdoor amenity. DEFA works in partnership with all sectors of the Manx Community to protect and enhance the essentials of life – food, air, land and water and to minimise the impact of work activities and food borne and infectious disease on the people who live, work and visit our Island. It has policy responsibility for animal health and welfare, environmental protection, food, farming and fisheries.

9. DFID: Department for International Development (Government, public)

Abercrombie House, Eaglesham Road, East Kilbride G75 8EA

<https://www.gov.uk/government/organisations/department-for-international-development>

Type of research funded: BASIC RESEARCH

The Department for International Development (DfID) is a United Kingdom government department responsible for administering overseas aid. The goal of the department is "to promote sustainable development and eliminate world poverty".

10. DAERA: Department of Agriculture, Environment and Rural Affairs (Government, public)

Dundonald House, Upper Newtownards Road, Ballymiscaw, Belfast BT4 3SB

<https://www.daera-ni.gov.uk/>

Type of research funded: STRATEGIC/APPLIED RESEARCH

The Department of Agriculture, Environment and Rural Affairs (DAERA) has responsibility for food, farming, environmental, fisheries, forestry and sustainability policy and the development of the rural sector in Northern Ireland. The Department assists the sustainable development of the agri-food, environmental, fishing and forestry sectors of the Northern Ireland economy, having regard for the needs of the consumers, the protection of human, animal and plant health, the welfare of animals and the conservation and enhancement of the environment. DAERA is responsible to the Department of the Environment, Food and Rural Affairs (Defra) in Great Britain for the administration of schemes affecting the whole of the United Kingdom. The Department also oversees the application of European Union agricultural, environmental, fisheries and rural development policy to Northern Ireland.

11. Home Office (Government, public)

Direct communications unit, 2 Marsham Street, London SW1P 4DF

<https://www.gov.uk/government/organisations/home-office>

Type of research funded: STRATEGIC/APPLIED RESEARCH

The Home Office leads on immigration and passports, drugs policy, crime policy and counter-terrorism and works to ensure visible, responsive and accountable policing in the UK.

The Home Office is the lead government department for immigration and passports, drugs policy, crime, counter-terrorism and polices.

12. STFC: Science and Technology Facilities Council (Government, public)

Polaris House, North Star Avenue, Swindon SN2 1SZ

<http://www.stfc.ac.uk>

Type of research funded: APPLIED RESEARCH

Support an academic community of around 1,700 in particle physics, nuclear physics, and astronomy including space science, who work at more than 50 universities and research institutes in the UK, Europe, Japan and the United States, including a rolling cohort of more than 900 PhD students.

Plan/Strategy in terms of Authenticity Research Funding

Please provide a web link to a plan/strategy on food authenticity for each specific funding organisation (see 1st box), provided there is one, or anything the funding organisations are able to provide (general plan/strategy on food). That should include policy documents, research/surveillance documents where possible.

1. Funding organisation name + web link to plan + Key decision making committees

Plan/Strategy by institution numbered according to the previous list of funding bodies.

1. DEFRA: Department for Environment, Food & Rural Affairs (Government, public)

- Defra's Evidence strategy published in 2014:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/318610/evidence-strategy-defra.pdf

- Link to the published report of the FoodIntegrity conference at Fera Science Ltd- 'food fraud the analytical tools workshop' 2014, gives an overview of authenticity research in the UK:

<http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=19149&FromSearch=Y&Status=3&Publisher=1&SearchText=FA0&GridPage=3&SortString=ProjectCode&SortOrder=Asc&Paging=10#Description>

2. FSA: Food Standards Agency (Government, public)

- UK Food Standards Agency forward evidence plan:

<https://www.food.gov.uk/sites/default/files/forward-evidence-plan-2016-17.pdf>

- The FSA's Science, Evidence and Information Strategy 2015-20 Delivery Plan sets out how we will use science, evidence and information to deliver food we can trust:

<https://www.food.gov.uk/sites/default/files/multimedia/pdfs/scistrat.pdf>

- FSA's National Food Crime Unit publishes a Food Crime Annual Strategic Assessment:

<http://www.food.gov.uk/news-updates/news/2016/15017/the-food-standards-agency-fsa-has-today-published-the-first-assessment-of-food-crime-in-the-uk>

Capabilities/Infrastructure of Authenticity research providers/relevant NRLs

Please provide details of national capabilities (public and private) in terms of food authenticity analysis (relevant National Reference Laboratories, certified laboratories etc.) and in terms of Food Authenticity Research.

1. Name (*Categorise into academic/research, general proficiency, expertise in a specific technique and/or commodity*)

Address

Web site:

Contact available through: (*Any web sites where contact details of key personnel are available*)

Telephone:

1. Fera Science Ltd (General proficiency)

National Agrifood Innovation Campus, Sand Hutton, York, YO41 1LZ, UK.

http:// www.fera.co.uk

NRL for 'food, feed and food contact materials' [mycotoxins/ heavy metals/dioxins & polychlorinated biphenyls (PCBs) in in food and feed; polycyclic aromatic hydrocarbons (PAHs) in food; materials and articles in contact with food], 'pesticide residues' [cereals and feeding stuff, fruits and vegetables with high water content, single residue methods], 'veterinary medicine residues' [A6-chloramphenicol, nitrofurans in honey, dapson; B1, B2a and B2b- ionophores]

Contact: <http://www.foodauthenticity.uk/uk-centres-of-expertise-coes-in-food-authenticity-testing>

Tel: +44 (0)1904 462556

2. Nottingham Trent University (Academic/Research)

50 Shakespeare Street, Nottingham, NG1 4FQ, UK.

<http://www.ntu.ac.uk/>

Contact: <http://www.foodauthenticity.uk/uk-centres-of-expertise-coes-in-food-authenticity-testing>

Tel: +44 (0)115 941 8418 (general contact)

3. Campden BRI (General Proficiency)

Station Rd, Chipping Campden, GL55 6LD, UK.

<https://www.campdenbri.co.uk>

Contact: <http://www.foodauthenticity.uk/uk-centres-of-expertise-coes-in-food-authenticity-testing>

Tel: +44 (0)1386 842000 (general contact)

4. Eurofins Food Testing UK Limited (General proficiency)

54 Business Park, Valiant Way, Wolverhampton, WV9 5GB, UK.

Email: info@eurofins.co.uk

Contact: <http://www.foodauthenticity.uk/uk-centres-of-expertise-coes-in-food-authenticity-testing>

Tel. +44 (0)845 266 6522

5. Institute of Food research (IFR) (General proficiency)

Norwich Research Park, Colney Ln, Norwich NR4 7UA, UK.

Email: info@ifrexta.co.uk

Contact: <http://www.foodauthenticity.uk/uk-centres-of-expertise-coes-in-food-authenticity-testing>

Tel: +44 (0)1603 255342

6. Laboratory of the Government Chemist (LGC) (General proficiency)

Queens Road, Teddington, Middlesex , TW11 0LY, UK

NRL for 'additives for use in animal feeds', 'genetically modified organisms (GMOs)', 'pesticide residues–food of animal origin and commodities with high fat content', 'veterinary medicine residues' (B2d, B3c, B3d, B3e)

Contact: <http://www.foodauthenticity.uk/uk-centres-of-expertise-coes-in-food-authenticity-testing>

Tel: +44(0)20 8943 7675

7. Leatherhead Food Research (General proficiency)

Great Burgh, Burgh Heath, Yew Tree Bottom Rd, Epsom, KT18 5XT, UK

Contact: <http://www.foodauthenticity.uk/uk-centres-of-expertise-coes-in-food-authenticity-testing>

Tel: +44 (0)1372 822201

8. Premier Foods trading as Premier Analytical Services (PAS) (General proficiency)

The Lord Rank Centre, Lincoln Road, High Wycombe, Buckinghamshire, HP12 3QS, UK

Contact: <http://www.foodauthenticity.uk/uk-centres-of-expertise-coes-in-food-authenticity-testing>

Tel: +44 (0)1494 428292

9. Reading Scientific Services Ltd (General proficiency)

Reading Science Centre, Whiteknights Campus, Pepper Lane, Reading, Berkshire, RG6 6LA, UK

Contact: <http://www.foodauthenticity.uk/uk-centres-of-expertise-coes-in-food-authenticity-testing>

Tel: +44 (0)118 918 4000 / +44 (0)118 986 8932

10. West Yorkshire Analytical Services (General proficiency)

Nepshaw Ln S, Gildersome, Leeds LS27 0UQ, UK

Contact: <http://www.foodauthenticity.uk/uk-centres-of-expertise-coes-in-food-authenticity-testing>

Tel: +44 (0) 1133939712

11. AgriFood and Biosciences Institute (AFBI-NI) (e.g. Bovine DNA Testing)

18a Newforge Lane, Belfast, Co Antrim, Northern Ireland, BT9 5PX, UK

Contact: <http://www.afbini.gov.uk>/Email: info@afbini.gov.uk

Tel: +44 (0)2890 519424

NRL for 'milk and milk products', 'monitoring of marine biotoxins', 'veterinary medicine residues' (A1, A2, A3, A4, A6- nitrofurans and nitroimidazoles, B2f – carbox and olaquinox, A5, B2b-nicarbazine)

Contact: <http://www.foodauthenticity.uk/uk-centres-of-expertise-coes-in-food-authenticity-testing>. OR +44 (0)28 9025 5636 or 5689 (general contact)

12. Food Forensics Ltd (Stable Isotope Ratio Analysis ,SIRA)

Innovation Centre, Norwich Research Park, Norwich, NR4 7GJ, UK.

Contact: <http://www.foodauthenticity.uk/uk-centres-of-expertise-coes-in-food-authenticity-testing>.

Tel: +44 (0)1603 274456

13. Genon Laboratories (Molecular and immunological detection techniques)

Contact: <http://www.foodauthenticity.uk/uk-centres-of-expertise-coes-in-food-authenticity-testing>.

Tel: +44 (0) 1422 884287

14. Minerva Scientific (Honey authenticity)

Stoney Gate Rd, Spondon, DE21 7RY, UK.

Contact: <http://www.foodauthenticity.uk/uk-centres-of-expertise-coes-in-food-authenticity-testing>.

Tel: +44(0)1332 890384

Recent key Cases/Reports/Reviews (after 2010)

Please provide a list of web links to public outputs, documents, papers, reports, databases on incidents, detection methods, ... in relation to food authenticity your MS is involved (see T1.1)

1. Title + web link

1. Elliott review outputs

1.a) Defra's independent Authenticity Methods Working Group (AMWG). Response to Elliott review on 'integrity and assurance of food supply networks' recommendation 4th March 2015

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/409253/amwg-elliott-response.pdf

1.b) Addressing current weaknesses in our food supply networks

<https://www.gov.uk/government/publications/elliott-review-into-the-integrity-and-assurance-of-food-supply-networks-final-report>

1.c) Elliott review in to the integrity and assurance of food supply networks: Final report:

http://api.ning.com/files/KL21eAugVN6btJGGxCi7YY965hcC0zzb8NRUAW*OfzSNSi74Ba6UDo2jCGkhsUKBh396KRDL4Cfbfk5Z-Bo4jniaLav7fy3/elliottreviewfinalreportjuly2014.pdf

1.d) Government response to the Elliott review of the integrity and assurance of food supply networks

<http://api.ning.com/files/uX0ODFdMLafCUvvdKsh72n0jmlrgKSZMAxRakZszATTUc0FMZ7nnhvXCaNpHRMCVKo-LddsO4h7Nea9SABQonQlf41BICxnl/elliottreviewgovresponsesept2014.pdf>

2. Food Authenticity Network (FAN):

2.a) <http://www.foodauthenticity.uk/>

2.b) Food authenticity programme reports:

2.b-1) <http://www.foodauthenticity.uk/research#FA01>

2.b-2) <http://www.foodauthenticity.uk/asg-and-amg>

3. Key decision-making committees

3.a) Committee: AW/275 Food analysis - Horizontal methods:

<https://standardsdevelopment.bsigroup.com/Home/Committee/50229715>

3.b) UK food authenticity steering group:

<https://www.gov.uk/government/groups/food-authenticity-steering-group>

3.c) Animal Feed Law Enforcement Liaison Group:

<https://www.food.gov.uk/enforcement/enfcomm/aflelg>

3.d) National Animal Feed Ports Panel:

<https://www.food.gov.uk/enforcement/enfcomm/nafpp>

3.e) National Agricultural Panel :

<https://www.food.gov.uk/enforcement/enfcomm/national-agricultural-panel>

4. Surveys

4.a) UK national co-ordinated food and sampling programme:

<https://www.food.gov.uk/enforcement/sampling>

4.b) The work of the independent committees and working groups that advise the Food Standards Agency helps ensure that the Agency's advice to consumers is always based on the best and most recent scientific evidence: <https://www.food.gov.uk/science/ouradvisors>

4.c) The UK Annual Business Survey:

<http://www.ons.gov.uk/businessindustryandtrade/business/businessservices/datasets/uknonfinancialbusinesseseconomyannualbusinesssurveysectionsas>

4.d) To better understand consumers' concerns in relation to food and represent their interests in UK Food standards agency policy, they carried out consumer research and used the results to inform the development of their strategy for 2015-2020:

4.d-1) <https://www.food.gov.uk/science/research/ssres/crosscutss/fsa-strategy-2015-2020-citizen-forums>

4.d-2) <https://www.food.gov.uk/sites/default/files/fsa-strategy-omnibus-survey.pdf>

4.d-3) <https://www.food.gov.uk/sites/default/files/fsa-strategy-report-stage2.pdf>

4.d-4) The citizens' forums used reconvened focus groups to explore consumers' interests in depth and enable consumers to deliberate on complex or challenging issues:

<https://www.food.gov.uk/sites/default/files/fsa-strategy-research-report.pdf>

Key information to be registered/extracted on/ from the Authent-Net Documents database (FARNHub)

Ongoing Projects (after 2010) including national-international/public-private funded projects)

Please provide a list of ongoing projects on food authenticity your MS is involved in (see T1.1)

1. Name, funding, start/end date + Web site link

1. DEFRA Science and Research Projects

At any one time, Defra is responsible for around 1000 research projects. This covers research in natural and social sciences as well as projects on economic analysis, monitoring, testing and surveillance activities. They have been commissioned to provide evidence which underpins Defra’s policy formulation and development.

Defra has a searchable system providing a range of information on completed and ongoing projects (e.g. title, cost, contractor, duration, description, reports, etc) and is accessible though the following link: <http://randd.defra.gov.uk/>

Project number	Project title	Project run time
FA0155	EU Food Integrity Project	01/2014 to 03/2018
FA0157	Evaluation of quantitative molecular biology methods	12/2014 to 07/2016
FA0159	The development of isotopic and fingerprinting techniques to verify the production origin and geographical origin of food and feed	03/2015 to 11/2018
FA0160	Development of Metagenomic Methods for Determination of Origin - phase 2	03/2015 to 11/2018
FA0164	Authent-Net: Food Authenticity Research Network	04/2016 to 03/2018
FA0165	Method to determine the animal origin of gelatine-extension of methodology including transfer to triple quadruple technology - transfer to a high throughput, low cost platform with single lab validation	03/2017 to 03/2018

2. UK Food standards agency (FSA) projects

The UK Food standards agency carries out research surveys for monitoring, and not for law enforcement. However, the FSA liaises with the enforcement authorities if an urgent food safety problem is found and the survey results are made available to enforcement authorities prior to publication so that appropriate follow up action can be taken:

<https://www.food.gov.uk/science/research/surveillance/food-surveys>

This project followed an agreement with industry for data to be provided to FSA for publication in support of the ongoing investigations following the discovery of substitution with horse meat in the meat supply chain.

<https://www.food.gov.uk/science/research/supportingresearch/strategievidenceprogramme/x02pr oijlist/fs102051>

This study looked at whether beef, pork, lamb, apple juice, tomatoes and honey labelled as being from the UK, or the Republic of Ireland, were actually from where it was claimed. SIRA was used to screen foods against their country of origin claims and allowed targeted follow-up investigations using traceability.

<https://www.food.gov.uk/science/research/supportingresearch/strategievidenceprogramme/x02projlist/fs515018>

The research and survey work funded by the Food Standards Agency is focused on helping the FSA understand food issues and meet its policy aims and objectives. FSA does not provide research grants, but contracts research groups to address specific questions aimed at producing the background evidence on which it can base its policies:

<https://www.food.gov.uk/science/research-reports>

There are about eight hundred reports collected in the database. You can search for reports using the following link: <http://tna.europarchive.org/20141103165934/http://www.foodbase.org.uk/>

Key information to be registered/extracted on/from the Authent-Net Documents database (FARNHub)

Legal framework for food authenticity (in application at a national level)

Please provide a list of standards/regulations on food authenticity applied in your MS (see T1.2)

1. Title + web link + sources of expert advice on authenticity

1. UK Food standards agency (FSA): Framework Agreement

The Agreement applies to local enforcement of all feed and food laws, and incorporates the latest guidance and standards on feed and food law enforcement:

<https://www.food.gov.uk/enforcement/enforcework/frameagree>

THE FRAMEWORK AGREEMENT ON OFFICIAL FEED AND FOOD CONTROLS BY LOCAL AUTHORITIES, version 5 – April 2010:

<https://www.food.gov.uk/sites/default/files/multimedia/pdfs/enforcement/frameworkagreementn05.pdf>

2. Labelling guidance

2.a) UK food standards agency:

<https://www.food.gov.uk/business-industry/guidancenotes/labelregsguidance>

2.b) Food labelling and packaging overview:

<https://www.gov.uk/food-labelling-and-packaging/overview>

3. Legislations on food labelling

3.a-1) The current UK Statutory Instrument is The Wine Regulations 2011 S.I No 2936 (as amended by SI 2013 No 3235): <http://www.legislation.gov.uk/uksi/2011/2936/contents/made>

3.a-2) http://www.legislation.gov.uk/uksi/2011/2936/pdfs/uksi_20112936_en.pdf

3.b) UK statutory instruments for food labelling:

<http://www.legislation.gov.uk/uksi?title=food%20labelling>

4. **Food authenticity network:** 'policy and legislation'

<http://www.foodauthenticity.uk/policydocs> ; see 'legislation' = summary of documents

Key information to be registered/extracted on/from the Authent-Net Documents database (FARNHub)

Existing indicators used: intelligence sources

Please provide a list of intelligence tools used to detect/counter food fraud issues in your member state (e.g. Horizon Scanning, Interpol, Europol, National Crime Agencies)

1. Title + web link

1. UK food standards agency

1.a) Food alerts: <https://www.food.gov.uk/enforcement/alerts>

1.b) The FSA's National Food Crime Unit (NFCU) works with partners to protect consumers from food and drink that is either unsafe or not authentic because of serious criminal activity:

<https://www.food.gov.uk/enforcement/the-national-food-crime-unit>

2. Forming a Global System for Identifying Food-related Emerging Risks:

<http://www.efsa.europa.eu/en/supporting/pub/rn-224>

Report of the EFSA Service Contract EFSA/SC/Tender/01/2004 "Forming a Global System for Identifying Food-Related Emerging Risks - EMRISK", coordinated by the Dutch Food and Consumer Product Safety Authority (VWA)

3. HorizonScan

There is a mountain of data on Global food safety available from many sources. HorizonScan draws this data together into a tool which provides a meaningful understanding of the situations, in a quick, easy to understand format. HorizonScan informs hazard and risk assessments across all food commodities. Specific countries and commodities can be interrogated for known and emerging issues: <https://secure.fera.defra.gov.uk/deskcheck/global-food-safety-information.cfm>

Commodities/products of interest and type of research of interest

1. Commodities/products of interest

Please provide a list of the commodities/food products in priority order most important for each MS in terms of value to that country.

- 1) Livestock (poultry meat, beef and veal, pork, lamb and mutton)
- 2) Cereals (wheat, barley)
- 3) Vegetable oil (oil seed rape)
- 4) Milk (including milk products)
- 5) Allergens in food

2. Type of research of interest

Please provide a list of type of research (e.g. criminology, critical points, historical points, analytical methods, consumer behaviour, economic aspects) in priority order most important for each MS in terms of value to that country).

- 1) Analytical methods
- 2) Economic
- 3) Consumer behaviour