Building Journalistic Capacity in the Age of Information Disorder

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Abstract: This paper presents an evidence-informed case study of professional learning and digital-skills capacity-building for journalists, responding to the demands that artificial intelligence (AI), disinformation and rapid technological change place on the profession. The rise of digital platforms, algorithm-driven content distribution and the development of AI technologies has intensified the circulation of misleading content while placing new demands on journalists in information verification, digital investigation, data analysis and the use of advanced technological tools. The paper offers an applied model for strengthening journalistic capacity through competency-based professional training delivered in cooperation with civil society organisations, adaptable to other information environments facing similar challenges. Israel serves as the case: a demanding information environment combining structural, social, political and demographic vulnerabilities, including high levels of social media use, linguistic and cultural diversity, unequal access to reliable and verified information across communities, limited fact-checking capacity, and disinformation pressures that intensify during periods of crisis and conflict. The Digital Desk programme, developed by the Israel Internet Association with the Union of Journalists in Israel between December 2024 and November 2025, ran in two stages: half-day introductory workshops held on site inside newsrooms during working hours, reaching 88 journalists across seven workshops including a dedicated Arabic-language session; and an advanced course of nine hybrid sessions for a cohort of 17 journalists. An empirical evaluation is based on pre- and post-training surveys. Participants in the introductory workshops reported mean self-assessed skill rising from 2.16 to 3.91 across nine skill areas, with the largest gains in verification, geolocation and advanced search; the advanced cohort reported a rise from 2.50 to 3.84 across ten areas. Both cohorts rated the expected future relevance of what they had learned above 4.2 out of 5, indicating gains in confidence as well as in reported skill. The paper states the limits of this evidence plainly: self-assessment rather than demonstrated competence, a small advanced cohort, no control group, and pre- and post-training instruments whose wording differs. It argues that capacity-building of this kind cannot rest on ad hoc training but requires sustained investment, cross-sector collaboration and shared knowledge resources, particularly in rapidly evolving areas such as AI tools and work with databases, and that civil society organisations are well placed to bridge structural gaps in the media ecosystem by combining professional expertise, local knowledge, access to international networks and support for developing journalistic skills.

Keywords: Journalism, Capacity-Building, Disinformation, AI, Digital Skills, Workplace Learning

1. Introduction

Contemporary journalism faces a profound capacity crisis shaped by the convergence of technological disruption, economic pressures, political polarisation, and eroding public trust. The rise of digital platforms and algorithm-driven content distribution has intensified the circulation of misleading content, while undermining traditional business models, reducing newsroom resources, and increasing dependence on powerful digital intermediaries that effectively act as gatekeepers of information flows. At the same time, low public trust in news and rising news avoidance are weakening journalism's ability to serve as a shared factual authority (Newman et al 2025). In this fragmented and rapidly evolving ecosystem, increasingly shaped by AI, journalists confront new challenges that demand advanced digital, data, and digital investigation skills, underscoring the need for sustained investment in journalistic capacity and tools for information verification.

Civil society organisations (CSOs) can play a critical role in addressing these challenges by helping to strengthen journalistic capacity in the digital age. CSOs are well positioned to support journalist training and capacity-building in contexts where newsrooms lack sufficient resources and knowledge, thereby strengthening societal resilience against information disorder (Wardle and Derakhshan 2017), while growing collaboration between CSOs and news organisations facilitates resource sharing and skill development while maintaining editorial independence (Stonbely 2022). The role of CSOs is increasingly recognised in recent policy frameworks such as the European Democracy Shield, which positions CSOs and fact-checking organisations as essential actors in safeguarding the information environment through a multi-stakeholder approach (European Commission 2025).

Israel's information ecosystem presents a combination of structural, social, political, and demographic vulnerabilities that make it particularly susceptible to disinformation and foreign interference. High levels of social media use, linguistic and cultural segmentation, uneven access to reliable and verified information, and limited fact-checking capacity all heighten these risks. These challenges are compounded by structural weaknesses in the media ecosystem, where news organisations operate under resource constraints, fragmented

audiences, and limited technological capacity, and sectoral media serving minority groups face even greater limitations (Ram, Wiener and Ring 2025). The pressures intensify further during periods of crisis and conflict, when demand for verified reporting rises at the same moment as the volume of material that cannot readily be verified.

This paper explores how CSOs can strengthen journalists' capacity to counter disinformation through targeted training programmes. Focusing on Israel as a case study, the Digital Desk training programme, developed and conducted by the Israel Internet Association (ISOC-IL) in partnership with the Union of Journalists in Israel, serves as a key model of local civil society action. The programme combines introductory newsroom workshops with an in-depth flagship training course and an online toolbox, equipping journalists with practical skills in digital investigation, verification, open-source intelligence (OSINT), and data analysis. It was implemented within the EU-funded Disinformation Resilience Israel project between 2024 and 2026.

Read as a case in adult professional learning, the programme is competency-based, organised around specific capabilities rather than a fixed syllabus, and delivered for the most part as workplace learning rather than in a classroom.

2. Skills and Competencies Needed for Journalists in the Digital Age

At the core of journalism lies a democratic mission: to inform the public, hold power to account, and sustain public discourse.

Over the past two decades, news organisations have faced declining revenues, shrinking newsroom resources, and the erosion of advertising-based business models, as digital platforms have captured much of the advertising market (Bateman and Jackson 2024) and become central intermediaries in the distribution of news (Brown and Jaźwińska 2025). At the same time, the digital transformation of journalism has expanded the skills journalists need in order to fulfil their democratic functions and operate effectively in contemporary information environments. Journalists today are expected not only to report and write, but also to verify digital content, assess online sources, and navigate increasingly complex forms of misleading and manipulated information (Estella 2021). Newsrooms therefore face growing demands for verification and investigation precisely as their resources become more limited.

Journalism today also operates within a broader crisis of institutional trust and an intense atmosphere of disinformation, both of which weaken its authority and limit its ability to function as a shared source of reliable information (Christofoletti 2024). Moreover, the weakening of local journalism can further undermine public trust and democratic resilience, while also creating conditions that increase vulnerability to disinformation (Bateman and Jackson 2024).

The journalist's "toolbox" is no longer seen as a fixed set of reporting abilities, but as a dynamic set of competencies encompassing technical skills, professional knowledge, and normative commitments. Journalistic competencies today are therefore best understood as evolving and context-dependent, shaped by broader transformations in the media ecosystem (Estella 2021). This is what recommends a competency-based approach to provision: training has to be organised around specific, assessable capabilities rather than a stable syllabus, because the capabilities themselves shift as the tools do.

Studies highlight how digital convergence has elevated the importance of capabilities such as data literacy and online verification, social media engagement, and content curation. At the same time, core "evergreen" traditional journalistic competencies remain crucial and highly valued among journalism stakeholders such as reporters, editors, and academic experts (Jackman and Reich 2025). Journalists now routinely use digital forensic tools, for example to verify images or videos, reverse image search, and other digital research techniques to debunk false information, with some news organisations adopting fact-checking initiatives and stricter corrections policies in response to online dis- and misinformation (Mayerhöffer et al 2022). The proliferation of AI and automation in content creation also creates new pressures on journalists, who must understand algorithmic tools and navigate increasingly complex verification demands. However, a survey among journalism educators shows that although there is growing awareness that traditional curricula must evolve, the integration of automation-related skills remains limited (Kothari and Hickerson 2020).

A survey found that journalists report significant gaps in digital, data, and technological skills, noting that professional development is often informal, ad hoc, and insufficiently supported by their organisations (Porcu, Hermans and Broersma 2020). Another global survey of journalists found strong demand for training in data and privacy-preserving skills, highlighting that many feel underprepared in these areas despite recognising their

importance, with journalists most interested in acquiring data analysis skills, followed closely by programming and data visualisation skills (Heravi and Lorenz 2020). Although educators recognise the importance of digital and data-related competencies, and digital transformation has begun to influence some course offerings, integration remains partial. Structural barriers, such as limited resources, insufficient expertise, and rigid curricular frameworks, make it difficult for programmes to systematically incorporate new competencies. As a result, key topics such as data journalism and mobile reporting remain limited in journalism education (Kirchhoff 2022).

Together, these developments point to a widening gap between the skills journalists need to navigate today's complex information environment and rapid advances in AI, and the training, resources, and institutional support currently available to them.

3. Methodology

The study is a single-case evaluation of a professional training programme, combining programme documentation with participant self-assessment data collected before and after training. Because the intervention sits outside formal education, evaluation depended on instruments that could be administered in a working newsroom in a few minutes, a general feature of evaluating digital-skills provision beyond the classroom.

To evaluate effectiveness, we relied on pre- and post-training surveys to capture participants' reflections, self-assessed skills, expectations, and patterns of digital and social media use. These surveys allowed us to measure changes in confidence and capability across the key digital investigation skills taught in the programme. All skill items used five-point scales. For the introductory newsroom workshops, comparison covers the nine skill questions common to both surveys: the before-survey is based on 53 respondents for every question, and after-survey sample sizes range between 41 and 50. For the advanced course, comparison covers the ten skill questions common to both surveys, with 14 respondents before the training and 12 after.

One feature of the instruments requires statement, because it bounds what the comparison can show. The pre-training question was: "At what level do you estimate your capability to use the following tools and methods?" (1 – no experience, 5 – expert). The post-training question was: "To what extent did the training improve your ability and knowledge in the following areas?" (1 – did not improve at all, 5 – improved significantly). Although the two questions are phrased differently, we treat them as comparable here since a high post-training improvement score reflects a substantial self-reported gain in ability relative to the respondent's own pre-training baseline. The resulting figures should therefore be read as self-reported movement rather than as a repeated measurement of the same quantity.

Two further constraints follow from the design. All skill data are self-assessed; no test of demonstrated competence was administered. And there was no control group and no delayed follow-up, so the data speak to immediate self-reported change rather than to retention or to transfer into published work.

4. The Digital Desk Training Programme

Recognising the need to address the existing capacity gaps in Israel's media ecosystem in order to strengthen resilience to disinformation, ISOC-IL launched the Digital Desk programme in December 2024 as a cornerstone of the Disinformation Resilience Israel project (Israel Internet Association and Union of Journalists in Israel undated a). The programme was developed and led by ISOC-IL's disinformation and digital investigations lead, a specialist in OSINT and digital verification, and delivered in collaboration with the Union of Journalists in Israel, the national labour organisation representing journalists across Israel's media sectors. As an important partner for ISOC-IL, the Union coordinated with editorial teams and assisted with outreach to journalists to encourage participation.

In its outreach, the programme made a deliberate effort to interest a broad range of media organisations, including mainstream outlets such as Kan 11, N12 and Haaretz, as well as independent and alternative news outlets such as Local Call, The Seventh Eye, Shakuf, and +972 Magazine.

Central to the programme was the study and application of key verification methodologies, including provenance checks, source identification, location verification, and principles of privacy and source protection. In addition to empowering participants to use various tools, the programme emphasised methodological

thinking to build durable analytical skills that will remain relevant throughout rapid technological and platform-level changes.

The curriculum architecture was based on two pillars. The first was recognised training resources and best practices: the format and curriculum drew on leading international training frameworks, including elements from AFP digital investigation courses for journalists and journalism students (Agence France-Presse undated), Global Investigative Journalism Network training materials (Global Investigative Journalism Network undated), and UNESCO's journalism education and media literacy standards (Ireton and Posetti 2018). The overall structure, particularly the division into an introductory workshop and a series of more advanced sessions, was inspired by the International Center for Journalists' Disarming Disinformation investigation model (International Center for Journalists undated). The second pillar was field engagement and experiential learning: the programme was designed and implemented by professionals deeply familiar with the journalistic field and its daily challenges, which ensured that the curriculum was grounded in real newsroom conditions.

As part of the programme, an online toolbox for journalists was launched in Hebrew and Arabic, offering a curated collection of digital tools and resources for investigation, verification, social media monitoring, geolocation, data analysis, and information preservation (Israel Internet Association and Union of Journalists in Israel undated b).

4.1 Introductory Newsroom Workshops

The introductory workshops were workplace learning in the strict sense: they brought training directly into the newsrooms and were held on site during regular working hours. Each workshop included participants from the same media outlet, creating a familiar and safe environment that encouraged open discussion and practical engagement. These half-day workshops introduced participants to the benefits of incorporating digital verification tools in their everyday reporting practices. A total of 88 journalists, 48 men and 40 women, participated in seven workshops between December 2024 and November 2025. The curriculum covered conceptual frameworks for understanding mis- and disinformation, verification, online investigations and ethical considerations, alongside keyword strategies, Boolean and advanced search methods, visual search and verification, geolocation search and verification, advanced search practices across social media platforms, digital footprint and identity exploration, and website investigation and domain analysis. Due to time and scope limitations, the workshops focused on introductory-level content; topics such as data analysis, ethics, and privacy were not covered in depth, as these require more time, practice, and contextual discussion, and were therefore addressed more extensively in the advanced course.

The introductory workshops also included a dedicated workshop for Arabic-speaking journalists, conducted in partnership with I'lam, the Arab Center for Media Freedom, Development and Research, which promotes democracy, human rights, and freedom of expression and information for Arab Palestinians in Israel. Nine journalists participated in that session, five women and four men. Such collaboration with local civil society partners was essential for reaching cultural and linguistic minority journalists. News outlets serving these communities often operate with small staff and limited resources, which can make sustained participation in training programmes difficult. Similar outreach efforts, however, were less successful with ultra-Orthodox journalists, many of whom are not members of the Union of Journalists, work in loosely defined media roles, or have limited online engagement, making outreach and recruitment for digital media training more challenging.

4.2 The Advanced Flagship Course

The flagship course was built on the foundations of the introductory workshop, offering deeper, more sustained learning goals and experiences. It comprised a series of nine hybrid sessions held between May and October 2025, delivered in a combination of in-person and online learning. The flagship course focused on advanced investigative journalism tools.

Journalists who participated in the newsroom sessions were invited to apply, alongside other professionals from across Israel's media landscape, through an open call. The selection process prioritised journalists with strong investigative records or who demonstrated potential to apply verification techniques in their reporting, and ensured representation across newsrooms and genders. A total of 17 candidates were selected, six men and eleven women: mid-career and senior journalists from diverse backgrounds, contributing to Hebrew- and Arabic-language media outlets, independent media, and major national news organisations. The curriculum covered nine core topics in investigative journalism: data analysis, OSINT and advanced research, fact-checking, digital investigation techniques, digital safety and privacy, ethics, archiving, monitoring, and artificial intelligence.

The programme brought together a carefully selected group of instructors, comprising local Israeli practitioners and internationally recognised experts in digital journalism and information verification. Key instructors included Craig Silverman, co-founder of Indicator and a leading expert on online disinformation, digital investigations and media manipulation; Jane Lytvynenko of NBC News and a former journalist at The Wall Street Journal and BuzzFeed; and Ela Stapley and Colin Pereira, digital security experts and members of the Committee to Protect Journalists.

The programme also sought to cultivate a local community of professional experts in digital investigations: a dedicated group was created for knowledge-sharing, and participants have initiated joint investigations and collaborations. Participants who completed all sessions received a scholarship towards digital tools relevant to their professional work, and the programme offered five post-training grants for digital investigations and journalism projects, with no involvement by ISOC-IL in the funded investigative work.

Although the longer course offered participants multiple opportunities to hone core competencies and extend their skills in areas such as data analysis and digital safety, it had several limitations. Because participants came from diverse journalistic fields, the training course was not designed to specialise in particular coverage areas or include domain-specific modules such as finance or climate change. Furthermore, it offered basic awareness of digital threats to journalists, rather than full coverage of malware, spyware, or infrastructure analysis, as offered in more specialised programmes such as the Global Investigative Journalism Network's cyber-investigations track (Global Investigative Journalism Network undated).

5. Findings

Participants in the introductory newsroom workshops reported both high reliance on digital platforms and clear skill gaps prior to the workshop (see Figure 1). Before participating, the average self-assessment score across all digital journalism skills was only 2.16 out of 5, yet 94.3% reported using social media for work several times a week or more, including 79% who use it daily. Moreover, only 9.4% had ever participated in any relevant formal training in Israel or abroad.

After completing the workshop, respondents' overall self-rated skill average rose from 2.16 to 3.91 out of 5. The most significant increases were seen in verification and authenticity checking, which rose from 2.02 to 4.26; geolocation, from 1.74 to 3.98; investigating sponsored ads and promoted content, from 2.02 to 4.23; website and domain investigation, from 1.81 to 4.02; and advanced search techniques, from 2.09 to 4.08. A moderate improvement was recorded in organising, archiving, and documenting digital findings, which increased from 1.98 to 3.57. Smaller yet still noticeable gains were found in social media investigations, from 2.96 to 4.24; AI tools for journalism, from 1.75 to 2.81; and people-search skills, from 3.02 to 3.90. Importantly, participants also expressed strong confidence in the future relevance of the skills they acquired, with an average rating of 4.26 for the question "To what extent do you believe that the tools, skills, and content provided in the workshop will improve your journalistic work in the future?" Additionally, 60% of respondents, 30 of 50, named at least one specific tool or skill from the workshop that they intended to apply immediately in upcoming investigations or in their routine journalistic work.

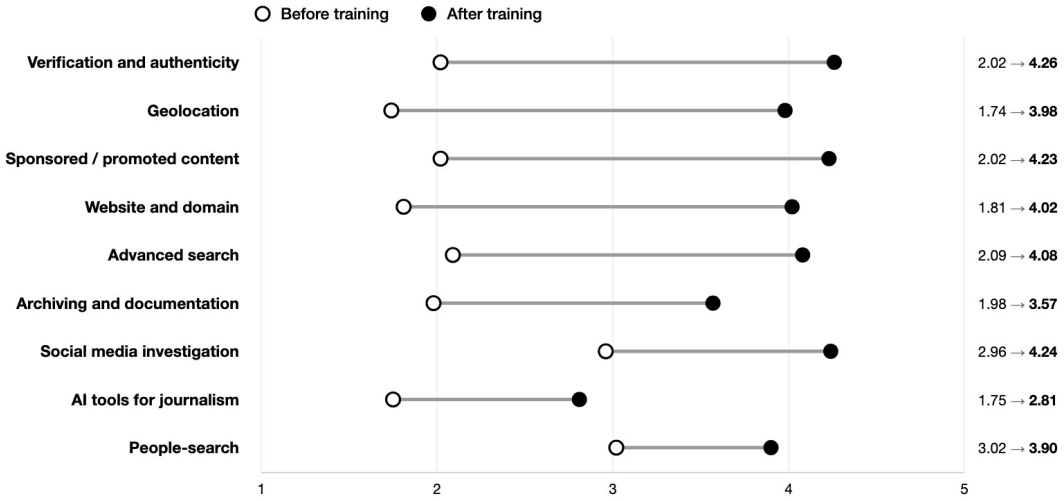

Figure 1: Digital journalism skills before and after the introductory newsroom workshop (score range 1–5)

In the flagship course, participants also reported clear skill gaps prior to participation (see Figure 2). Only 14%, two of 14 respondents, had ever participated in any relevant formal training in Israel or abroad, excluding the newsroom workshop conducted as part of this programme. Across the ten specific skill areas measured both before and after the training, the average self-assessment score increased from 2.50 before the training to 3.84 after the training. The most substantial improvement was observed in geolocation skills, which increased from 2.21 to 4.42. Significant gains were also evident in organisation, archiving, and documentation, from 2.29 to 4.00; use of AI tools for journalism, from 2.29 to 3.92; website and domain investigations, from 2.36 to 3.83; verification and authenticity checking, from 2.43 to 3.83; and investigation of ads and promoted content, from 2.14 to 3.50. Smaller yet meaningful gains were noted in social media investigation, from 2.93 to 4.17, and online safety and source protection, from 2.79 to 3.58. The most modest changes were in advanced searches, from 2.71 to 3.33, and people-search skills, from 3.14 to 3.58. Participants again expressed strong confidence in the future relevance of the skills they acquired, with an average rating of 4.33.

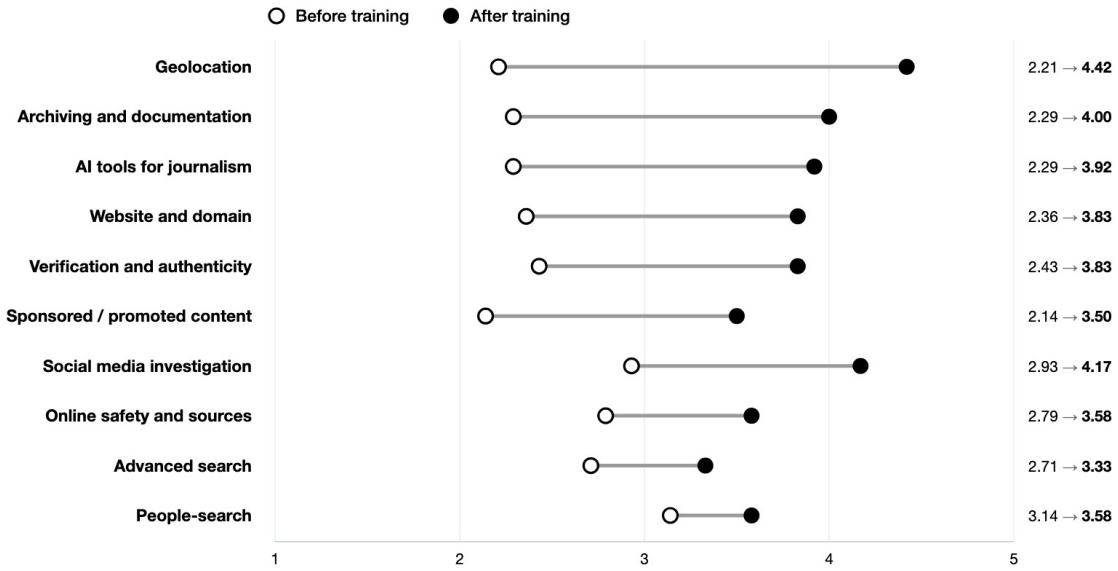

Figure 2: Digital journalism skills before and after the advanced flagship course (score range 1–5)

Overall, across the newsroom workshops and flagship course, participants reported clear improvements in digital investigation and verification skills, with significant gains in both confidence and technical ability. Two patterns hold across both cohorts. Gains were largest in concrete, procedural competencies with immediate application (geolocation, provenance and authenticity checking, domain investigation) and smallest in areas that are either already familiar, such as people-search, or that demand conceptual as well as procedural learning, such as AI tools. AI showed the weakest improvement in the introductory format, where a half-day allowed only brief exposure, but a considerably larger gain in the advanced course, where a dedicated session was available. Participants themselves identified the areas requiring deeper coverage, particularly the use of AI in investigations and working with databases.

6. Discussion and Limitations

The results are consistent with a straightforward proposition: the deficits journalists report are amenable to short, targeted, practically oriented instruction, and a civil society organisation can deliver it. The two-stage structure appears to matter. Bringing an accessible introductory session into the newsroom during working hours addressed the barrier the literature identifies as decisive, that professional development is informal and weakly supported by employers, while the advanced course provided the sustained engagement that procedural skill requires. That only 9.4% of workshop participants and 14% of the advanced cohort had any prior relevant formal training indicates how little provision existed for this population, and locates the intervention in a genuine gap rather than a crowded field.

The claim the evidence supports is nonetheless narrow, and four limitations bound it. First, all skill measures are self-assessed. Increases may reflect gains in confidence, or a clearer understanding of what competence in an area involves, rather than demonstrated capability. Second, as set out in Section 3, the pre- and post-training instruments are worded differently, asking about estimated capability and about perceived improvement

respectively, so the reported movement is not a repeated measurement of one quantity. Third, the advanced cohort is small, 14 respondents before and 12 after, which makes its per-item figures indicative rather than robust, and post-training attrition in the introductory cohort, from 53 respondents to between 41 and 50, may bias results towards more engaged participants. Fourth, there was no control group and no follow-up beyond the immediate post-training survey, so nothing here speaks to retention or to whether the methods entered published journalism.

These limits indicate what a stronger evaluation would require: demonstrated-competence tasks rather than self-rating, identical instruments at both points, and a follow-up at six or twelve months examining published output. They do not undermine the more modest finding, which is that the intervention was feasible, reached a population with almost no prior access to such training, and produced consistent self-reported gains concentrated in the procedural competencies it targeted.

Two features appear transferable. The first is the delivery model: on-site training inside newsrooms during working hours. The second is the partnership structure. Reaching Arabic-speaking journalists required a community-embedded partner organisation, and the contrasting difficulty with ultra-Orthodox journalists suggests that where no such partner exists, or where prospective participants sit outside professional structures such as unions, recruitment remains unresolved.

7. Conclusion

Disinformation poses a significant and persistent challenge to contemporary information ecosystems, undermining the reliability of public discourse and the ability to establish shared factual foundations. In such environments, strengthening journalistic capacity is essential not only to improve reporting and investigative practices but also to maintain public trust in credible information.

The findings from the Digital Desk programme demonstrate a practical capacity-building model that can be adapted to other media ecosystems facing similar challenges. More broadly, the study highlights the critical role of civil society in addressing information disorder: CSOs can bridge structural gaps and constraints by providing specialised expertise, fostering cross-sector collaboration, and supporting professional skill development. This approach is especially important in small media markets, less-resourced information environments, and conflict-affected societies, where news organisations must operate under significant resource and capacity constraints while also responding to disinformation challenges, efforts to cast doubt on verified reporting, and an overall fragmented information environment.

Still, persistent skill gaps among Israeli journalists underscore that meaningful capacity-building requires sustained, long-term investment rather than occasional training sessions. What the evidence here establishes is feasibility and immediate self-reported gain; establishing durable capacity would require sustained provision and better measurement than a single pre- and post-training survey can supply. Capacity-building of this kind cannot rest on ad hoc training. It requires sustained investment, cross-sector collaboration, and shared knowledge resources and professional tools that outlast any individual course (the multilingual online toolbox published alongside this programme is one modest instance), especially in rapidly evolving areas such as the use of AI tools and work with databases. Strengthening journalistic capacity must therefore be understood as an ongoing, systemic effort that requires continuous collaboration, investment, and adaptation to an evolving information environment.

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Ethics Declaration

Ethical clearance was not required for the research reported in this paper. The evaluation data consist of voluntary, anonymous self-assessment surveys administered to adult media professionals as routine feedback on professional training. No special-category personal data were collected and no participant is identifiable in the reported results.

AI Declaration

AI tools were used in preparing this paper, for language and formatting only: converting the authors' source report to editable text, abridging it to the required length, converting footnotes to Harvard citations, and generating the figures. The wording is the authors' own, and the authors verified every statistic and citation.

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