



INTERPOL'S EVOLVING APPROACH TO INNOVATION AND RESEARCH-BASED POLICING ⁽¹⁾



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Abstract: This paper aims to provide a broad overview of INTERPOL's activities in the realms of innovation and research, and provides detailed descriptions of the Organisation's efforts to adapt its activities and strategic priorities to a constantly changing global environment. After a brief discussion introducing INTERPOL and its activities, the article is broken down into four main themes: INTERPOL's new emphasis on 'future-oriented' thinking, its promotion of innovation in police training, research initiatives in which INTERPOL is engaged and innovative tools and technical solutions under development by INTERPOL to support its member countries. The activities undertaken by INTERPOL in these areas aim to guide the Organisation and reinforce its role in enhancing global security against crime threats of the 21st century.

Keywords: INTERPOL; police innovation; international police cooperation; INTERPOL research; police training research.

BACKGROUND ON INTERPOL

INTERPOL is the world's largest international police organisation, with 190 member countries around the globe. Its role is to enable police around the world to work together to enhance global security. INTERPOL's daily work is carried out by staff at the General Secretariat headquarters in Lyon, France, the INTERPOL Global Complex for Innovation (IGCI) in Singapore, seven Regional Bureaus in the Americas, Africa and Asia, and Special Representatives Offices at the United Nations in New York, European Union in Brussels and soon at the African Union in Addis Ababa. INTERPOL's diverse personnel represent more than 100 nationalities.

The Organisation strives to help police across the world to meet the growing challenges of transnational crime in the 21st century by

providing its member countries a high-tech infrastructure of technical and operational support and an international platform for the exchange of knowledge in law enforcement good practices. Because of its global position, INTERPOL's contribution to international security concentrates on the facilitation of international police cooperation. This work can take a myriad of forms, as members countries' needs are naturally quite diverse and gradually becoming more complex due to the increasingly transnational nature of crime. The main services that INTERPOL offers its member countries include its international criminal databases, a secure police communication system, capacity building and training programs for a variety of types of crime, and operational support for international criminal investigations.

⁽¹⁾ This article uses a broad definition of innovation as described by O'Sullivan and Dooley: 'Innovation is the process of making changes, large and small, radical and incremental, to products, processes, and services that results in the introduction of something new for the organisation that adds value to customers and contributes to the knowledge store of the organisation' (Dooley and O'Sullivan, 2009, p. 5). Our understanding of research is more aligned to applied research as described by the OECD: 'Applied research is also original investigation undertaken in order to acquire new knowledge. It is, however, directed primarily toward a specific practical aim or objective' (OECD, 2002, p. 30).



NEW FOCUS: THE FUTURE OF POLICING

When he began his mandate as the Head of INTERPOL in November 2015, Secretary General Jürgen Stock's vision statement cited research and innovation as critical future endeavours for the Organisation. INTERPOL has since introduced several forward-looking initiatives which aim to ensure the Organisation's long-term relevance and utility for the global law enforcement community. The official opening of the IGCI in April 2015 was a key indicator of this organisational shift. Activities at the IGCI focus on the development of innovative and practical tools and training methodologies to help law enforcement agencies in INTERPOL's member countries deal with emerging criminal threats, such as technology-enabled crime and cybercrime. Its location in Singapore will also help the IGCI to form new partnerships with law enforcement agencies, private sector companies and research institutions present in Southeast Asia, and to serve as a hub for the coordination of INTERPOL operations against transnational criminal networks active within in the region.

cooperation, through the working group focused on technology and innovation matters.

INTERPOL member countries also endorsed a General Assembly resolution in Kigali that expressed support for future resource investments by INTERPOL into law enforcement research projects on topics such as the identification of future security threats, cybersecurity and the adaptation of law enforcement to emerging technologies (INTERPOL, 2015h). In addition, the 2015 General Assembly agenda included a panel dedicated explicitly to innovation and the future of policing. Taking into account the fact that the INTERPOL General Assembly is the Organisation's supreme governing body, the passage of these resolutions, inclusion of an future-oriented panel on the agenda and the subsequent creation of an international law enforcement working group on technology and innovation exemplify the degree to which INTERPOL and its member countries will prioritise research and innovation in the coming years.

STRATEGIC ANALYSIS OF EMERGING THREATS AND ENVIRONMENTAL SCANNING

THE INTERPOL 2020 INITIATIVE

INTERPOL's shift to future-oriented thinking is taking place within the framework of an organisation-wide transitional and strategic realignment process called INTERPOL 2020, which was officially endorsed by member countries in November 2015 through a resolution adopted at the 84th INTERPOL General Assembly in Kigali, Rwanda (INTERPOL, 2015f).

The INTERPOL 2020 strategy provides a roadmap for the Organisation to realign its activities and objectives with the emerging needs identified by its member countries. One component of this roadmap is the creation of consultative working groups in partnership with representatives from member countries. Among several strategic topics these working groups will consider is how INTERPOL can develop cutting-edge tools and services to reinforce international police

The assessment of emerging criminal threats is a critical task for INTERPOL, and the Organisation has taken steps to leverage its international law enforcement network to gain insights into emerging trends from experts in member countries who specialise in strategic foresight, threat assessments and policy implementation. For example, in December 2015 INTERPOL began organizing high-level environmental scanning (Lapin, 2004) ⁽²⁾ workshops to discuss emerging threats on a global scale. In addition, the Organisation has also distributed threat surveys to law enforcement agencies worldwide, giving member countries the opportunity to provide insights on trends (not exclusively criminal, but also social and/or technological, for example) which they foresee will directly or indirectly impact law enforcement. The general aim of these environmental scanning exercises is to develop INTERPOL as an expert-level

⁽²⁾ Lapin defines environmental scanning as 'An exercise in analyzing and predicting future trends in the areas relevant to an organization which can, and does, reduce some uncertainty in organizational planning and allows an organization to reduce its vulnerability to undetected change' (Lapin, 2004, p. 105).



forum for the international exchange of ideas and projections related to the major drivers of change and emerging criminal threats which will likely impact law enforcement in the future.

Internally, the Organisation has begun several initiatives to foster future-oriented thinking amongst its personnel. As a first step, INTERPOL engaged one of its member countries to assist in the production of a news feed on emerging security, sociological and technological trends which is reviewed by IGCI staff and shared with the Organisation on a daily basis. INTERPOL also invites academics and senior officials working in technological research and development to present their views on the future implications of technological development on law enforcement and promote open discussions on how police might need to adapt to the rapid and increasingly widespread adoption of technology.

Further strengthening its activities related to future threat analysis, in 2015 INTERPOL established a new analytical unit dedicated to the development of strategic analysis products designed to provide internal decision-makers and external law enforcement stakeholders with detailed projections and analytical information on current and emerging crime threats and trends. Some of the foreseen initiatives for this new unit include producing emerging threat reports, forging partnerships amongst global stakeholders and developing new methodologies which facilitate the drafting of both ad hoc and regularly planned threat assessments and reports. These analytical products might focus, for example, on a specific criminal phenomenon, a trend in a particular geographic region or both. In this regard, INTERPOL has already commenced work on a joint strategic report with Europol to better understand the involvement of organised crime in migrant smuggling operations which facilitate irregular immigration into European Union Member States. INTERPOL is also laying the foundation for the production of regional criminal threat assessments which will incorporate insights provided by member countries during INTERPOL Regional Conferences to be held in 2016 in Asia, Africa and the Americas.

INNOVATION IN POLICE TRAINING

Since the first International Criminal Police Congress was held in Monaco in 1914, INTERPOL and its statutory events such as the General Assembly, Regional Conferences or the annual Heads of National Central Bureaus (NCBs) meeting ⁽³⁾ have served as platforms for law enforcement authorities worldwide to discuss relevant experiences, share good practices and develop common strategies to meet the future challenges of policing. As part of its wider mandate to support law enforcement agencies and cross-border police cooperation on a global level, INTERPOL regularly organises training events and conferences designed to promote information sharing on the latest developments and research in police training.

INTERPOL POLICE TRAINING SYMPOSIUM

The leading INTERPOL conference on law enforcement training is the INTERPOL Police Training Symposium, which most recently occurred in December 2014 in Addis Ababa, Ethiopia (INTERPOL, 2014). The training symposium is a biennial event that brings together executive-level officials from national police training academies and colleges, representatives from other law enforcement agencies — such as customs or immigrations authorities — and international organisations, and academic institutions. INTERPOL aims to give member countries and academic organisations the opportunity to showcase their latest developments in training methodology and the findings of their training research projects to an international audience of senior law enforcement training officials. This event provides a common forum for open, active discussions and information sharing. This year, the 20th INTERPOL Training Symposium will take place in Singapore in June.

⁽³⁾ An INTERPOL National Central Bureau (NCB) refers to a division in a member country's national policing agency that serves as the contact point for all INTERPOL activities taking place within that country. The annual Heads of NCB Conference is a forum which allows the chiefs of these NCBs to build working relationships with each other as well as with the INTERPOL General Secretariat.



DIGITAL CRIME TRAINING COURSES USING SIMULATED DARKNETS

INTERPOL has invested in the development of law enforcement training courses on emerging crime areas using novel methodologies. In 2015, cybercrime researchers at INTERPOL, in partnership with the Netherlands Organisation for Applied Scientific Research (TNO), developed a specialised training course on policing the Darknet, which was constructed as a simulation-based Darknet and virtual currencies training game (INTERPOL, 2015b). The 5-day course benefitted from a fully hands-on, tool-supported curriculum that gave participants practical experience in the basic functionality and structure of the Darknet and illicit virtual marketplaces. It aimed to familiarise participants with the procedures necessary to dismantle a Darknet market and perform the required forensic analyses. As part of this training course — the first of its kind — INTERPOL created its own private Darknet network, a private cryptocurrency and a simulated marketplace which mimicked the virtual ‘underground’ environments used by criminals to avoid detection on the Internet and sell their criminal services. Participants were given the opportunity to role play as vendors, buyers and administrators and take part in a simulated takedown of the entire virtual environment. The first Darknet training course took place at the IGCI in July 2015, and a second course was held in Brussels in November 2015. INTERPOL will continue developing and delivering this training course throughout 2016.

the Organisation has repeatedly sought such advice through the establishment of specialised working groups on law enforcement capacity building and training research. The INTERPOL Group of Experts on Police Training (IGEPT), created in 2009 (INTERPOL, 2009), served as the Organisation’s first dedicated working group for the exchange of best practices in the fields of police training and research. The IGEPT helped INTERPOL drive the successful completion of several initiatives, including the creation of a research publication portal within the online e-learning platform called the INTERPOL Global Learning Center (IGLC) ⁽⁴⁾, the publication of five issues of an international police training e-journal ⁽⁵⁾ and the successful organisation, in partnership with the US Federal Law Enforcement Training Center (FLETC), of a police training conference in December 2010. The INTERPOL/FLETC Technology and Research Exercise (INTERPOL, 2010) brought together more than 80 managers and experts in police training and highlighted the latest research findings on human performance in high-stress situations often faced by law enforcement officers; the use of simulations for law enforcement training; the efficacy of e-learning and multimedia in police training; and other training-related themes.

Although the activities of the IGEPT have been put on hold, INTERPOL intends to reformulate the group into a permanent advisory body on law enforcement capacity building and training research. This proposal will likely be further elaborated during the INTERPOL Police Training Symposium in June 2016.

WORKING GROUPS ON POLICE TRAINING AND RESEARCH — PAST AND PRESENT

INTERPOL’s objective to support the global law enforcement community with world-class, specialised training courses cannot be met without guidance from member countries’ training specialists. Consequently,

RESEARCH ACTIVITIES AT INTERPOL

A diverse range of specialized units and officers undertake research initiatives at INTERPOL. These initiatives address topics such as emerging threats in cyberspace, methodologies for the identification of fraudulent travel documents, supply chain security, the illicit trade in electronic waste and natural resources, and data protection

⁽⁴⁾ This page is visible to the public at <http://www.interpol.int/INTERPOL-expertise/Training-and-capacity-building/IGLC2/Welcome-to-the-INTERPOL-Global-Learning-Centre-IGLC/Research-publications/Reference,-Research-and-Publications/Research-papers>.

⁽⁵⁾ The e-journal issues are available in PDF format at <http://www.interpol.int/INTERPOL-expertise/Training-and-capacity-building>.



considerations. The findings of these initiatives are critical for the Organisation because INTERPOL training programs can be tailored to account for the new knowledge derived from the research. Research findings can also lead to the creation of new training courses and projects, and the production of new distance learning content for the global law enforcement community.

DIGITAL CRIME RESEARCH

Through the IGCI, INTERPOL is conducting several research initiatives related to cybercrime and technologically enabled crime. These activities aim to identify emerging threats that arise through the ubiquitous and accelerating adoption of technology by citizens worldwide. One such initiative is the regular publication of intelligence products called CyberFeeds. These are short research documents which review significant cybersecurity events or provide threat assessments addressing a specific phenomenon occurring within cyberspace. The CyberFeeds describe particular *modi operandi* or highlight emerging threats derived from the exploitation of currently existing technologies. These reports are disseminated both internally and throughout INTERPOL's law enforcement network.

In addition, in March 2015 INTERPOL cyberthreat researchers, in partnership with Kaspersky Labs, identified a malware threat to the blockchain ⁽⁶⁾ technology that underpins virtual currency transactions (INTERPOL, 2015a), which could result in the transactions themselves being embedded with malware or other illegal data. The research team discovered that — depending on the type of cryptocurrencies involved and their respective protocols — there is a fixed open space on the blockchain where data can be stored, referenced or hosted within encrypted transactions and their records. The design of the blockchain technology exposes it to the possibility of malware being injected and permanently hosted within the blockchain, with no methods currently available to remove this data. This has clear negative implications for the overall 'cyber hygiene' of certain virtual currency transactions as well as the sharing of illicit data, such as child sexual abuse images, where the blockchain could become a safe haven for the

hosting of such data. For INTERPOL, this is an excellent example of how an active partnership with a private sector partner led to the discovery of valuable new knowledge.

SUPPLY CHAIN SECURITY — THE CORE PROJECT

The security of the global supply chain is the focus of the CORE (Consistently Optimized Resilient Secure Global Supply Chains) Project. CORE is the world's largest supply chain security project and looks to determine how better to secure the flow of goods moving through the global supply chain. A consortium of 70 partners from 17 countries carries out this project's activities, with INTERPOL representing one of the two international organisations (along with the World Customs Organisation) which are contributing members.

INTERPOL's aim within the project is to contribute to the identification of feasible ways to deter criminal networks from gaining illicit profits through their intrusion into existing supply chains, without disrupting legitimate commercial activities. During the course of the project, key INTERPOL activities have thus far included the launch of supply chain security stakeholder surveys, reviews of standards and policies, and the publication of a conference paper concerning the identification and evaluation of training needs for law enforcement within the scope of supply chain security (Ahokas, Hintsa, Gallagher and Männistö, 2015).

COUNTERING ILLICIT TRADE IN ELECTRONIC WASTE

INTERPOL played a coordinating role within a consortium working on a research project funded by the European Union which studied the patterns of illicit trade of waste electrical and electronic equipment (WEEE), also known as e-waste, taking place within the European Union (INTERPOL, 2015c). Electronic materials classified as WEEE often contain hazardous components

⁽⁶⁾ The term 'blockchain' refers to the technology on which the Bitcoin virtual currency relies. In simple terms, a blockchain can be described as a shared public ledger of the confirmed transactions conducted using a particular virtual currency.



or materials, so improper disposal or handling of such waste can lead to environmental degradation and adversely affect public health. The initiative, called the Countering WEEE Illegal Trade (CWIT) project, concluded in August 2015, and its summary report revealed that approximately 4.65 million tonnes of e-waste is either 'wrongfully mismanaged or illegally traded within Europe itself' (Compliance and Risks Ltd. et al, 2015, p. 6). Approximately 10 per cent of that amount of e-waste is illegally exported to countries in regions such as Africa, Asia and the Middle East. Furthermore, waste processors in Europe who comply with regulations incur annual losses valued at between EUR 800 million and 1.7 billion due to the theft of valuable metals and components from waste electronics. The CWIT summary report also included a series of recommendations to mitigate the legislative and operational vulnerabilities which facilitate this type of crime.

FINANCIAL FLOWS OF THE ILLICIT CHARCOAL TRADE IN EAST AFRICA

INTERPOL is producing an analytical report on the financial flows related to the illicit trade of charcoal in East Africa. The objective of this report is to assess and more clearly depict the financial flows within East Africa and the Arab Gulf states derived from these activities. INTERPOL ultimately aims to raise awareness with policy-makers and law enforcement agencies in East Africa and Arab Gulf states regarding the negative environmental, social and financial impacts of the uncontrolled production and trade of illicitly produced charcoal. Such impacts include, for example, large-scale deforestation and forest degradation, which over time can lead to desertification. In order to collect sufficient data to produce a comprehensive report, INTERPOL analysts have requested information from seven East African countries (Djibouti, Ethiopia, Kenya, Somalia, South Sudan, Tanzania and Uganda) concerning the movement of illegal charcoal; companies, traders and other beneficiaries involved; and related financial information regarding the production, consumption, import and export of charcoal. The extent to which the illicit trade contributes to the financing of terrorist organisations will also be examined.

PHYSICAL-CHEMISTRY STUDY OF LINE CROSSINGS

Although one of the most frequently requested forensic document examinations to assist in fraud or forgery investigations is to date when a particular line of ink (for example, a signature) was placed onto a piece of paper, there are currently no reliable techniques for doing so. To solve this challenge, INTERPOL officials specialised in counterfeit security documents have been working with the International Academy for Handwriting and Documents to find a solution to this challenge.

The 'Physical-Chemistry Study of Line Crossings' project seeks to develop a method to accurately identify when a signature or another type of writing was made. This could be possible through a complex chemical analysis of the inks, the paper and other factors. Another objective of the project is to establish a methodology to support forensic experts and investigators around the world in conducting forensic document examinations at a globally-accepted standard. The project has been presented to nearly 50 forensic document examiners from 30 INTERPOL member countries who regularly attend the related working group meetings. The project's proof of concept, which was established following a year-long forensic analysis of the protocol carried out by laboratories in 13 countries, will now be tested in the field with the aim of training forensic document examiners.

LEGAL RESEARCH ON DATA PROTECTION AND PRIVACY

As criminals innovate, so too must law enforcement. Police must make an effort to keep pace with criminal groups on the technological front. However, this requires appropriate legislation. In order to ensure that emerging police technologies are implemented in a lawful manner, the technologies should be considered within an appropriate legal framework based on the principles of the rule of law and respect for fundamental human rights.

In an effort to facilitate the process of adopting innovative tools and technology by law



enforcement, INTERPOL is participating in a series of European Union-funded research initiatives which address the use of emerging technologies and data protection. These initiatives aim to strengthen security while minimizing possible infringements of fundamental rights, such as the right to privacy, and to encourage dialogue and partnerships among law enforcement, academia, the private sector and civil society. More specifically, the projects address the development of surveillance technologies and the parallel efforts by legislators to quickly develop adequate legal frameworks (Smart Project); the legal bases for the monitoring and tracking of CCTV systems, social networking sites and financial movements (Respect Project); the development of voice recognition and speaker identification systems which account for privacy and data protection laws (Speaker Identification Integrated Project, or SIIP); the provision — and analysis of possible legal implications — of a roadmap to create common frameworks for the use of new technologies in the collection, exchange and use of evidence (Evidence Project); the evolution and impact of cybercrime using economic and legal perspectives (E-CRIME Project); and the economic social, legal and ethical facets of recent developments on the Internet in an increasingly digital society with an emphasis on governance, human rights and intellectual property (MAPPING Project).

INNOVATIVE TOOLS AND TECHNICAL SOLUTIONS

INTERPOL is working to pilot innovative systems and tools within our member countries to determine the extent to which they may help inhibit criminal activities. But even the most advanced tool holds little value in untrained hands. Therefore, the creation of any new service, tool or technical solution invariably required that INTERPOL modernise its training programs in order to deliver the technical skills needed to fully utilise the latest technological solutions. This will ensure that member countries can maximise the efficacy of such innovations over the long

term. Several examples of these new tools and technical solutions are listed below.

THE I-CHECKIT PROJECT

I-Checkit is a border management platform intended to work in parallel to existing national border security systems. It allows trusted private sector partners (currently within the airline industry) to play a role in national border security, with the aim to help prevent the use of stolen travel documents to cross borders and conduct illicit activities under falsified identities. Through I-Checkit, participating airlines can send passenger passport data to be screened against INTERPOL's Stolen and Lost Travel Documents (SLTD) database to help detect potential abuse. This solution was endorsed in a formal resolution at the INTERPOL General Assembly in November 2015 (INTERPOL, 2015e) following a 16-month pilot project with AirAsia that proved to be a successful proof-of-concept for the identity fraud prevention tool. The General Assembly resolution called on INTERPOL member countries to support the continued development of the tool, systematically provide stolen travel document information to INTERPOL's databases, and ensure that all data reported in the databases are current, accurate, maintained and removed in accordance with INTERPOL's rules and standard operation procedures.

THE SILVER NOTICE

During the 2015 General Assembly, INTERPOL member countries also endorsed a resolution which called for the development of a new instrument devoted to the tracing and recovery of criminal assets (INTERPOL, 2015d). When launched, this tool will enhance the utility and scope of the organisation's well-known, color-coded international notices system ⁽⁷⁾. The resolution also called for member countries to participate and support the pilot phase for this new tool by discussing with INTERPOL their observations, suggestions and challenges faced

(7) INTERPOL's notices system is a collection of international alerts and requests for cooperation which allow police in its member countries to share crime-related information in an efficient, secure manner. Currently there are eight different types of notices (Red, Blue, Yellow, Black, Green, Orange, Purple, and the INTERPOL-United Nations Security Council Special Notice) each of which is published for its own unique purpose. For more information on INTERPOL notices, see <http://www.interpol.int/INTERPOL-expertise/Notices>.



during the creation and implementation of the new notice. This demonstrates INTERPOL's willingness to continue refining and developing its already existing tools to better meet the needs of member countries.

THE BASELINE PROJECT

INTERPOL member countries at the General Assembly in 2015 took a notable step towards curbing the growth of online child sexual exploitation by adopting a resolution which calls for the implementation of the Baseline Project (INTERPOL, 2015g). This initiative aims to empower public and private entities to contribute to the prevention of child abuse by enabling them to identify, report and remove child abuse materials (CAM) from their platforms and networks. Through the 'Baseline list' ⁽⁸⁾ which the system uses to identify CAM by comparing the file signatures of uploaded images and videos to the data contained in the INTERPOL's International Child Sexual Exploitation (ICSE) database, private entities can more easily determine the extent to which their computer networks are used to disseminate abuse materials. Further examination of the origins of the CAM files within a network can assist investigations to prevent child exploitation and rescue victims of abuse. As such, INTERPOL now possesses an instrument to help private entities ensure that their computer networks do not store or propagate CAM internally or on the Internet, contributing to its efforts against child sexual exploitation in the cyber realm.

DISCUSSION

INTERPOL's endeavours in research and innovation are diverse, yet they will undoubtedly evolve over time as new security threats emerge and create new challenges for law enforcement worldwide. Bearing that in mind, INTERPOL's notices system — created in 1946 and still in widespread use by member countries today — is an empirical example that the Organisation

has the capability to develop new, sustainable tools and services that withstand the test of time and remain relevant even under ever-changing international contexts.

It is undeniable that the effectiveness of INTERPOL is entirely contingent on the willingness of its member countries to share data, expertise and even personnel with the organisation. The Organisation also relies on its member countries to promote the systematic use of its policing capabilities; without such support, these products lose their effectiveness and overall value.

INTERPOL's future plans for research and innovation are being formulated on the assumption that law enforcement agencies around the world face similar challenges in combating transnational crime when it comes to international collaboration, despite regional differences in infrastructures and the types of organized crime and security threats. These challenges may include differences in organisational cultures, political contexts, judicial/legal incompatibilities, willingness to share sensitive criminal information with other national agencies, or competitive inter-agency dynamics (Gerspacher, 2010), in addition to practical impediments such as language barriers.

INTERPOL's contributions to the policing world are humble in comparison to the daily work of the national law enforcement agencies in its member countries, and the operational experience and expertise put to use every day by frontline police officers in the fight against transnational crime. However, INTERPOL takes pride in its role of facilitating the sharing of expert-level law enforcement knowledge at the international level to promote joint learning and discovery. Through its global position as a platform for the international exchange of law enforcement expertise that can help integrate geographically and thematically diverse experts to work together and learn from each other, INTERPOL seeks to innovate for the benefit of all police worldwide.

⁽⁸⁾ The Baseline list refers to a list of hash codes of images and videos which have been previously identified as child abuse material and are stored in the International Child Sexual Exploitation (ICSE) database. The data stored in this list does not include the original images or video content.



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