Future development plan for the EFSA Journal

1. BACKGROUND

With the express purpose of building trust in European food among stakeholders, trading partners and the general public, EFSA communicates its scientific advice freely to all interested parties as laid down in Regulation (EC) No 178/2002. The primary communication channel for the ca. 500 annual scientific assessments is the EFSA Journal,[1] an open access, online scientific journal that publishes continuously i.e. as soon as the scientific assessment has been finalised. For European risk managers, the scientific community and many other stakeholders, the EFSA Journal is the first point of contact with the organisation, traditionally attracting up to 30-35% of its overall web traffic. Due to the highly technical nature of its published advice, EFSA has a programme of secondary risk communication to increase the outreach and accessibility of its work.

1.1 EVOLUTION SINCE 2016

In 2016, EFSA changed the business model of its publishing programme in two important regards: centralisation of the internal publishing function (creating a structure akin to a journal editorial office) and outsourcing the publishing functional activities to an external contractor (John Wiley & Sons). In parallel with the introduction of digital workflows and tools, this has resulted in a step-change in the visibility and impact of EFSA's advice, significant efficiency gains across the organisation and improved editorial consistency. It has also been instrumental in the establishment of EFSA's reputation as a trusted source of scientific information.

The development of the journal has impacted on EFSA's work processes and tools e.g., the introduction of proof checking and an industry-standard manuscript workflow platform. The additional quality checks that take place pre-publication have slightly lengthened the average time from adoption to publication (A-P interval). At present, ca. 90% of outputs are published within the target 28 days (against a KPI target of 80%) while the average A-P interval for the journal is slightly over 20 days (20.35) as distinct from the pre-Wiley targets of 15 and 20 days for outputs without and with secondary communication activities, respectively. With technological advances and the continuing refinement of work processes, the aim is to continue to reduce the A-P interval while building on the useability gains already achieved.

Initially viewed as purely a dissemination channel, the EFSA Journal provides a platform for the implementation of various EFSA policies including transparency, open science, quality management and has harmonised several workflows and processes associated with drafting and finalising scientific assessments across the scientific units (Fig. 1).

[1] Supplementary information (technical reports, procured reports and event reports) is published in EFSA Supporting Publications.

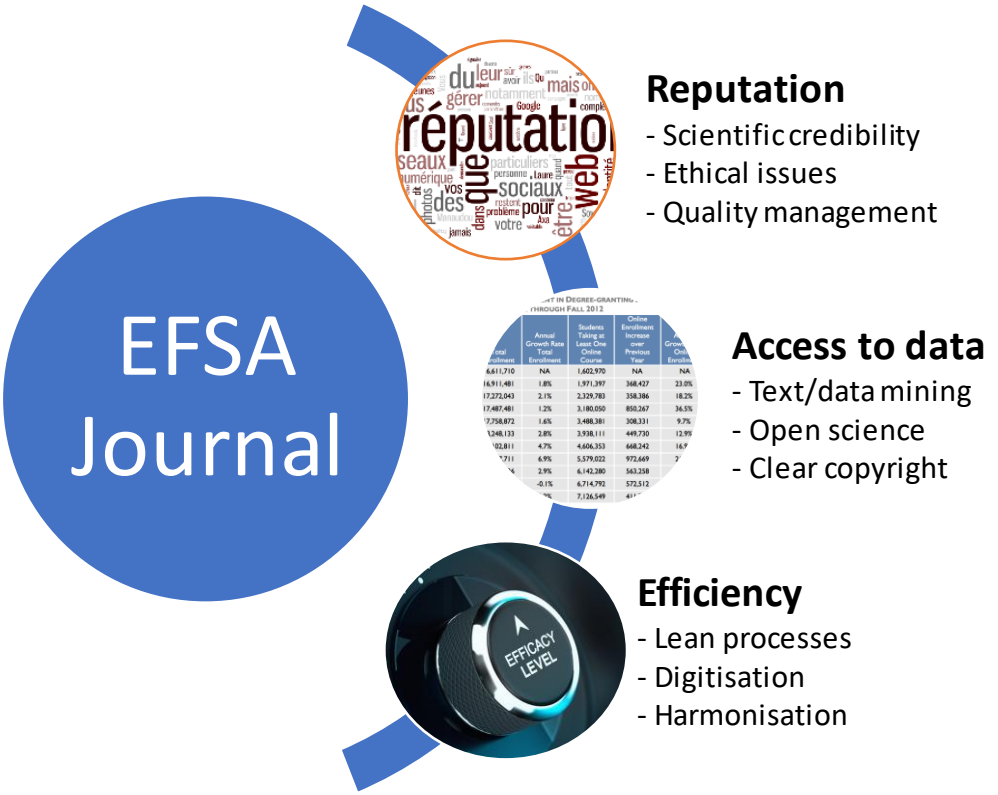


Fig. 1. Organisational role of EFSA Journal

While significant progress has been made in developing the journal as a credible channel for EFSA science, the future **vision** focuses on the following priorities:

(1) support the implementation of the Transparency Regulation;

(2) improve risk communication;

(3) enhance scientific reputation;

(4) engage Member State expertise more effectively;

(5) facilitate better reproducibility of EFSA's assessments; and

(6) drive further organisational efficiencies through digitisation and workflow optimisation.

From a cost-benefit perspective, outsourcing has resulted in significant resource savings (at least 6 full time staff equivalents per annum on average) and represents a cost-effective open access channel for EFSA's science considering, for example, the current article processing charges (APC) by mainstream publishers.[2]

[2] Average APCs of publishing a scientific article open access is currently ca. €1,500-€2,000.

This plan examines anticipated future evolutions in EFSA's environment that will impact its approach to publishing its work and proposes initiatives that will help the organisation attain its goals. This is particularly timely against the backdrop of the ongoing preparation for the implementation of the Transparency Regulation and ART Programme (**Action 1**) and the development of EFSA's new organisational strategy. The analysis will also inform EFSA's future publishing contracts. *Section 2* analyses the current performance status of the journal as seen through the prism of the industry-standard scientific publishing metrics; *section 3* looks at evolutions in the publishing environment which have implications for EFSA; *section 4* analyses the strengths and weakness of EFSA's current publishing programme with input from stakeholders, staff, Editorial Advisory Board and the public via the 2019 journal user survey; and *section 5* identifies key requirements in any future publishing contract. The Milestones sections at the end provides a timeline in realising the future vision for the journal.

2. ANALYSIS OF PERFORMANCE VIA PUBLICATION METRICS

As well as the KPI of time taken to publish after adoption, EFSA currently uses three main sources of journal metrics: (i) Wiley's proprietary platform, Insights, which provides monthly statistics on article downloads and page views, (ii) the bibliographic database Web of Science (Clarivate) for citations and impact and (iii) Altmetric which monitors the online attention score of EFSA's advice. These sources represent different chronologies in assessing impact:

- Long term: 5- and 10-year and all-time citation scores, H factor and impact factor (Web of Science, Fig. 2)
- Medium term: annual number of downloads, 2-year citation rates (Wiley Insights, Fig. 3)
- Immediate: online attention score (Altmetric, Fig. 4)

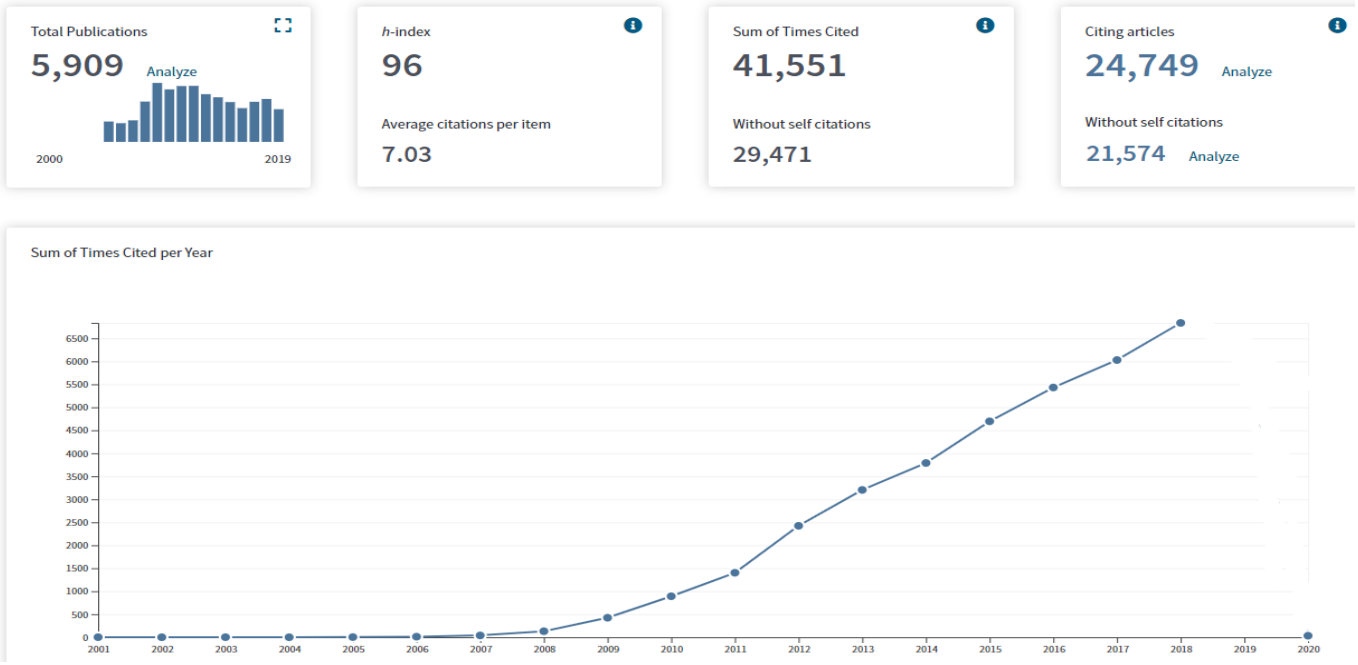


Fig 2. Citation trends and H factor for EFSA outputs (source: Web of Science, accessed 14 Nov 2019)

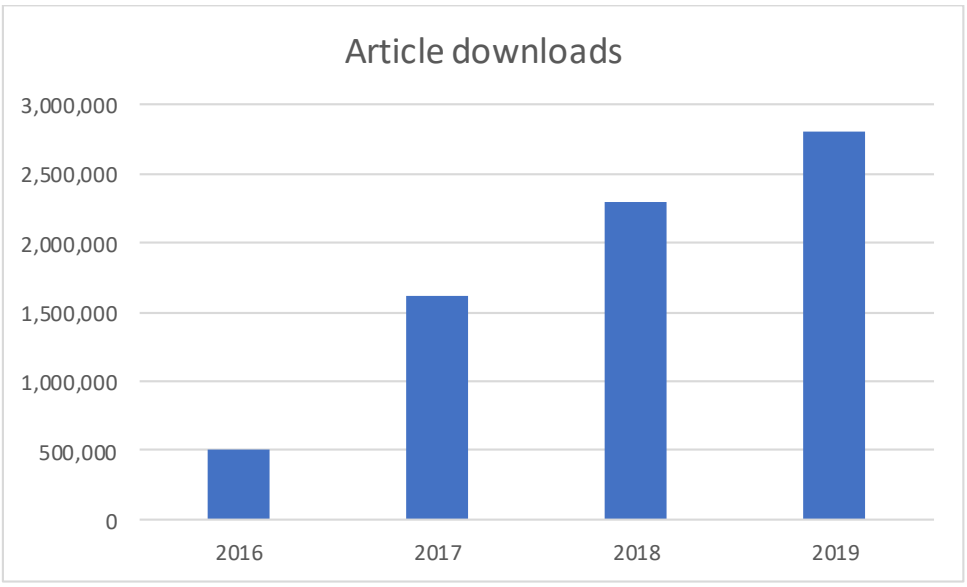


Fig. 3. Evolution of usage of EFSA outputs 2016-2019 (source: Wiley insights, predicted to end-2019)

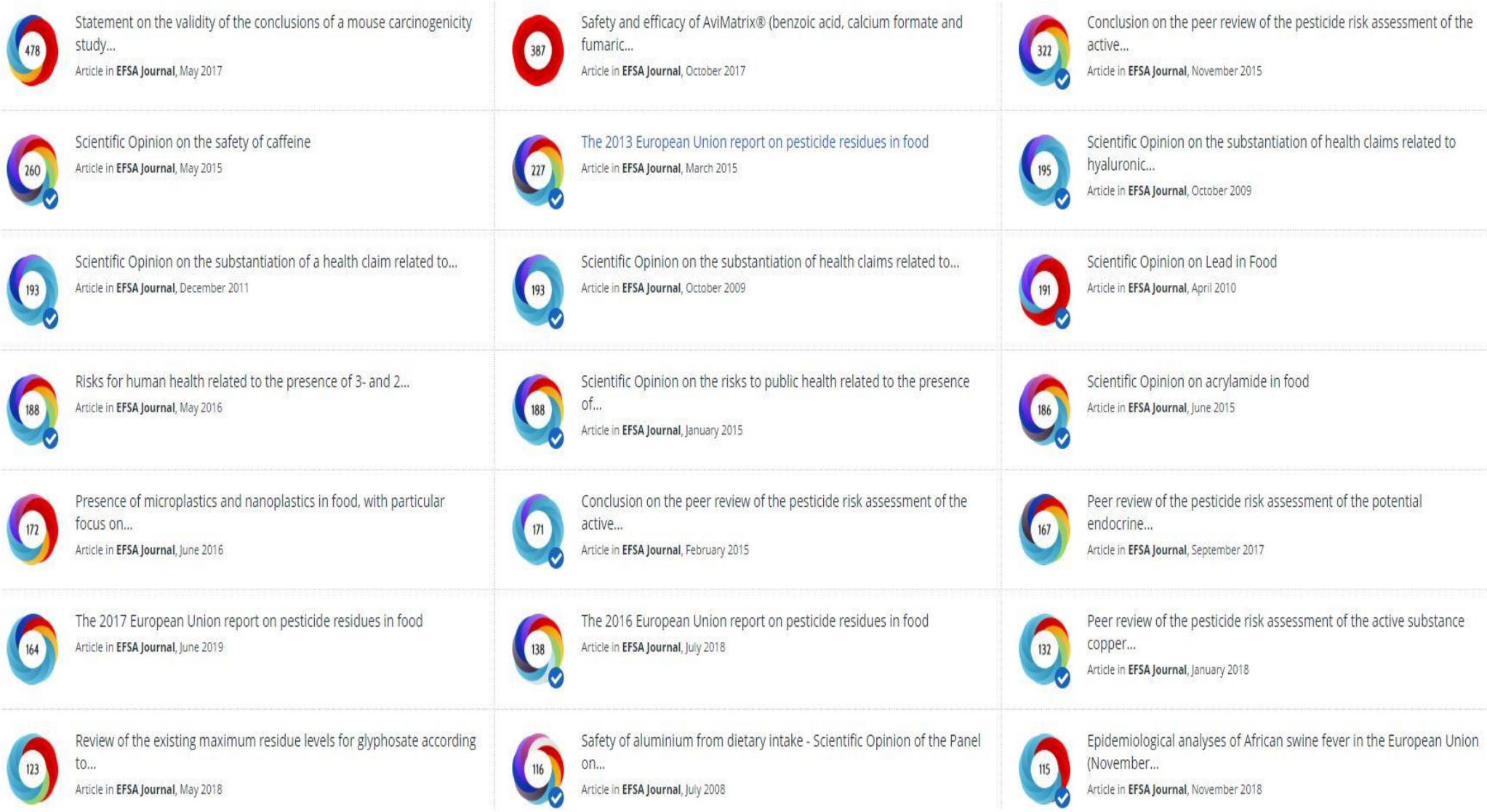


Fig. 4. Top scoring EFSA outputs on Altmetric (source: Altmetric)

Altmetric measures the online attention that a published article receives: the attention score reflects the usage of the article across a range of social media, blogs, news sites and third-party policy documents. Along with media monitoring, Altmetric forms a powerful tool for measuring impact and supporting reputation management.

The positive evolution of these metrics reflects the sharp increases in visibility, usage and impact that EFSA's published work has experienced since 2016. Moreover, the journal has entered the mainstream scientific information digital workflows – via CrossRef, ORCID, ScholarOne Manuscripts – and it is included in the key indexing databases within EFSA's fields of operation: Scopus, Web of Science, Food Science and Technology Abstracts, Directory of Open Access Journal, CAB Abstracts etc. Application to the National Library of Medicine for inclusion in PubMed has been completed with a decision due in early 2020 **(Action 2)**. A review of EFSA's authorship framework in 2017 has resulted in greater transparency on the actors involved in the generation of EFSA's advice and provided greater recognition for its contributing experts and staff.[3] More effective plagiarism control and copyright management have been introduced and the digitisation of the entire journal backfile has provided a new resource for text and data mining. H factor[4] scores for the journal (currently 96) and EFSA scientific staff have increased significantly and Wiley has provided a tentative impact factor of 2.4 for food science – putting it in the top third of food science journals. An international Editorial Advisory Board has been appointed to guide the journal's future development. From a social media perspective, the review of authorship has facilitated sharing of EFSA outputs via ResearchGate and a Lead Editor Twitter account was launched in mid-2019 and will continue to be developed **(Action 3)**.

2.1 DOES PUBLISHING HAVE A ROLE IN BUILDING ORGANISATIONAL TRUST?

Along with other risk assessment bodies (e.g. FDA, EPA, FAO), EFSA occupies a specific niche in the publishing ecosystem as a provider of scientific assessments of risks to the public. Regulatory science differs significantly from scientific research in several important aspects: purpose i.e. response to a specific issue or mandate; data collection, validation, analysis and weighting rather than data generation; time pressure; and institutional setting *inter alia*. Nevertheless, in terms of reputation and perceived trust, EFSA's assessments are often judged by those same standards.

Trust in published research is predicated on a diverse number of factors including those outlined in Table 1.

[3] EFSA is listed as an example of good practice by the National Academy of Sciences TACS (Transparency in Author Contributions in Science programme: http://www.nasonline.org/publications/Transparency_Author_Contributions.html

[4] H factor: an impact indicator for both authors and journals based on citation rate and productivity

Table 1. Factors influencing trust in published research articles

Peer review	Availability of data, methodologies, etc. for reproducibility purposes
Citation rates	Indexed in the key bibliographic databases
Declared interests of authors	Reputation and impact of journal/authors/affiliations
Editorial conventions & standards observed	Expertise of journal editorial board
Policy on ethical issues: plagiarism, copyright, authorship: membership of COPE	Journal scope and instructions to authors are clear
Institutional sponsorship	Copyright notice and reuse conditions are available

These indicators provide reasonable assurance that accepted scientific standards have been observed. Working within the boundaries of EFSA's remit, significant progress has been made on all these fronts. These include linkage to citable datasets on the EFSA Knowledge Junction, better data visualisation, more transparent authorship, establishment of an editorial house style, policies and checks on plagiarism, copyright management, a revamped Editorial Advisory Board, clear open access branding, and, importantly, massive growth in citation rate. Moreover, EFSA has successfully asserted that its unique peer review system merits inclusion in Scopus and Web of Science databases. With the implementation of the Transparency Regulation, many of these trust-building activities will continue to evolve with the planned strengthening of data governance and management, expanded review mechanisms across the assessment lifecycle, and enhanced quality checks.

3. TRENDS IN SCIENTIFIC PUBLISHING WITH IMPLICATIONS FOR EFSA

The EFSA Journal operates within an STM (science, technical, medical) publishing industry that is currently valued at €26 billion with €10 billion from journals alone.[5] Globally, ca. 35,000 peer reviewed journals are active, producing more than 3 million articles annually. Reflecting the investment in R&D, China (19%) has overtaken the US (18%) as the preeminent producer of research articles globally; when viewed as a region, the share for the EU has decreased from 31% in 2006 to 26% in 2016. Annual global growth is ca. 5%. The main factors currently driving change in the industry are as follows:

3.1 THE EXPLOSION IN RESEARCH DATA AND THE NEED TO LINK TO DATA FROM JOURNAL ARTICLES (AND *VICE VERSA*)

Implications for EFSA: continue to operate within the FAIR principles (findable, accessible, interoperable and reusable); publish citable datasets with appropriate structural metadata on the

[5] STM Association

Knowledge Junction; push linkage between scientific outputs and datasets; and explore opportunities to develop the capability to download data from tables in non-proprietary formats. These will be considered fully in the implementation of the Transparency Regulation.

The increasing practice of publishing data on secondary platforms (e.g. pest distribution maps on the ArcGIS platform, open data on EFSA Knowledge Junction etc.) enables EFSA to provide risk managers with more current and updateable information on which to base their decisions while maintaining the role of the journal as the central hub. However, the risk manager must be comfortable working with more fragmented information than the previous PDF-based system (cf. "living opinion" discussion at EFSA Management Board December 2018).[6]

3.2 CHANGES IN COMMERCIAL PUBLISHER BUSINESS MODELS

These are driven by factors such as open access, pressure on library budgets and library consortia bargaining power. In the EU context, Plan S[7] is already a major disruptor of the existing publisher model and the leading publishers have begun to reposition themselves as enablers of scientific information discovery as well as content providers. Increased competition for authors and globalisation of research are driving an expansion of author services such as collaborative authoring platforms e.g. the recent acquisition of Authorea by Wiley. In parallel, technology advances particularly in artificial intelligence (AI) are enabling efficiencies in production costs.

Implications for EFSA: as publishers begin to enhance their author services in order to attract retain and attract the best researchers, organisations such as EFSA must avail of emerging innovations, such as authoring platforms, that deliver efficiency and impact gains. EFSA should continue to digitise workflows including the rollout of ORCID[8] author identifiers across the organisation to optimise efficiency not just in publishing but also e.g. in EFSA human capital management (HUCAP) **(Action 4)**. In addition, EFSA should explore whether preferential publishing rates to enable EFSA staff to publish open access can be negotiated as part of a new publishing contract in 2021. An approach to open access publication in research journals is under preparation **(Action 5)**.

3.2 OPEN SCIENCE/OPEN RESEARCH

There is increasing momentum to transparently record all aspects of the scientific research process. This concept of open science (or open research) has replaced open access (i.e. freely accessible) as an emerging principle in research and is characterised by openness throughout the research process.

[6] https://www.efsa.europa.eu/en/events/event/181212

[7] https://www.coalition-s.org/

[8] A system of identifiers for researchers/scientific authors that disambiguates author names and facilitates organisational management of staff and experts contributing to its work. It brings benefits for journal production, human resources and expert recognition.

Implications for EFSA: increase transparency in all aspects of the risk assessment workflow from mandate to publication of the assessment to allow users to engage at all stages of the workflow. This will be incorporated into the implementation of the Transparency Regulation.

3.3 MIGRATION FROM PDF TO SMARTPHONES AND TABLETS

There is a relentless migration from print to electronic scientific journals coupled with increasing access to content via mobile devices.

Implications for EFSA: ensure that content is mobile-friendly and that apps such as the EFSA Journal app are available and effective.

3.4 ALTERNATIVE METRICS

Alternatives to the Impact Factor continue to emerge as scientific institutions strive to demonstrate the broader societal impact of their work. EFSA uses its recently acquired corporate Altmetric account to monitor the impact of its work e.g. the impact and value for money of its scientific procurement activities.

Implications for EFSA: The EFSA Journal should continue to develop its analytics capacity (as recommended by the Editorial Advisory Board in 2019) and use the new opportunities presented by platforms such as Altmetric to better understand the most effective channels and monitor reputational issues (**Action 6**).

3.5 INTERNATIONAL COLLABORATION

As research globalises, the use of social networks is expanding and scientific articles are more collaborative trans-nationally and trans-institutionally, as evidenced by the continuing increase in journal author lists.

Implications for EFSA: Ensure that EFSA experts and staff authors have the tools and training to collaborate and share knowledge digitally i.e. EFSA's Digital Collaboration project.

3.6 PUBLICATION ETHICS

Management of the ethical aspects of research is of growing importance as evidenced by the growth in membership of the Committee for Publication Ethics (COPE) and the increasing number of article retractions.[9]

[9] https://retractionwatch.com/

Implications for EFSA: Ensure that the EFSA independence policy is effectively implemented, provide links to the declarations of interest database from scientific outputs; ensure awareness of plagiarism and continuously monitor text recycling; provide effective copyright management; distinguish between author types (Panels, staff, working groups etc) in EFSA scientific outputs; and keep authorship principles under review.

3.7 INNOVATION IN PEER REVIEW

As a concept, peer review is poorly defined and there are no globally accepted standards; criticisms of peer review are rife[10] and have led to much innovation. While single-blinded review (reviewers' identities are concealed from authors) continues to dominate journal publishing, new variations of peer review continue to emerge, in particular, open review (authors and reviewers are disclosed to each other), transparent review (e.g. peer review reports are published alongside the article) and post-publication review. While the number of peer reviewers has not kept pace with the growth in the number of articles published globally, efficiency has been enabled by the emergence of dedicated peer review platforms.

Implications for EFSA: EFSA has a well-established peer review system whereby scientific panels review the drafts of working groups (WGs) and staff. This has many advantages over standard journal peer review systems in that (i) the draft scientific assessment is reviewed by a far wider number and range of experts (ii) the independence of all experts is more thoroughly assessed (iii) differing opinions are resolved with face-to-face Panel discourse - some with public observers - and minority views are clearly recorded ; and (iv) review is carried out in a timely manner to meet risk manager needs. Nevertheless, it has been subject to criticisms related variously to the fact that it is not easily recognisable as a peer review system, is not as transparent or inclusive as it could be, and cannot readily identify bias among working groups or panels.

Other approaches could be considered but these would have to cope with the tight timeframes required by risk managers to take timely public health decisions, the resource required and the likely need to reimburse "external" peer reviewers, thereby changing the dynamics of the relationship between author and reviewer (peer review is carried out gratis in journal publishing). The current system would benefit from establishing criteria for the appointment/identification of reviewers from within and between Panels; broadening the reviewer base from across Panels; and better separation of the roles of author and reviewer. The role of public consultations – which have a related but distinct role from peer review – will also be reviewed in the Engagement and Risk Communication pillar of the Transparency Regulation implementation.

[10] Criticisms have included variously that peer view is ineffective in improving scientific quality, fails to detect fraudulent or unethical activities, and is not transparent.

4. AS-IS ANALYSIS

The SWOT and PEST analyses summarised in Figs. 5 and 6 are based on feedback received from respondents to the 2019 journal user survey, stakeholder input, EFSA staff and experts. The feedback covers both journal usage and production (mainly EFSA staff) and the outcomes have some overlap with the outcomes of the analysis of trends in scientific publishing in the previous section.

4.1 SWOT AND PEST ANALYSES

The key take-home messages include:

a. Outsourcing to a professional publisher has **strengthened**: reach; impact; author and institutional recognition; user satisfaction; clear open access and copyright notice; access to digital publishing tools; cost effectiveness and scalability; and rapid continuous publishing.

b. Perceived **weaknesses** in the current process include: access to data; poor readability of EFSA outputs (size, complexity, heavy use of tables, lack of graphics); peer review system is not well documented; and no direct linkage to authors' declarations of interest.

c. **Opportunities** exist in technology advances which will provide more reliable, efficient and timely production systems; exploitation of neural translation systems to improve reach across Member States (MS); increasing the scope of the journal (to include EFSA's future commissioned work (Reg 178 review), MS assessments and other thought-leadership articles e.g. reviews in fields critical to European food safety); shorter more concise outputs; clearer communication; more consistent abstracts; and better presentation/visualisation of data.

d. **Threats** include the failure to identify a future publishing contractor.

e. EFSA needs to avail of useful developments in publishing **technology** (see previous discussion in section 3).

f. Demand for greater access to the working processes underpinning EFSA's scientific assessments will require greater **transparency** in the assessment process. A new PDF layout with clearer author segmentation (panel members, staff, working groups etc.) with direct links to declarations of interest could be implemented.

g. **Engagement:** The journal should build its social media presence e.g. via ResearchGate and Twitter and continue to engage with citizen science initiatives.

h. **Clarity and readability:** EFSA scientific staff has upskilled its scientific writing competency in recent years through formal training sessions. Further training was implemented in 2019 along with abstract writing and these will be repeated as required **(Action 7)**. Monitoring of abstract quality via the EFSA quality management programme will be introduced in 2020 **(Action 8)**. Reducing the size and complexity of outputs is also an objective of the TR and guidelines will be provided for Panels and working groups on increasing the useability of outputs. The average page size of an EFSA output has decreased from an estimated 45 pages in 2016 to 33 currently due to a range of factors including linkage to datasets rather than including them in the text, advocacy for brevity from the EFSA Journal team, and improved copy editing. Going forward, EFSA will

continue to push for clearer, more concise outputs; better data visualisation; and better designed PDFs **(Action 9)**.

i. EFSA should fully explore options for translation of abstracts and plain language summaries into EU working languages **(Action 10)**.

j. EFSA has already explored the use of plain language summaries (PLS) and a pilot programme will be implemented in 2020 to cover a wider range of scientific outputs and using a less resource-intensive approach **(Action 11)**.

k. **Scope:** EFSA Journal provides a cost effective and scalable publishing solution. In the spirit of the review of the Transparency Regulation, EFSA can offer national agencies an affordable publishing platform that would improve the reach and impact of their work, exploit economies of scale, and create a "one stop shop" for EU risk assessment in the field of food safety. The appetite for such a hub should be explored via the EFSA Advisory Forum (**Action 12)**. EFSA should also consider commissioning a small number of authoritative reviews annually in important risk assessment fields to inform its assessments and consolidate its position as an authority in the field; these could be published in the EFSA Journal or in other peer reviewed journals. The use of editorials could also be expanded in key areas where EFSA Panels need to explain the context of an assessment to a wide audience.

l. EFSA Knowledge Junction has been well received as a curated source of food safety data and this should be promoted as a key repository specifically for food safety data globally: Wiley is already promoting it as such to its authors.

m. EFSA needs to ensure that it applies the appropriate scientific terminologies and identifiers for unequivocal identification of chemicals, species, enzymes etc. Not also does this promote accuracy and standardisation but improves data linkage to authoritative resources that use persistent identifiers. EFSA must also align with taxonomies used by sister agencies e.g. ECHA. The General Agricultural Concept Scheme (GACS)[11] has been applied effectively to the Knowledge Junction and this should be expanded to keywords in EFSA outputs to ensure harmonisation and better online navigation on Wiley **(Action 13)**.

5. FUTURE PUBLISHING REQUIREMENTS

Based on the above analyses, EFSA's publishing needs have evolved considerably since the current publishing contract was established. Table 2 summarises the key requirements of a future publishing contract in addition to what has already been achieved.

[11] http://aims.fao.org/global_agricultural_concept_scheme_gacs

Table 2. Desirable future publisher requirements
Continue to outsource more routine EFSA tasks from scientific staff to publisher
Integrated authoring, reviewing, proofing & production technology
In-depth editing for a higher percentage of scientific outputs
Robust, reliable production systems
Article-based invoicing
Greater internal control of EFSA content on journal platform
Reliable timing to meet risk manager deadlines and communication embargoes
Advanced metrics, analytics
Improved social media outreach across scientific publishing-relevant platforms

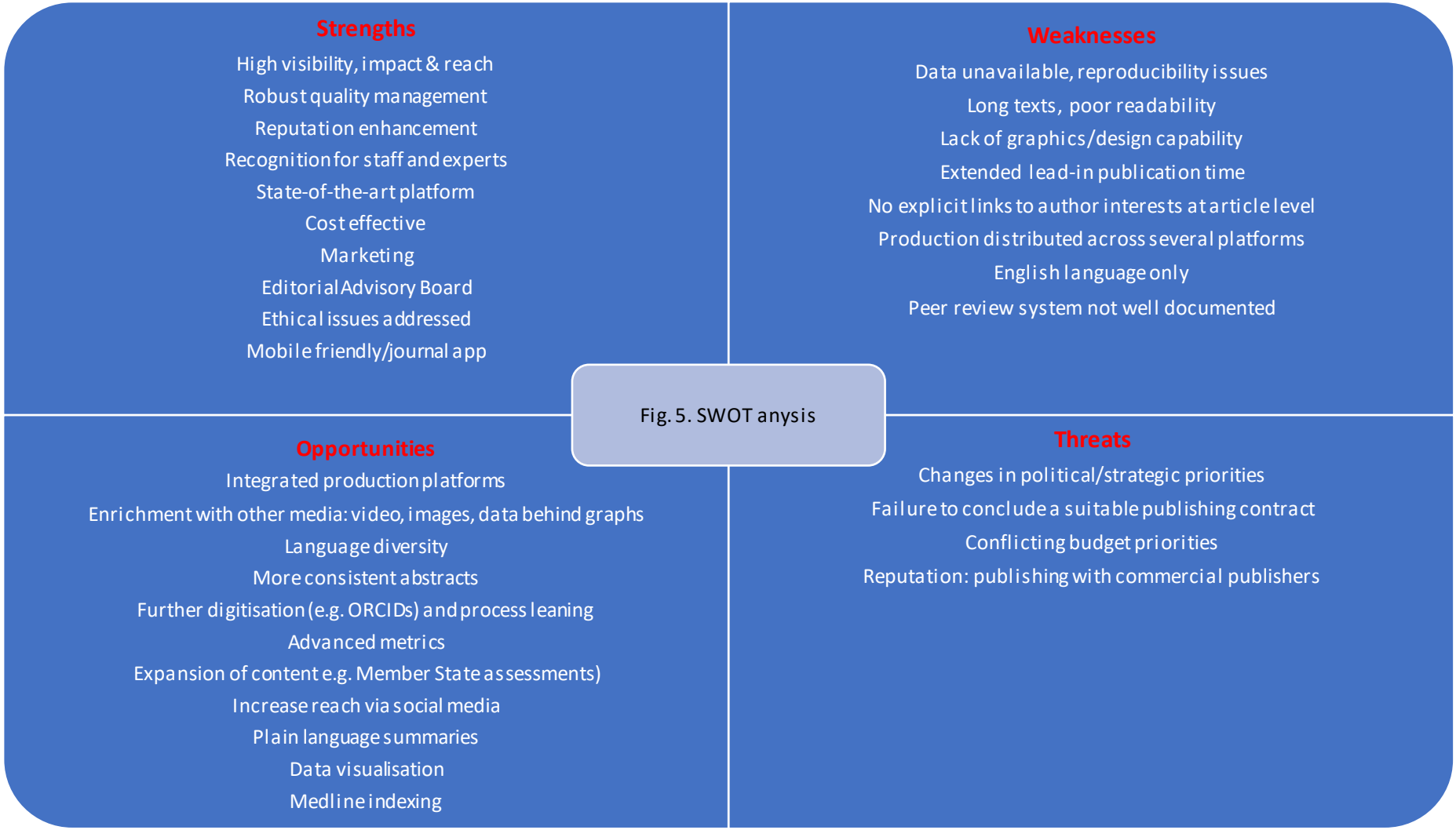


Fig. 5. SWOT anysis

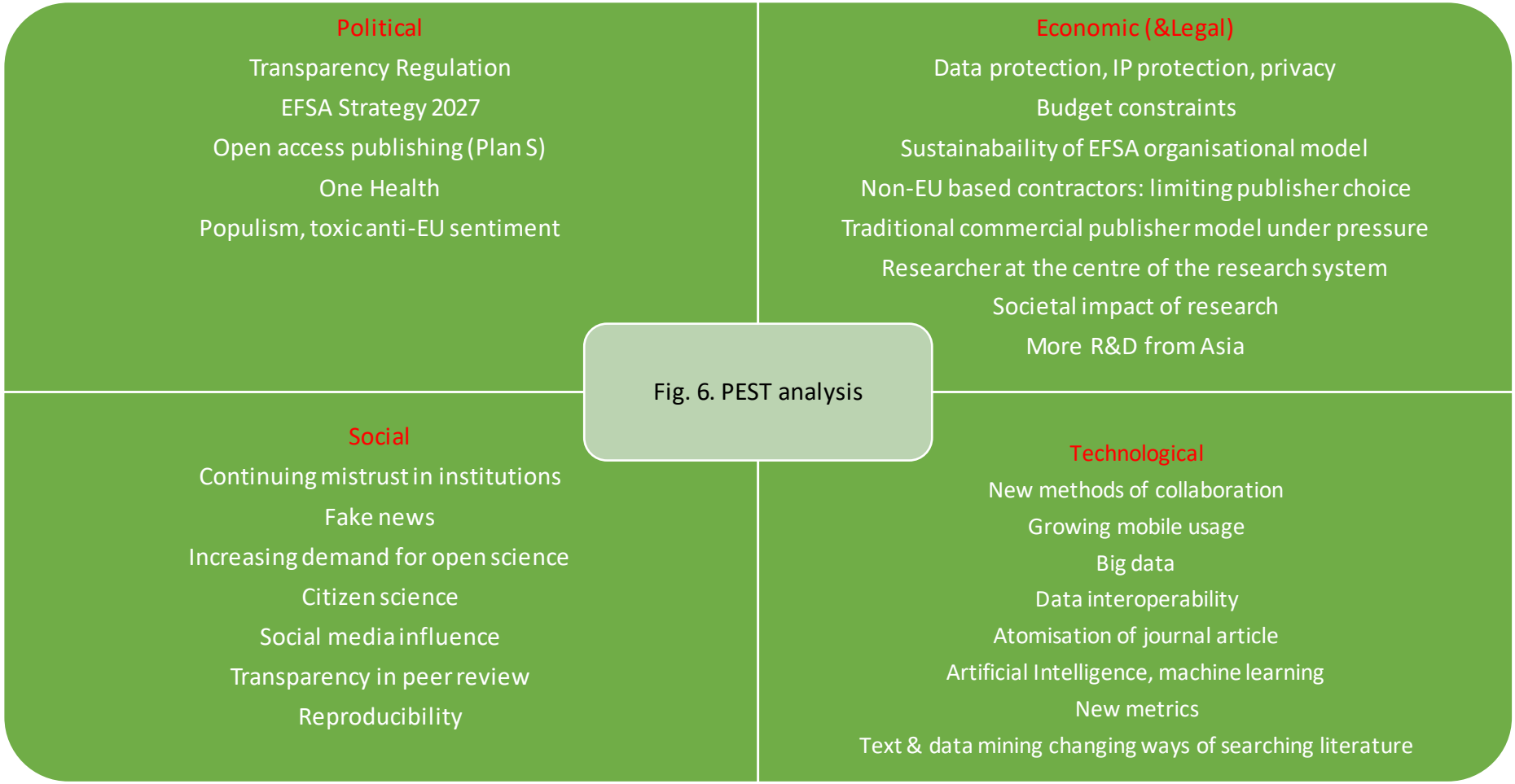


Fig. 6. PEST analysis

Key actions and milestones

Action no.	Proposed action	Specific activities	Indicative timeline
1	Implement Transparency Regulation and ART Programme requirements	a. Publication of new document types; effective linkage to e.g. verification studies; incorporate review steps into the publishing workflow	March 2021
		b. Implement publication workflow redesigns for efficiency gains	Begin in mid-2020
2	Medline application	Prepare and submit convincing application to the US National Library of Medicine	Completed in 2019, decision in early 2020
3	Impact factor	Decision by Scopus	End 2020
4	Organisational ORCID rollout	Maximise the use of identifiers by staff and experts and fully incorporate into publication systems	Q3 2020
5	Open access publishing	Draft approach to open access publishing for EFSA staff	First draft January 2020
6	Analytics	Develop approach for more advanced analytic capabilities with Wiley and EFSA analytics programme	Q2 2020
7	(a) Abstract writing	Provide ongoing tailored training programme and support materials for all relevant scientific staff	1st series of abstract writing courses held in September 2019, second scheduled for March 2020.
	(b) Generic scientific writing	Provide ongoing tailored training programme and support materials for all relevant scientific staff	1st generic science writing courses held in November 2019, second course tbc
8	Abstract quality monitoring	Devise and implement quality monitoring system across EFSA science units	Q1 2020

		and report as part of QM programme	
9	New PDF design to enhance transparency	Adopt a standard scientific article PDF design which provides more transparency on DOIs, authors and saves production time	Decision in 2019, rollout Q1 2020
10	Language outreach	Assess costs of translation of abstracts and plain language summaries and conduct feasibility study	Decision by end-2019, implementation over 2020-2022 period
11	Plain language summaries	a. Work with FMC holder to identify provider and agree approach, outputs etc. Run assessment b. Impact assessment	Q1 2020 Q2 2021
12	Extend Wiley platform to Member States	Consult with Advisory Forum to assess the feasibility	Present proposal to EFSA Advisory Forum in February 2020 followed by discussion at April 2020 meeting
13	Terminologies/identifiers	Work with Evidence Management unit to develop approach and implement for EFSA Journal	End 2020

EFSA Journal Survey

Food Safety Community Assessment

Sponsored by Wiley

Prepared by Broadview Analytics

BROADVIEW
ANALYTICS

WILEY

Table of Contents

Methodology

- The European Food Safety Authority Journal Survey asks the broader food safety community about their attitudes toward the EFSA Journal.

- The report was fielded in May and June, 2019, using a combination of email invites, website intercepts and social media posts. A total of 272 respondents completed the survey.

- A combination of analytical techniques are used in the analysis, including factor Analysis, Regression Trees and Comparison Group Testing

Methodology

The results are compared across groups. They are listed on the slide when there is a statistically significant difference (i.e., that group is different from those in the other groups). When items are not listed they are not significantly different from the overall measure (with 90% confidence).

Role

- Public Authority Representative
- Scientist/Academic
- EFSA Staff
- EFSA Expert
- Business Rep
- Consumer

Years of Experience

- <=10 Years
- 11-20 Years
- 21+ Years

Publishing History

- Published in Past 12 Months
- Conducted Research but Not Published
- Neither Researched nor Published

Frequency of Visits

- Weekly
- 2-3 Times Per Month
- Monthly or Less

Public Authority

- EU Member State Agency
- All Other Agencies

Education

- PhD
- Less than PhD

Likelihood of Recommending

- Promoter
- Detractor

Executive Summary

- EFSA Journal users are quite satisfied, very likely to visit the Journal again and would strongly recommend it to others. The sentiment toward the Journal is more positive among those who visit frequently, but is less positive among EFSA staff.
- Journal users would like to make it easier to discover articles, easier to find and access supporting documents and improve the impact by collaborating with PubMed. They frequently struggle in being able to search for specific information, sort through the large amount of information available and keep up-to-date on new topics.
- EFSA Journal users are satisfied with both the discovery and verification aspects of the site. The presentation of data, linking to data repositories and the summaries are key parts of being a Promoter.
- Those who trust the Journal as a place to search for relevant information are stronger Promoters than those who visit only for a specific piece of content. The biggest Promoters visit to find information on a topic and either to access data or find info on policies.
- Public authority representatives are likely to learn about new articles via an EFSA email/RSS feed and through regular visits to the site, while researchers tend to actively search for the information.
- The EFSA Journal is viewed positively by those in EU Member States, although staff members in Italy are less positive in their assessment.
- Half have published a journal article within the past 12 months, and they are among the strongest EFSA Promoters.

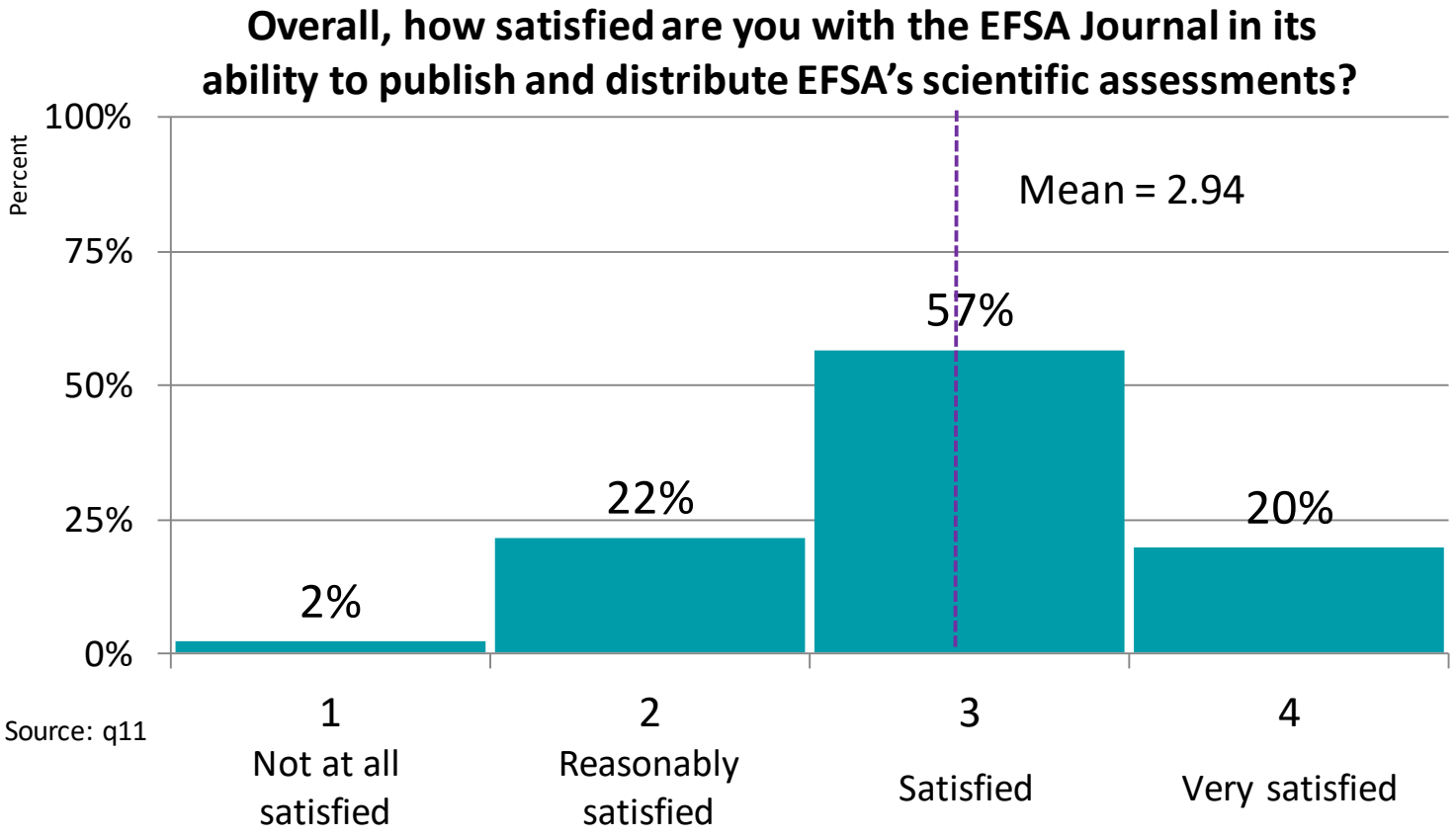
EFSA Publishing Survey

Rating the EFSA Journal

Rating the EFSA Journal

EFSA Journal users are quite satisfied, very likely to visit the Journal again and would strongly recommend it to others. The sentiment toward the Journal is more positive among those who visit frequently, but is less positive among EFSA staff. The top improvements are making it easier to discover articles, easier to find and access supporting documents and improving the impact by collaborating. EFSA Journal users are satisfied with both the discovery and verification aspects of the site. The presentation of data, linking to data repositories and the summaries are key parts of the experience. Users would have EFSA invest in more data and more research findings. EFSA staff would like to see increased outreach to non-scientific audiences.

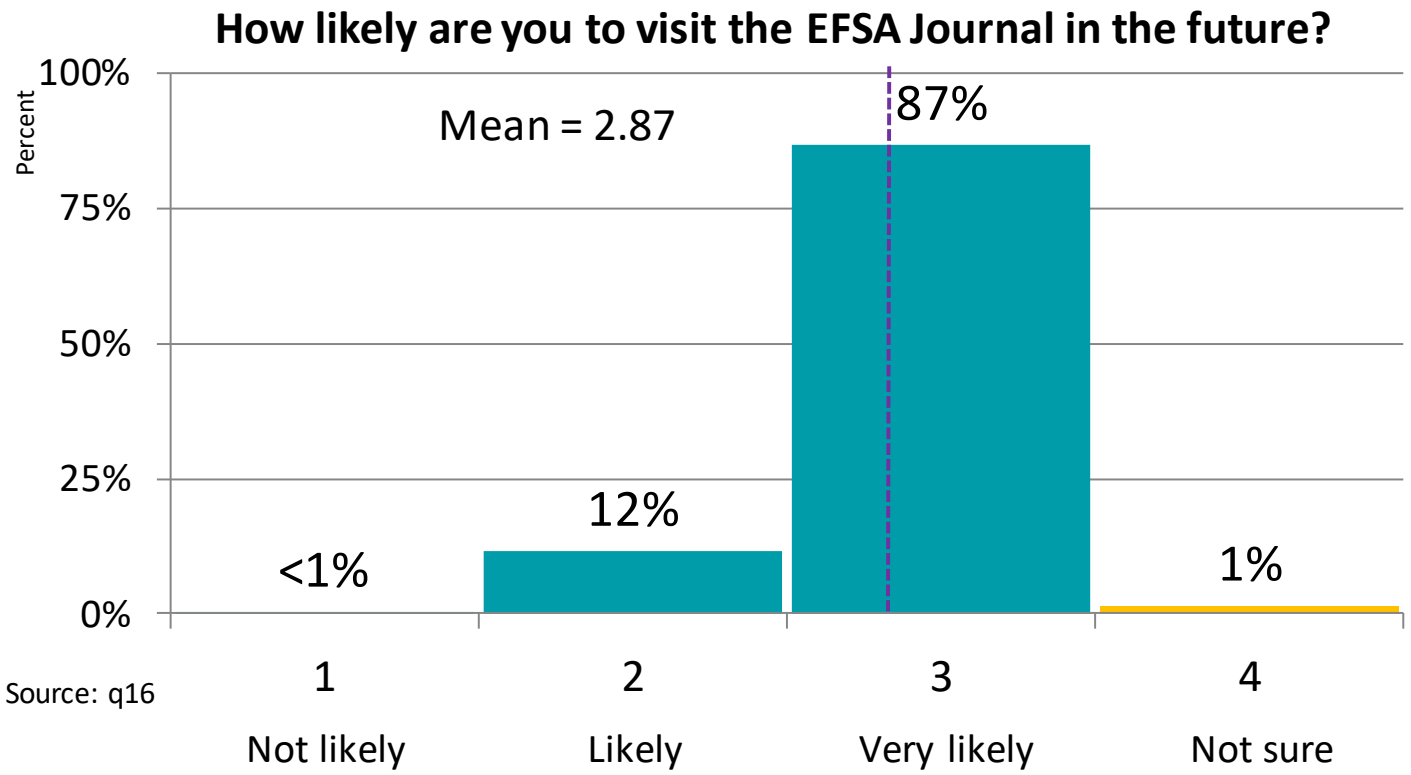
Journal users are quite satisfied with the journal; public authority representatives are the most satisfied, while EFSA staff are the least satisfied



Satisfaction

Higher	Lower
▪ Public Authority Representative (3.09) ▪ Visits More Than Monthly (2.99)	▪ EFSA Staff (2.60) ▪ Visits Monthly or Less (2.79) ▪ 11-20 Years (2.85)

The EFSA Journal users are very likely to continue to visit the Journal in the future, especially those who are in the habit of visiting regularly



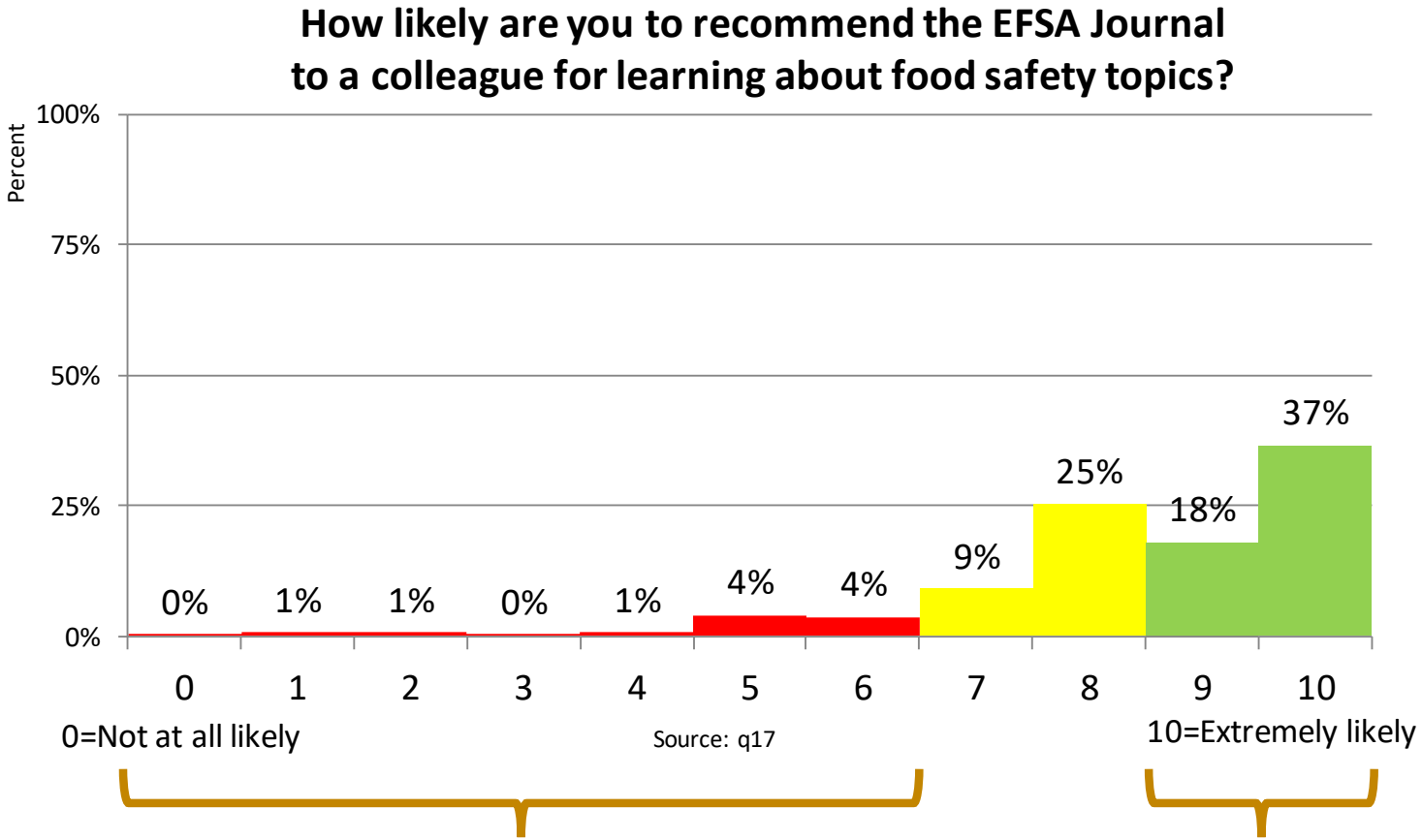
Source: q16

Likelihood of Visiting Again

Higher
- Visits Weekly (2.96)

Lower
- Visits Monthly or Less (2.77)
- 11-20 Years (2.81)

Over half are Promoters of EFSA, while 10% are Detractors, resulting in a very strong Net Promoter Score of 44; more–experienced visitors and scientists are stronger Promoters



Net Promoter Score = 44

NPS

Higher
- 21+ Years of Experience (58)
- Visits Weekly (58)
- Scientist/ Academic (55)

Lower
- EFSA Staff (10)
- Visits Monthly or Less (20)
- <=20 Years (36)

Note: The Net Promoter Score is calculated by subtracting the Detractors from the Promoters

The top suggested improvements are making it easier to search/discover articles, making it easier to find/access supporting documents and better collaboration with other sites

How could the EFSA Journal be improved to better meet your needs? (Q18)

Better search/discovery

- "Better search engine and good comprehensive historical archive."
- "Improve search engine in EFSA journal website, avoid the double clicking to download the opinions."
- "Improve technology for article browsing."
- "Please ameliorate the advanced search for scientific topics (es. articles are not in chronological order, and this impair the effectiveness of search)."

Easier access to supporting documents

- "Easier access and download of all data used by am article."
- "Making the access to data and background documents more easily. For new staff, it is not easy to find the background documents."
- "The access to the associated documents needs to be vastly improved."
- "The supplementary documents (e.g. Appendices) are also a bit 'hidden' and not very straight forward to find them by an external person.

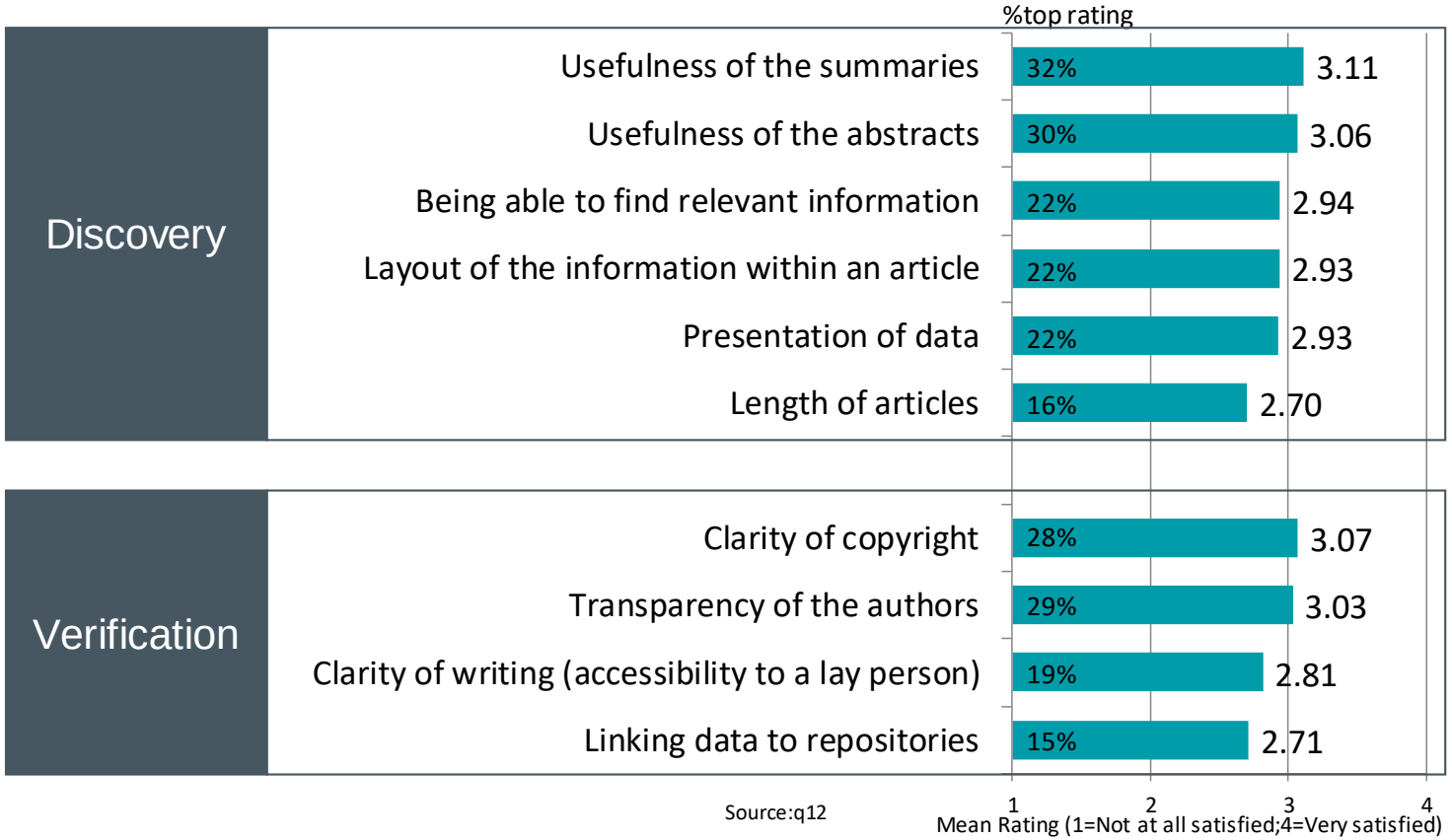
Better collaboration

- "PubMed listing!"
- "To be included in PubMed."
- "To be include in databases like Scopus web of science."

Satisfaction with Journal by Attributes

EFSA Journal Users are quite satisfied with both the Discovery and Verification aspects of the journal; EFSA Experts are particularly satisfied with the Verification aspects

Rate your level of satisfaction with the EFSA Journal on each of the following attributes.



Source:q12

Discovery

More
- Visits 2-3 Timer Per Month
- Public Authority Representative

Less
- EFSA Staff
- Visits Monthly or Less

Verification

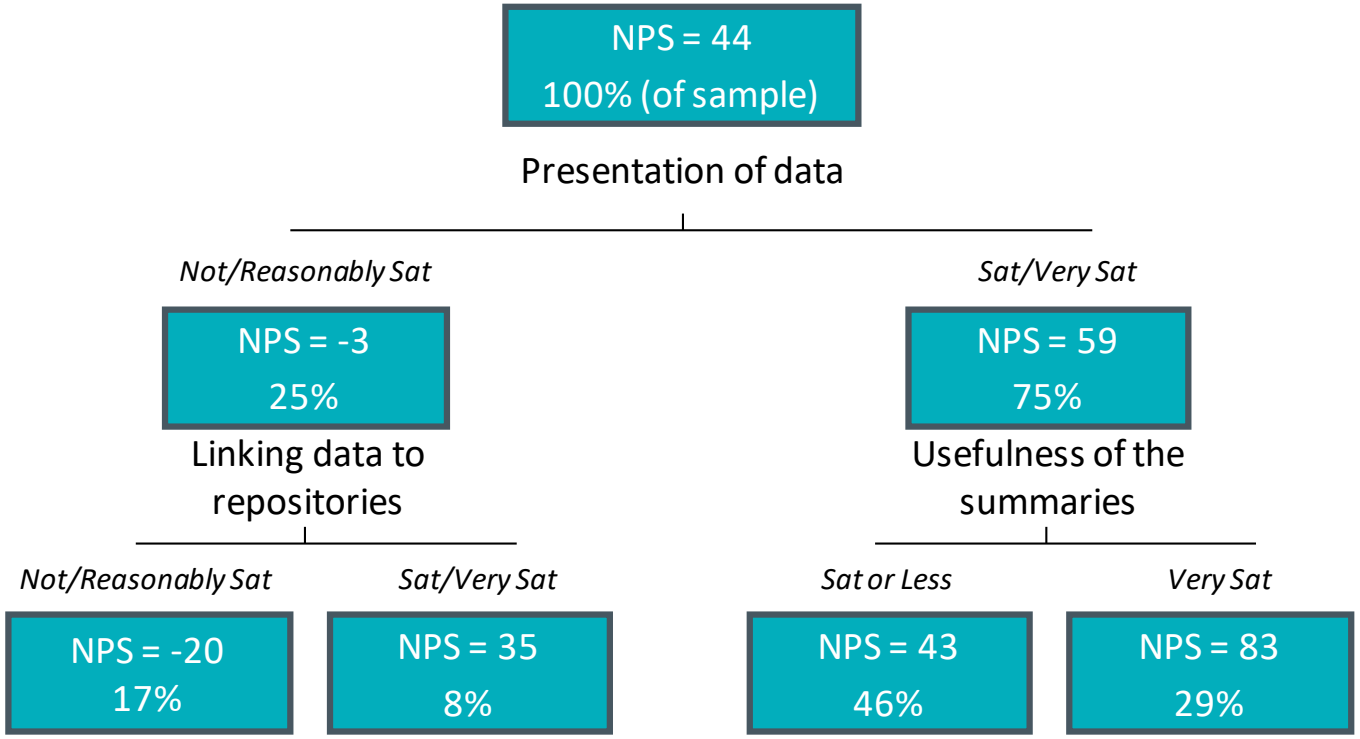
More
- EFSA Expert
- 21+ Years

Less
- Business Representative
- <=20 Years

The willingness of EFSA Journal users to recommend it to others is tied strongly to the available data, while the summaries are key to creating product champions

EFSA Journal Net Promoter Score (q17)

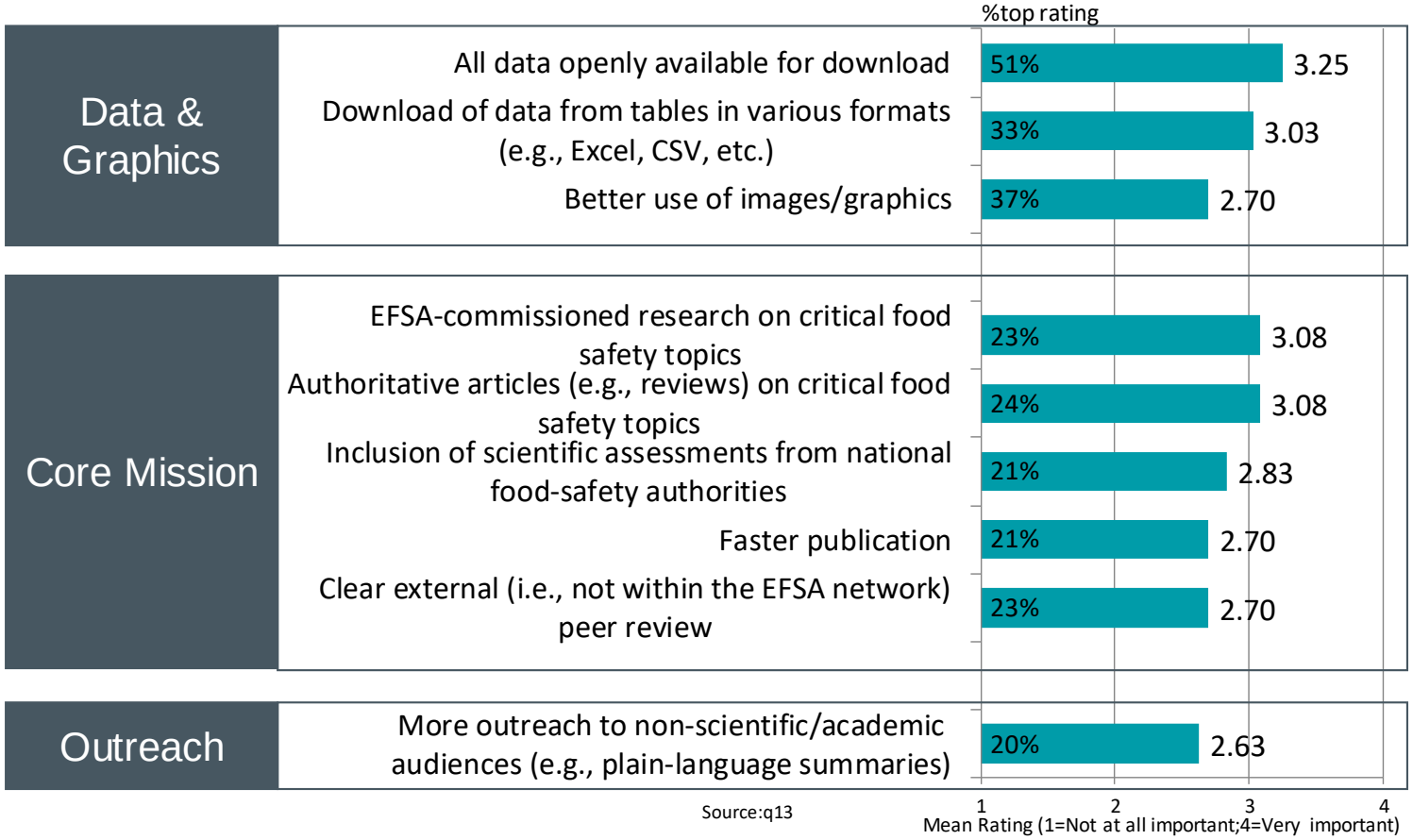
By Satisfaction with EFSA Journal Attributes (q12)



- The Regression Tree shows what has the strongest impact on NPS
- The biggest impact on the NPS is from the satisfaction with the **presentation of data**
- The lowest NPS is among the 17% who are not sufficiently satisfied with the **presentation of data** or the **linking of data to repositories**
- The highest NPS is among the 29% who are satisfied with the **presentation of data** and very satisfied with the **usefulness of the summaries**

Journal users would prioritize investments in data and more research and articles on food safety, while EFSA Staff would like to see more outreach to non-academic audiences

When improving the EFSA Journal, what priorities would you want EFSA to make?



Data & Graphics

More	Less
▪ Scientist/Academic	▪ EFSA Expert
▪ Recently Published	▪ Have Not Published

Core Mission

More	Less
▪ <=10 Years	▪ EFSA Staff
▪ Researching but Not Publishing	▪ EFSA Expert
▪ Scientist/Academic	▪ Visits Weekly
▪ Public Authority Representative	▪ 11-20 years
▪ Visits Less Than Weekly	

Outreach

More	Less
▪ EFSA Staff	▪ PhD
▪ Less than PHD	

Journal users would like to see more transparency around who did what work, more outreach to citizens and more engagement with formal scientific publishing norms

Are there any additional priorities in which you would encourage the EFSA Journal to invest? (Q14)

Transparency

- "Tools that help to have a more transparent and efficient system."
- "The transparency of authors. The treatment of every subject requires specific expertise. It appears an agreement among components of each panel to insert ALL components as authors. The scientific impact could be therefore attributed to a single person that has nothing to do (or any competence) with the main topic of the article."
- "Sometimes the rationales leading to a conclusion are not clearly described (especially 'expert conclusion')."

Outreach

- "Overall, the use of social media to disseminate EFSA's publications - in a plain-language summarized manner - should be explored."
- "Citizens opinion on food safety, like survey what they think?"
- "Develop a new simplified section devoted to communicate food safety issues and outcomes from EFSA experts to schools, so that the diffusion of food safety topics is made easier for teachers and reaches the younger European citizens. "

Formal Scientific Publishing

- "I do think that EFSA articles in the EFSA Journal should undergo external peer review. There is no point in reviewing a scientific opinion by EFSA. However, EFSA should also use its expertise to communicate in the scientific community by publishing in regular journals."
- "It would be positive to have an IF"
- "International peer-reviewing process of any kind of publication."

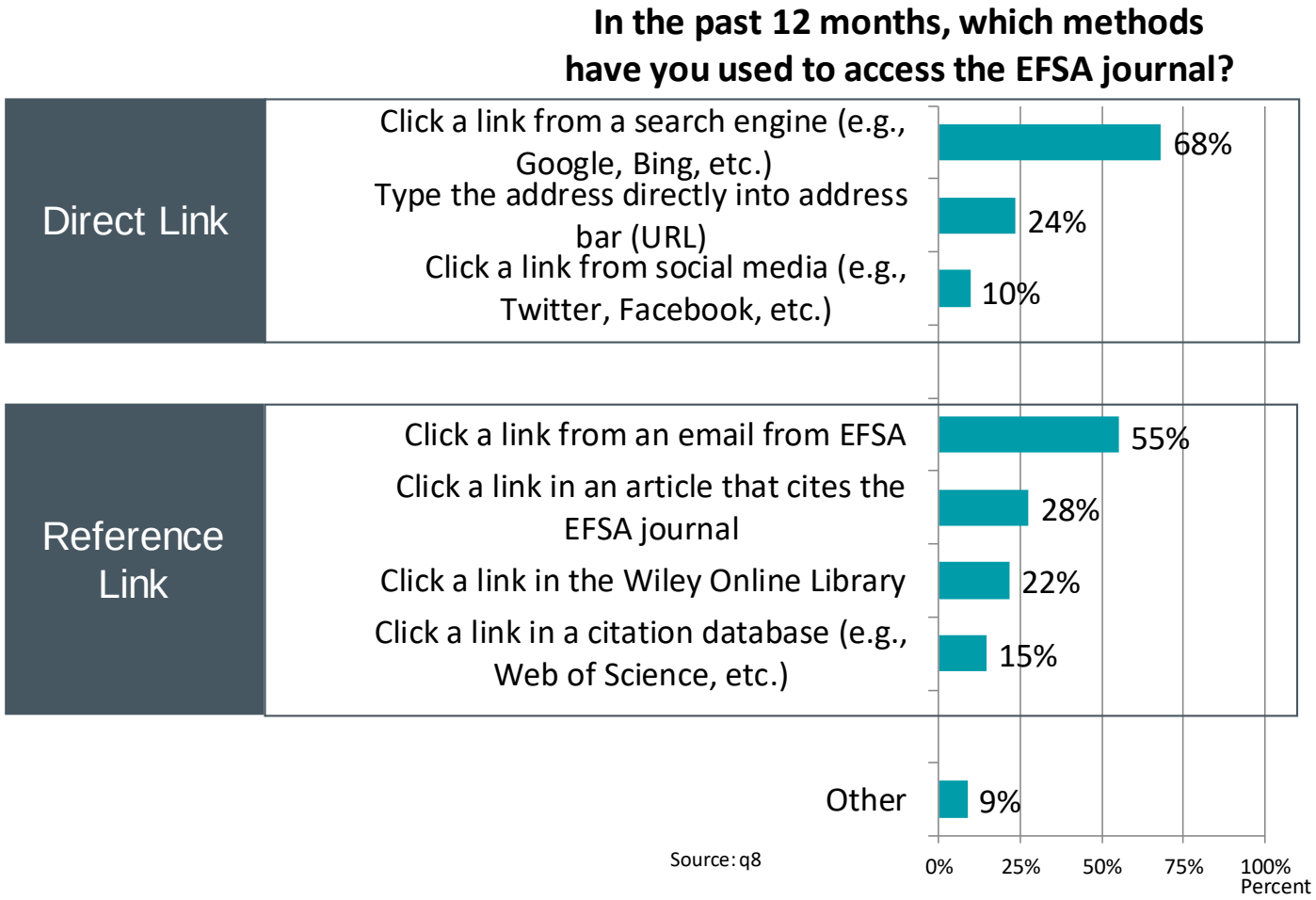
EFSA Publishing Survey

Interaction with the Journal

Interaction with the Journal

Those who trust the Journal as a place to search for relevant information are stronger Promoters than those who visit only for a specific piece of content. Most users visit the Journal either via search engine or by clicking a link in an EFSA email/RSS feed. EFSA staff and public authority representatives visit the Journal the most often, while business representatives and scientists/academics visit it less often. There is a split in motivations for visiting, as some visit to access a specific article while others look for information on a topic. The expanded content is used more by business representatives and public authority representatives. The biggest Promoters visit to find information on a topic and either to access data or find information on policies. Public authority representatives are likely to learn about new articles via an EFSA email/RSS feed and through regular visits to the site, while researchers tend to actively search for the information. Three-quarters use social media for work, typically ResearchGate and LinkedIn, but EFSA Promoters are also found on Facebook and YouTube. Journal users can frequently struggle in being able to search for specific information, sorting through the large amount of information available and keeping up-to-date on new topics.

Most visitors either arrive via a search engine or click a link in an EFSA email; EFSA staff and scientists are more likely to use a Direct Link, and Public Authority Reps are less likely



Direct Link

More
- EFSA Staff
- Scientist/Academic
- Conducting Research

Fewer
- Public Authority Representative
- Not Conducting Research

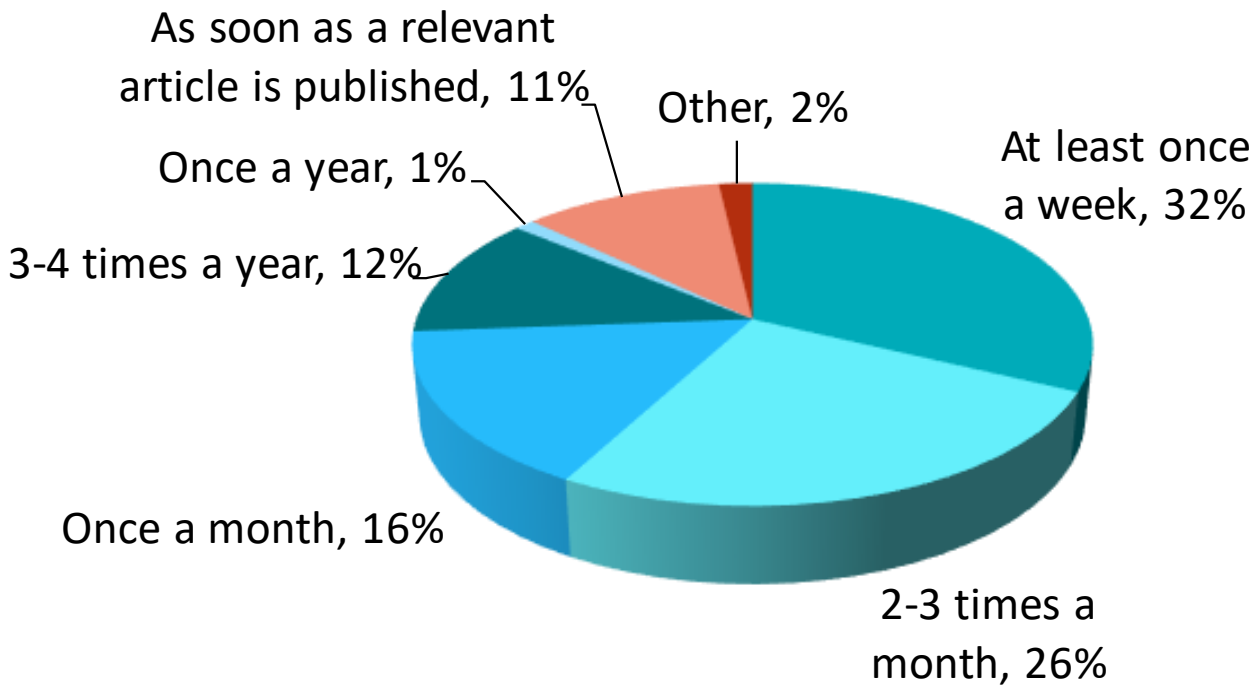
Reference Link

More
- Consumer
- Promoter

Fewer
- Detractor
- EFSA Staff

The typical user visits the Journal 30.8 times per year, as visiting more relates to being a Promoter; Scientists/Academics and those who are publishing visit less often

How often do you visit the EFSA Journal?



Source: q6

Frequency of Visits (30.8 per year)

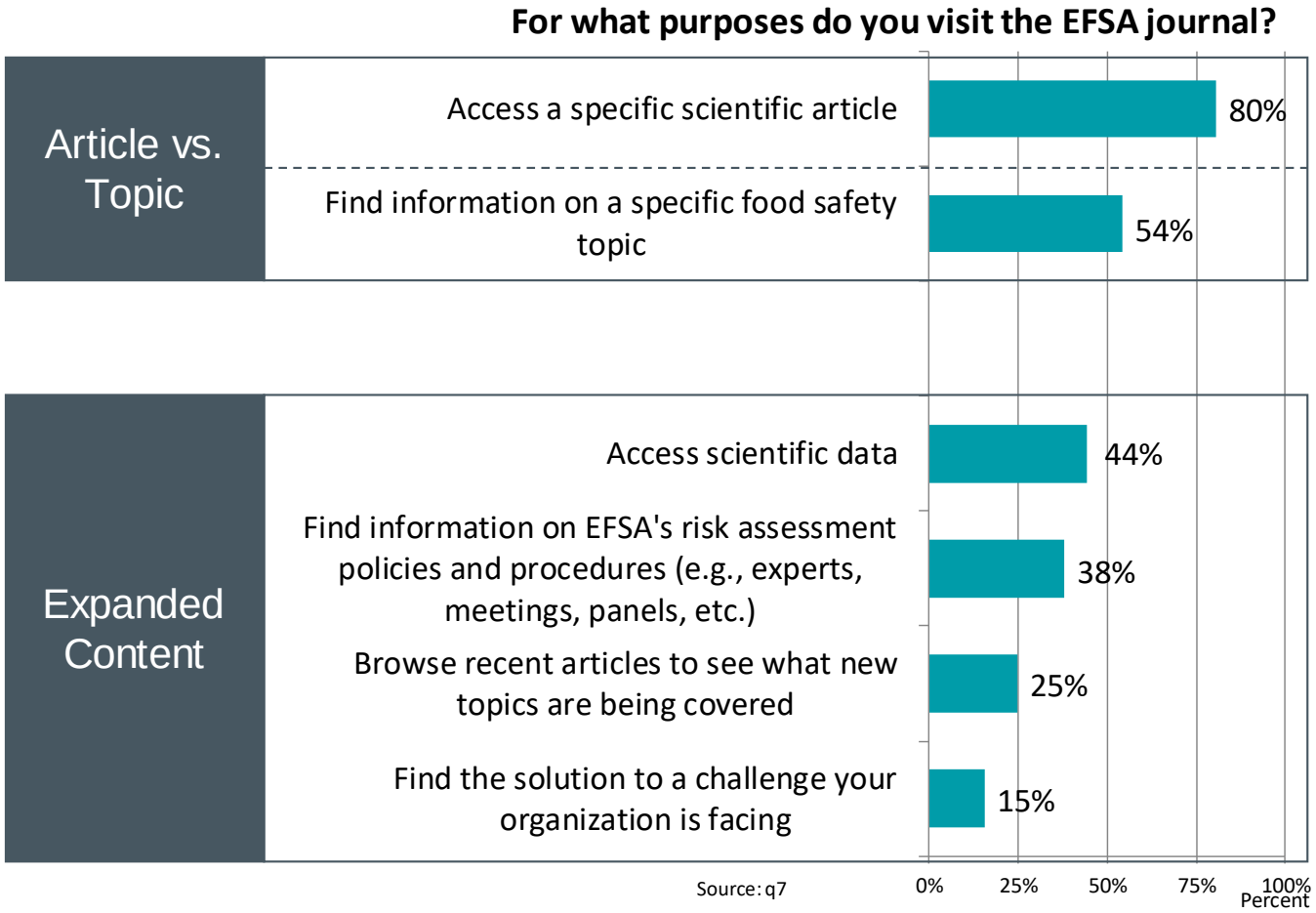
Higher

- EFSA Staff (40.7)
- Promoter (34.7)
- Public Authority Representative (34.1)
- Have Not Published (33.3)

Lower

- Scientist/Academic (23.2)
- Detractor (23.9)
- Published Recently (28.0)

There is a tradeoff between those who visit for a specific article versus finding information on a topic; business reps and public authority reps are drawn to the content



Article vs. Topic

Article
- EFSA Staff
- Visits Weekly
- EU Safety Authority

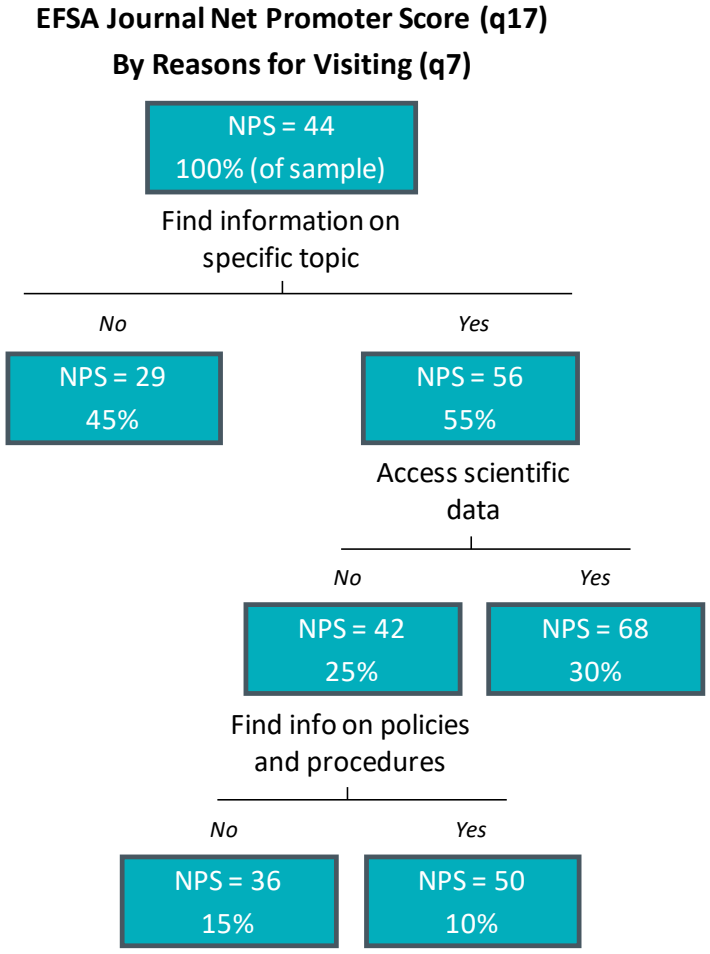
Topic
- Other (Not EU) Public Authority
- Visits Monthly or Less

Expanded Content

More
- Business Rep
- Public Authority Representative
- Researching but Not Publishing
- Promoter
- Visit Multiple Timers Per Month

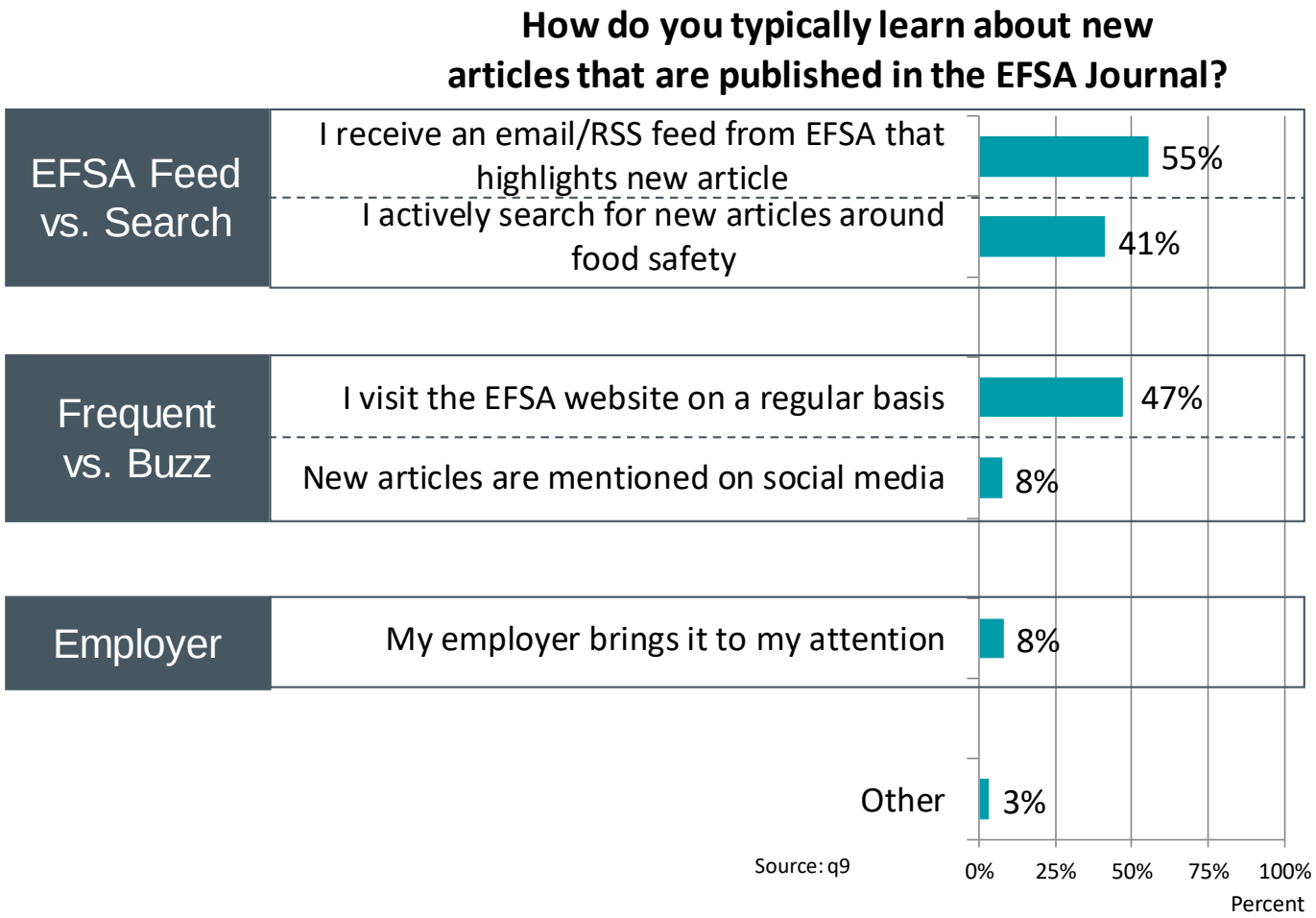
Fewer
- EFSA Staff
- Detractor
- Visit Monthly or Less
- Not Researching or Publishing
- 11-20 Years

The likelihood of recommending the EFSA Journal increases when users are searching for a specific topic, and either access data or look for information on policies and procedures



- The Regression Tree shows what has the strongest impact on NPS
- The biggest impact on the NPS is when people visit to **find information on a specific food safety topic** – those who do not have the lowest NPS (29)
- The NPS is higher when, in addition to **finding information on a topic**, users either **access scientific data** or **find information on policies and procedures**

The most dedicated users learn about new articles through an EFSA email/RSS feed or through regular website visits, while occasional users are likely to discover via searches



EFSA Feed vs. Search

EFSA
- EFSA Expert
- Public Authority Representative
- Not Researching or Publishing

Search
- Detractor
- Researching but Not Publishing

Frequent vs. Buzz

Frequent
- Visits Weekly
- Promoter
- Public Authority Representative
- Not Published Recently

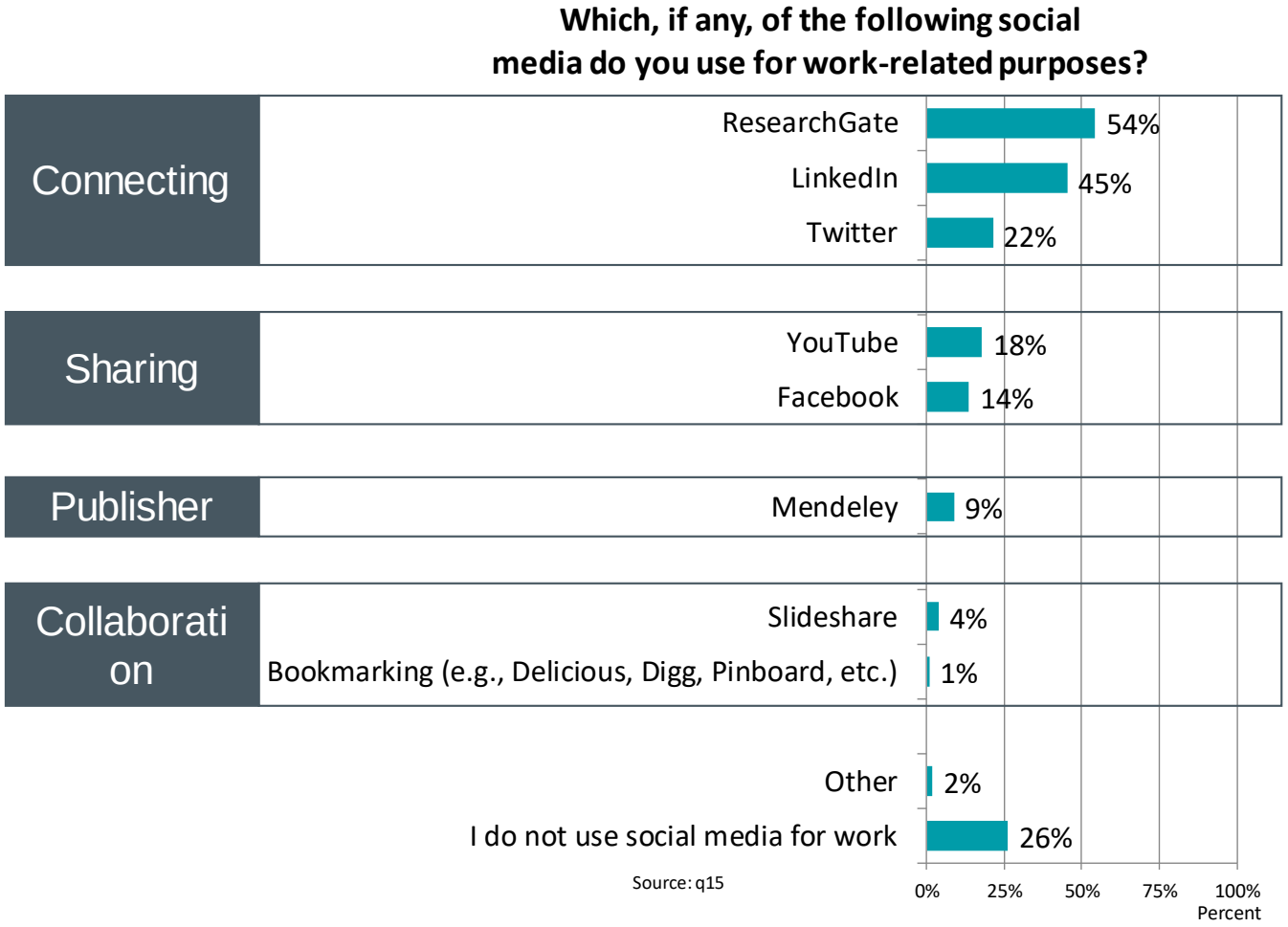
Buzz
- Visits Monthly or Less
- Detractor
- Scientist/Academic
- Published Recently

Employer

More
- EU Safety Authority

Fewer
- EFSA Staff
- EFSA Expert

Three-quarters use some sort of social media; those who publish research are more likely to use social media, while public authority representatives are less likely



Connecting

More	Fewer
▪ EFSA Staff ▪ Published Recently	▪ Not Researching or Publishing ▪ Public Authority Representative

Sharing

More	Fewer
▪ Less than PhD ▪ Promoter	▪ Detractor ▪ PhD

Publisher

More	Fewer
▪ Scientist/Academic ▪ Published Recently ▪ 21+ Years	▪ Business Representative ▪ Not Researching or Publishing ▪ Public Authority Representative ▪ 11-20 Years

Collaboration

More	Fewer
▪ None	▪ None

The primary challenges in gathering food-safety information are being able to search and discover, sorting through the volumes of information and keeping up-to-date on changes

In general, what is your biggest challenge in gathering information about food safety? (Q10)

Article search and discovery
- "The search facility on the EFSA / journal site is not very good. A raw Google search (other search engines are available) is almost always better."
- "From EFSA web pages it is not easy to find specific information."
- "Finding relevant and reliable studies."
- "Finding the correct keywords to make the search specific enough."

Sorting through all of the information
- "There is a huge amount of information sources and it is a major challenge to retrieve the appropriate information"
- "EFSA publishes a lot of information however it is a challenge to find it, a particular document and the documents related with this document."
- "Finding specific information from the huge data pool available on the (scientific) internet."
- "The large volume of information, sifting through it and deciding what is reliable information and what is not."

Keeping up to date on changes
- "I struggle in having an overview of all the opinions on a given topic/chemical/preparation."
- "Be informed about new scientific publications and reviews, mainly on foodborne diseases."
- "To be updated in the field of food safety."

EFSA Publishing Survey

Demographics

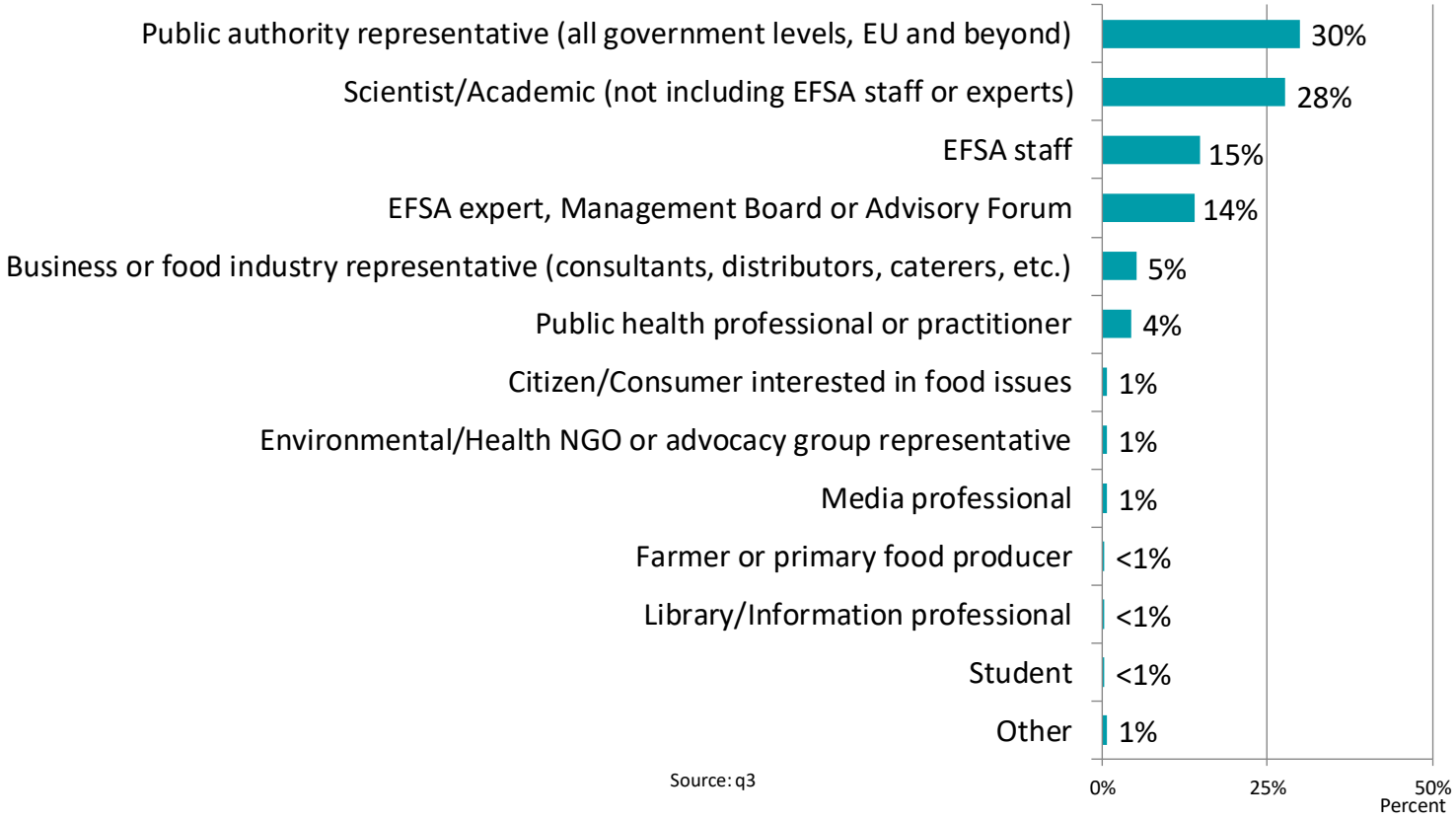
Demographics

The EFSA Journal is viewed positively by those in EU Member States, although staff members in Italy are less positive in their assessment. Journal users serve mostly as public authority representatives, scientists/academics, EFSA staff or EFSA experts. The staff tend to be less positive than those in other roles. Two-thirds of those at a public authority are with an agency in an EU Member State, but those in other roles are more positive toward the EFSA Journal. Over half hold a PhD, with even more among scientists/academics and journal authors. Nearly one-quarter are from Italy, and they tend to be less positive than the 8% from non-EU countries. They have 15.3 years of experience, with even more among EFSA experts, journal authors and scientists/academics. Half have published a journal article within the past 12 months, and they are among the strongest EFSA Promoters.

Primary Role when Accessing Journal

Over half are either a public authority representative or a scientist/academic; the public authority representatives are more satisfied, while EFSA staff are less satisfied and less of a Promoter

What is your primary role when accessing the EFSA Journal?



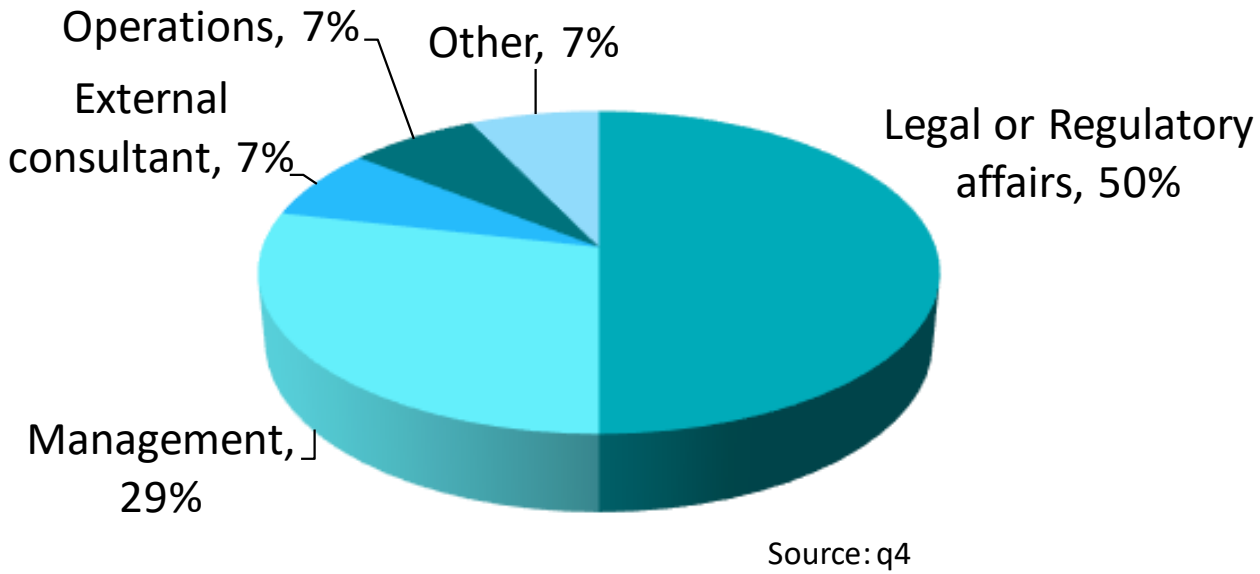
Source: q3

	Satisfaction	Future Intent	NPS
Public authority representative (n=81)	3.09	2.90	44
Scientist/Academic (n=74)	2.91	2.87	55
EFSA staff (n=40)	2.60	2.82	10
EFSA expert, Management Board or Advisory Forum (n=37)	3.00	2.89	53

*Satisfaction is on a 1-4 scale
*Intent is on a 1-3 scale
*Red/Green shading means it is significantly lower/higher

Half of those who are in a business or industry role work in legal or regulator affairs

Which of the following best describes your role in your organization?

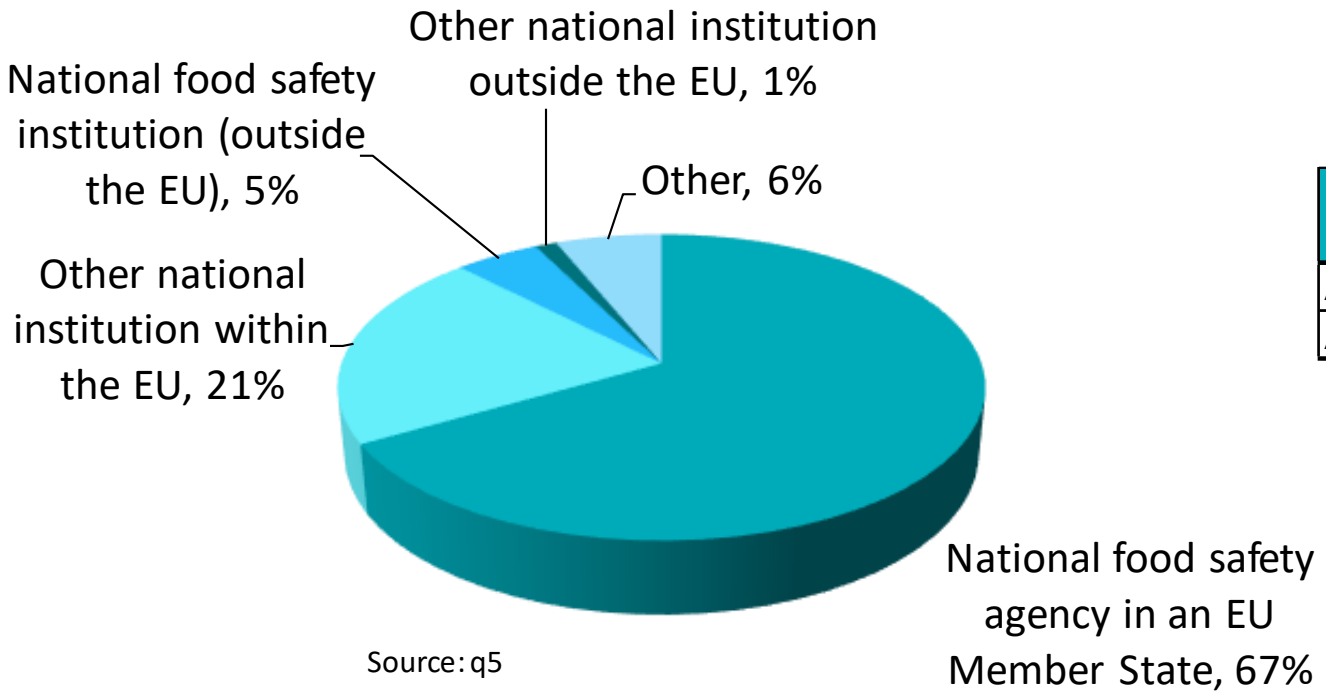


Source: q4

Note: Among those in a business or industry role (n=14)

Two-thirds of those at a public authority work for a national food safety agency in an EU member state; those who work elsewhere are more satisfied and more likely to recommend

Which public authority do you represent?



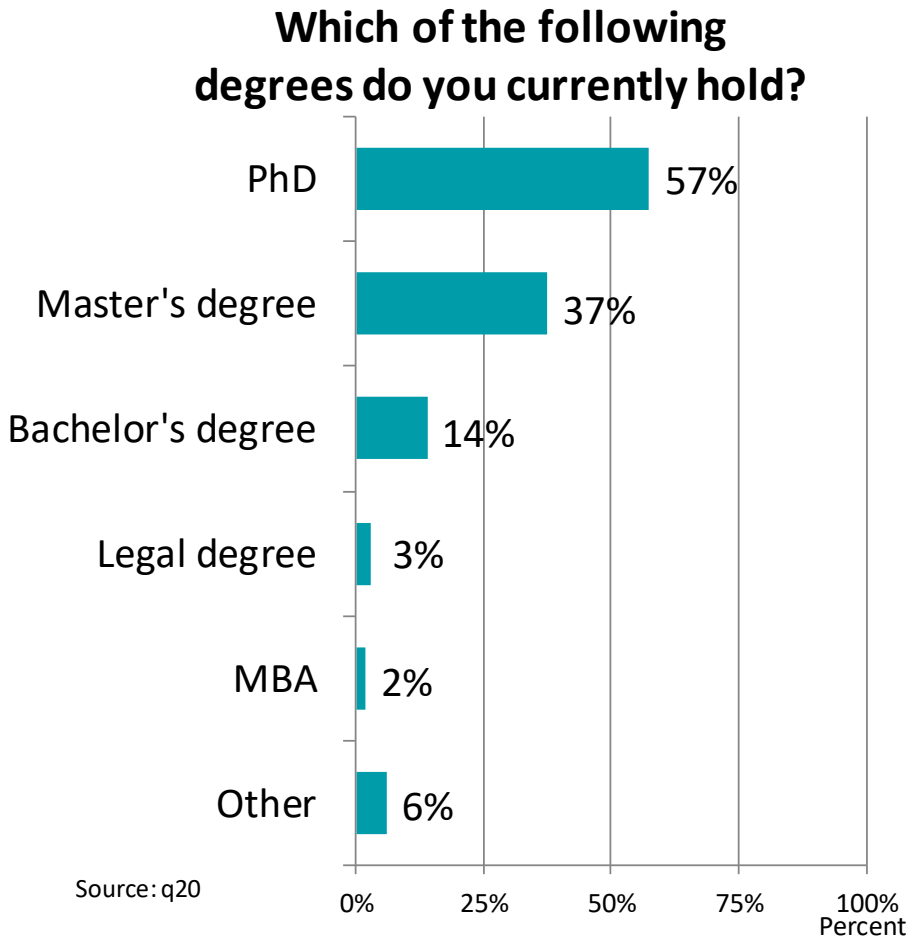
Source: q5

Note: Among those in a public authority role (n=81)

	Satisfaction	Future Intent	NPS
Agency in EU state (n=54)	3.02	2.92	38
All others (n=27)	3.22	2.85	58

*Satisfaction is on a 1-4 scale
*Intent is on a 1-3 scale
*Red/Green shading means it is significantly lower/higher

Over half hold a PhD, as the degree earned has little impact on the attitudes toward the EFSA Journal



PhD

More

- EFSA Expert (84%)
- Published Recently (78%)
- 21+ Years (69%)
- Scientist/Academic (69%)

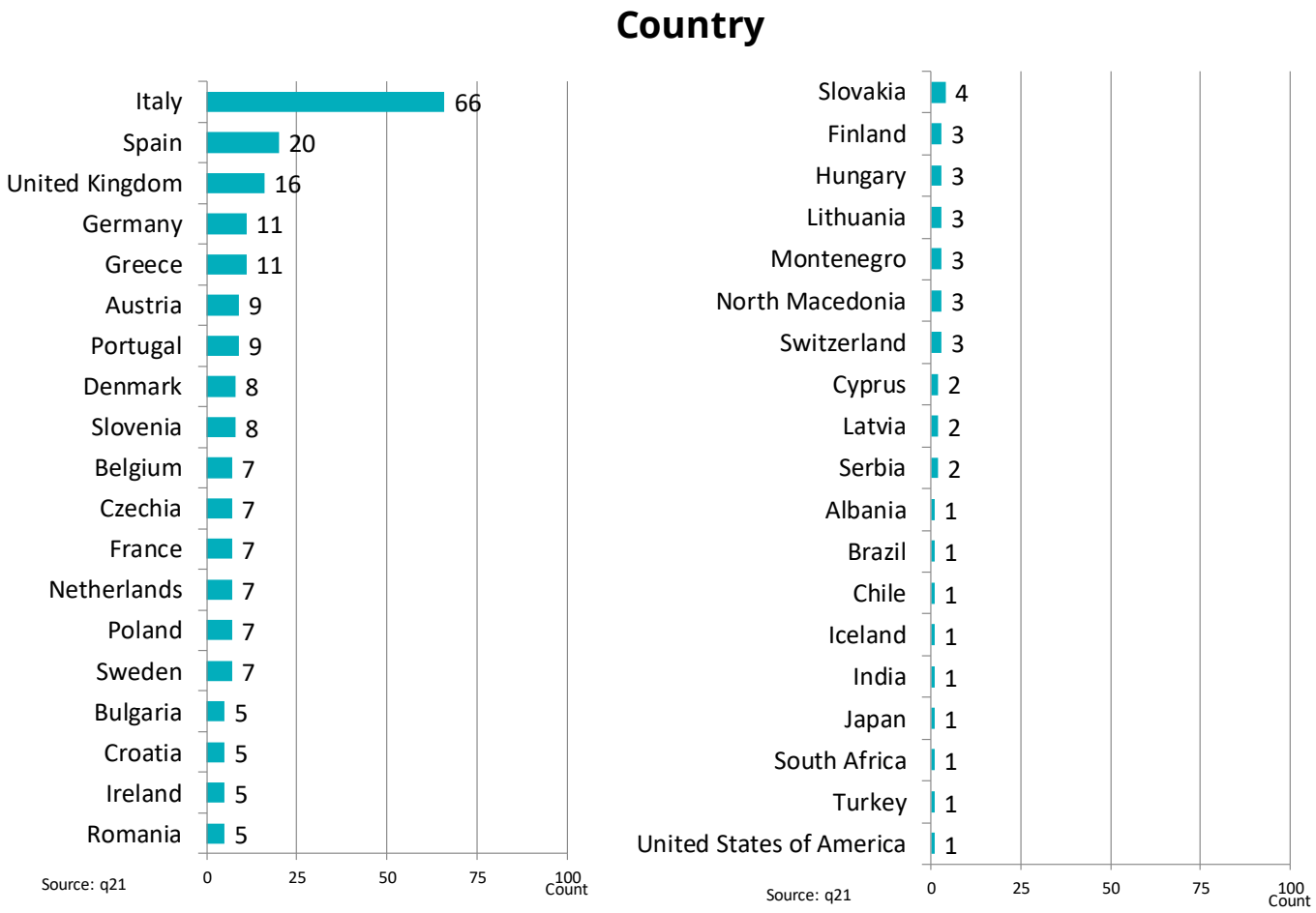
Fewer

- Business Representative (21%)
- Have Not Published or Researched (32%)
- <=10 Years (36%)
- Public Authority Representative (46%)

	Satisfaction	Future Intent	NPS
PhD (n=155)	2.92	2.88	45
Master's (n=101)	2.89	2.87	42
Bachelor's (n=38)	2.97	3.00	56

*Satisfaction is on a 1-4 scale
*Intent is on a 1-3 scale
*Red/Green shading means it is significantly lower/higher

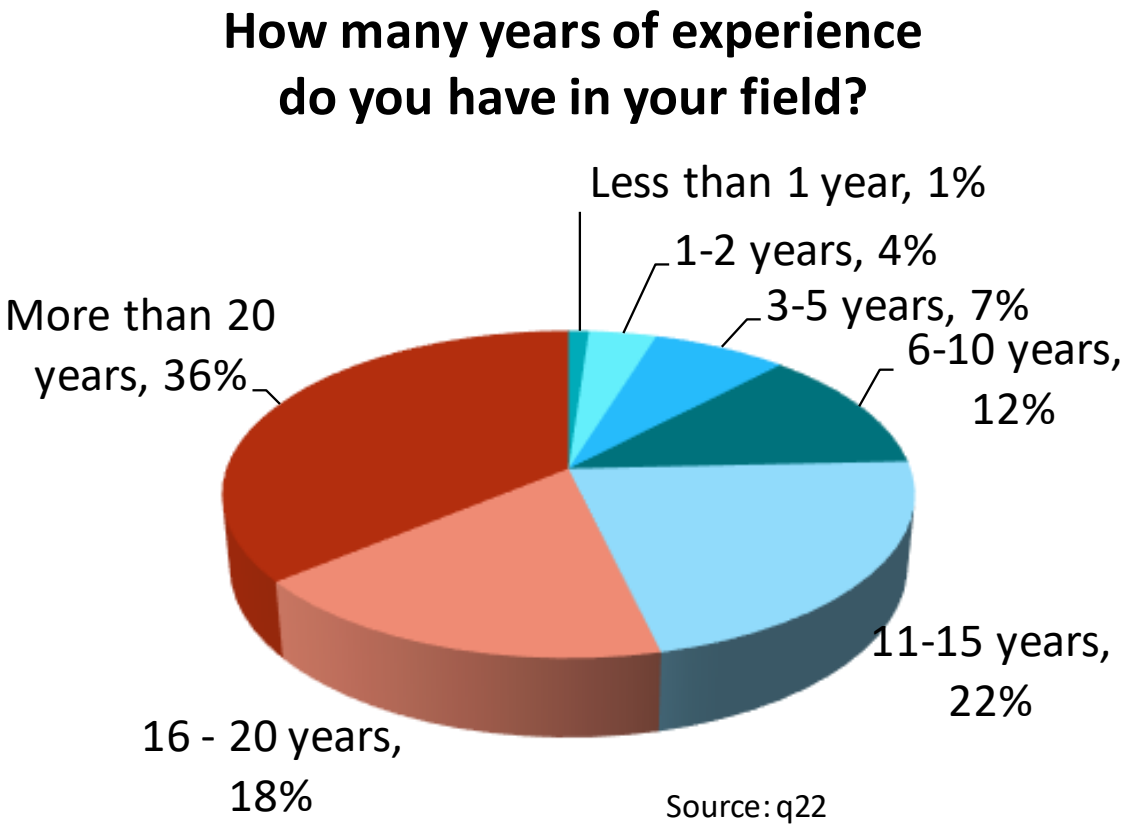
Those who are in Italy, especially EFSA staff, provide the lowest ratings; those who are outside the EU provide the most-positive ratings for the EFSA Journal



	Satisfaction	Future Intent	NPS
Italy (n=66)	2.70	2.84	27
Other EU (n=171)	3.00	2.89	43
Non EU (n=20)	3.35	2.90	90

*Satisfaction is on a 1-4 scale
*Intent is on a 1-3 scale
*Red/Green shading means it is significantly lower/higher

The typical EFSA visitor has 15.3 years of experience, with more experience among, experts, authors and PhD holders; mid-career professionals are less positive



Source: q22

Experience (Years)

More

- EFSA Expert (19.4)
- Published Recently (17.6)
- PhD (16.8)
- Scientist/Academic (16.7)
- Promoter (16.2)

Less

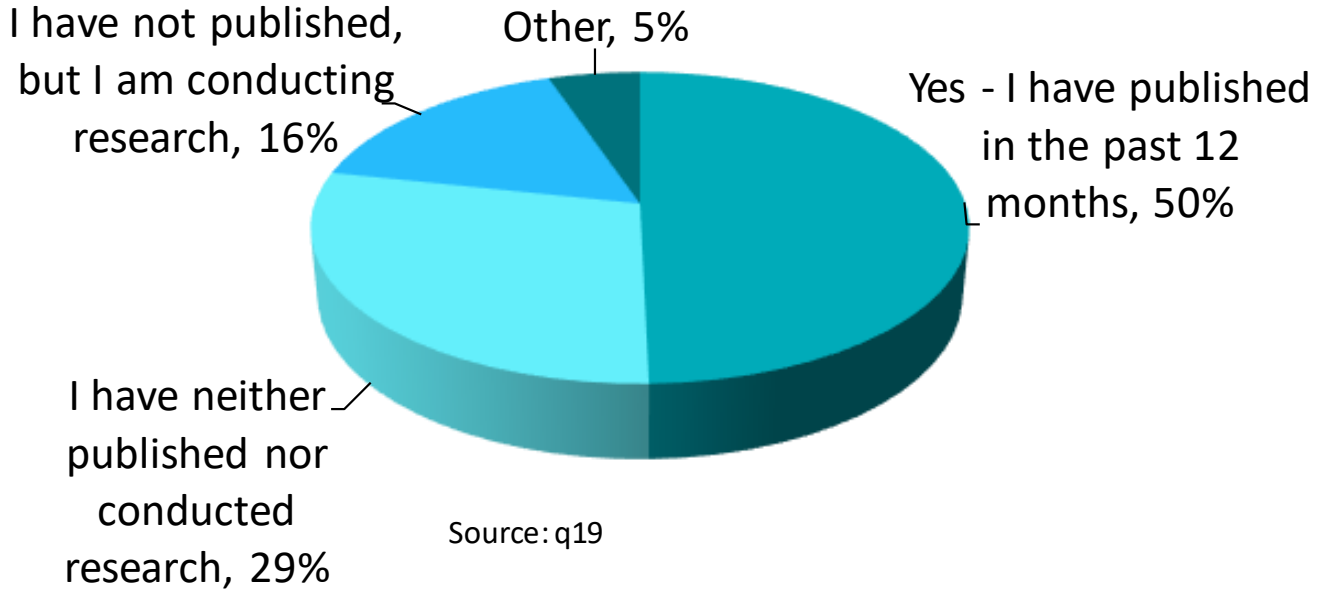
- Business Representative (11.8)
- Have Not Published (13.1)
- Less than PhD (13.3)
- Public Authority Representative (13.8)

	Satisfaction	Future Intent	NPS
<=10 Years (n=66)	2.98	2.92	42
11-20 Years (n=108)	2.85	2.80	26
21+ Years (n=98)	3.00	2.92	58

*Satisfaction is on a 1-4 scale
*Intent is on a 1-3 scale
*Red/Green shading means it is significantly lower/higher

Half of the Journal users have published within the past year, but it varies greatly by role; those who have published are more likely to recommend the EFSA Journal

Have you published a scientific/academic article in a peer-reviewed journal in the past 12 months?



Source: q19

Yes, I Have Published

More

- EFSA Expert (73%)
- Scientist/Academic (72%)
- 21+ Years (69%)
- PhD (67%)
- Visits Less than Weekly (55%)

Fewer

- Business Representative (14%)
- Less than PhD (26%)
- Public Authority Representative (28%)
- <=10 Years (28%)
- Visits Weekly (40%)

	Satisfaction	Future Intent	NPS
Published (n=133)	2.89	2.88	50
Researched (n=44)	2.91	2.81	36
Neither (n=77)	3.04	2.91	42

*Satisfaction is on a 1-4 scale
*Intent is on a 1-3 scale
*Red/Green shading means it is significantly lower/higher