RAND EUROPE

Humanitarian Technology Adoption Case Study

Biometrics

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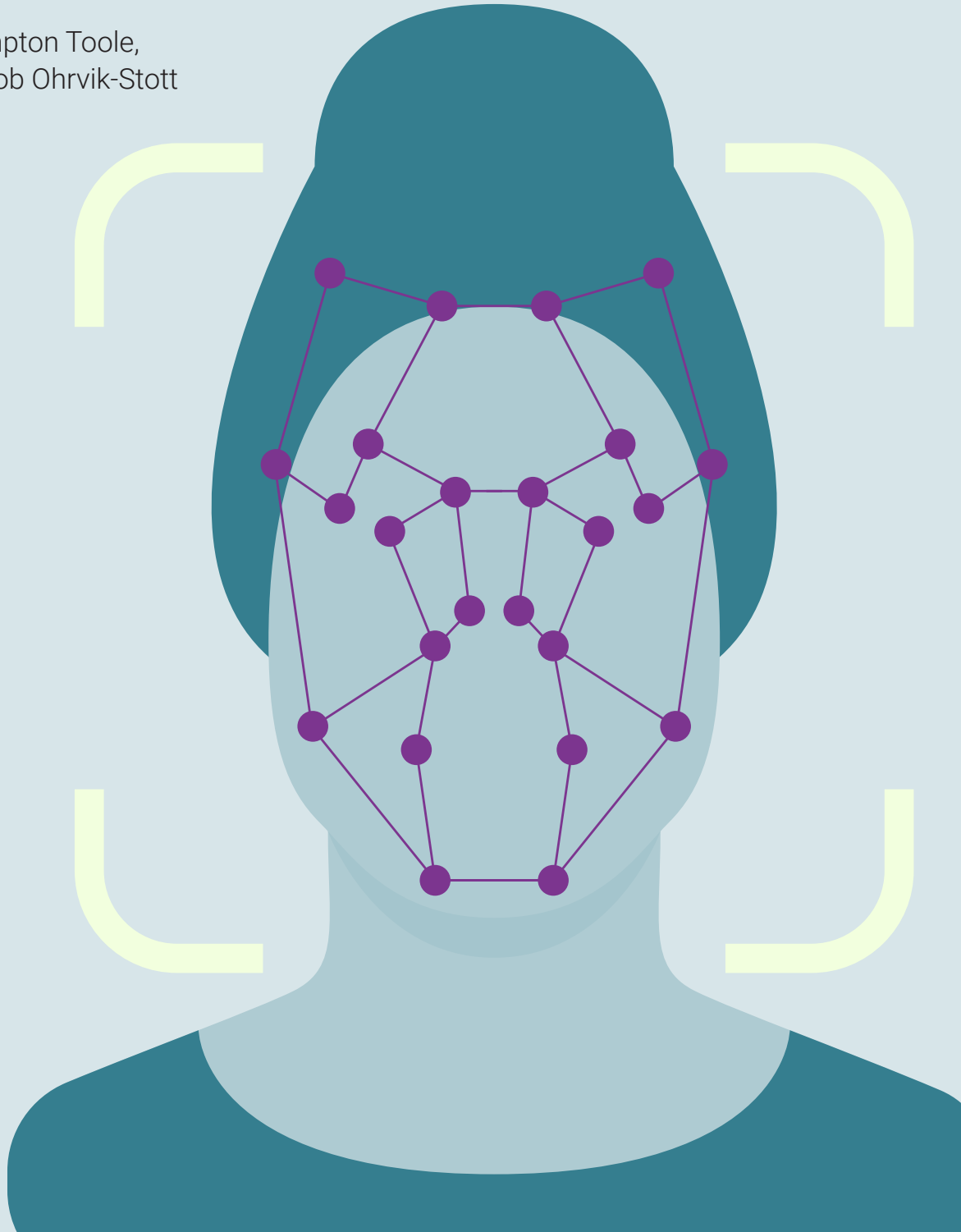

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Abbreviations

GDPR	General Data Protection Regulation
GSMA	Global System for Mobile Communications Association
HIIDE	Handheld Interagency Identity Detection Equipment
ICRC	International Committee of the Red Cross
IOM	International Organization for Migration
MIDAS	Migration and Data Analysis System
OIOS	UN Office of Internal Oversight Services
UKHIH	United Kingdom Humanitarian Innovation Hub
UN	United Nations
UNHCR	Office of the United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
WFP	World Food Programme

Introduction

This case study explores the history of biometrics technologies in humanitarian contexts, and draws lessons from this example that are relevant to the future adoption of such technologies by humanitarian organisations. Specifically, this case study focuses on technologies used to enable the identification of beneficiaries of humanitarian assistance through their individual physical or behavioural characteristics (e.g., ears, eyes – iris, retinal – face, fingerprints, voice).[1] Biometrics first developed as a means of identification over 25 years ago and has been used to facilitate access to humanitarian services such as Cash and Voucher Assistance programmes (CVA). This case study focuses specifically on the emerging technologies used to enable the digital registration and identification of recipients of humanitarian assistance and services.

The insights in this document are grounded in the experiences of humanitarians working in biometrics-related programmes who were convened in an online workshop led by RAND Europe on behalf of the UK Humanitarian Innovation Hub (UKHIH) in May 2024. Accordingly, this case study does not claim to represent the full diversity of the humanitarian sector's views on biometrics, nor to present a comprehensive overview of all the historical events that contributed to its development. Rather, it is an exploration of the views of a smaller number of humanitarians with direct experiences of implementing or using biometrics systems, and the contextual factors that have shaped these experiences and related events. These insights speak to issues of governance, community trust, organisational culture and resources, and the benefits, risks and unintended consequences of technology – all areas that offer lessons for humanitarians considering how, or whether, to adopt wider technologies to support their work. Insights from this workshop are presented in two sections:

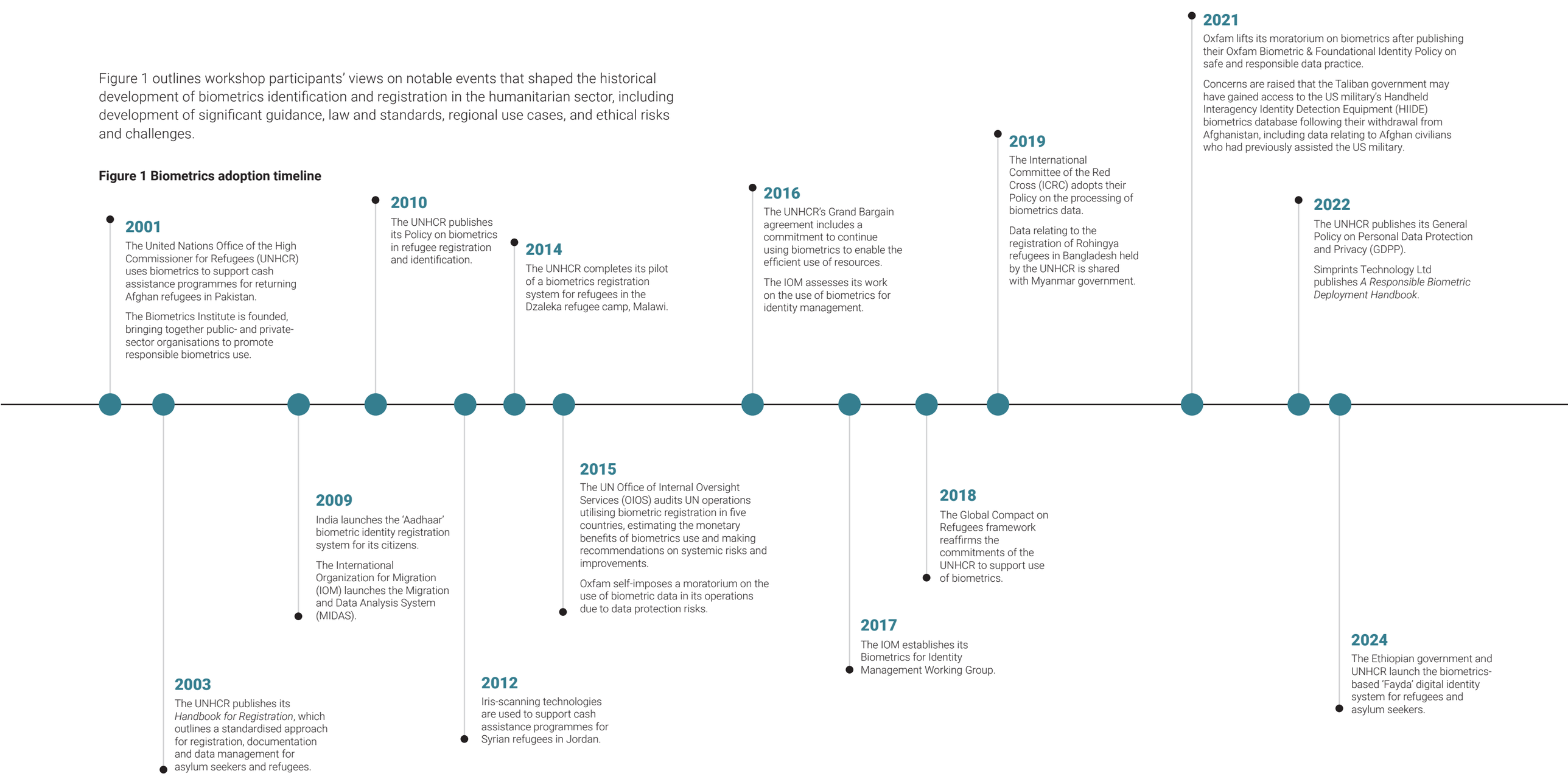
- Perspectives on the history of biometrics. This gives a partial view of important events in the history of biometrics adoption.
- Key factors and learnings for responsible technology adoption in the humanitarian sector. This explores the preconditions that shaped notable biometrics development events and discusses learnings that these contextual factors imply for wider responsible technology adoption in the humanitarian sector.

1 Holloway et al. (2021); Biometrics Institute (n.d.b).

Perspectives on the history of biometrics

Figure 1 outlines workshop participants' views on notable events that shaped the historical development of biometrics identification and registration in the humanitarian sector, including development of significant guidance, law and standards, regional use cases, and ethical risks and challenges.

Figure 1 Biometrics adoption timeline



Key factors and learnings for responsible technology adoption

Using the notable events described in the previous section as a common basis for discussions, workshop participants reflected on the preconditions that influenced these events. These preconditions cover a range of contextual social, political, economic, organisational and legal factors that enabled or challenged the development of biometrics systems in the humanitarian sector. Across these preconditions, key themes relating to organisational funding and values, governance, and local capacity were discussed.

Figure 2 Key precondition areas discussed by workshop participants

Reflecting on these contextual factors, workshop participants also offered several recommendations for humanitarians exploring the adoption of future technologies in the sector. This section presents an overview of the preconditions discussed, including of associated enablers and barriers, and subsequently highlight 'key lessons' identified in relation to these precondition areas.

Organisational funding and values

Reducing the risk of fraud and aid diversion was put forward as the primary driver for the early deployment of biometrics in the humanitarian sector.[2] This initiative, initiated by the UNCHR, focused on using biometrics for registration processes and to enable access to humanitarian aid and services (e.g. cash or in-kind payments). In subsequent phases of its development, and the adoption of biometrics by other international organisations and UN agencies (e.g., the IOM), the debate around the benefits and risks of biometric deployment grew louder. Organisations have taken differing positions in these debates, with organisational policies, risks, wider sectoral governance, and research on biometrics risks and benefits evolving iteratively and at pace. Workshop participants discussed how organisational values and risk appetites have played out in this context, as discussed in Box 1 below.

Biometrics practice has also been influenced by wider sectoral controversies and malpractice, for example relating to improper conduct allegations against staff, which have created a focus on organisational ethics and accountability. In general, enabling on-the-ground technical teams to shape the development of these policies (rather than

2 This was not seen as unique to biometrics and described as a common driver for wider technology adoption.

Box 1 Key learning for responsible adoption of biometrics in the humanitarian sector relating to funding and organisational sustainability

Lesson for responsible adoption of biometrics: trade-offs between different approaches to organisational policy and accountability should be carefully considered

Oxfam's self-imposed moratorium on biometrics in 2015 exemplifies this. While it symbolically and practically upheld their commitment to 'do no harm' and sustained trust in the organisation, it was not without cost: a universal ban on biometrics limited their ability to innovate more responsible configurations of the technology, access funding and partnerships (including in crisis contexts where government stakeholders mandated biometrics) and shape wider policy and ethics debates. Such policies may have unintended consequences, particularly where the alternatives to biometric systems bring their own risks.[3] Recognising these challenges, Oxfam subsequently conducted assessments of the use of biometrics in the sector and re-entered the biometrics space with the publication of their Biometric & Foundational Identity Policy in 2021.

Other approaches to organisational accountability for biometrics – including ISO standards, hard law such the European Union's General Data Protection Regulation (GDPR), independent programme audits, organisational transparency policies and human rights impact assessments – also come with trade-offs. Sector-wide standards, for example, have broad credibility and sectoral buy-in, but risk obscuring the critical local context of technology deployment (discussed further below).

centralised policy developed solely by senior leaders) was seen as an important enabler of responsible biometric deployment.

Governance

Against this backdrop of fast-moving biometrics development and debate, the humanitarian sector has generally moved towards 'ex-ante' governance approaches that seek to anticipate and mitigate risks before they have occurred.

Workshop participants discussed several drivers for this shift. Biometrics regulations and organisational policies have generally developed more slowly than both the underpinning technologies and the crisis contexts in which they are deployed. Relatedly, developing common standards is more complex and time-consuming in contexts where there is less consensus on the ethics and necessity of the technology's use. Lastly, specific historic biometrics use cases that have led to harm have shaped some stakeholders' general perceptions of the wider biometrics sector, meaning that future incidents could have a more damaging effect on trust where it is already relatively fragile. As Box 2 below outlines, there remains a need to better anticipate longer-term risks of biometrics throughout the full technology life cycle.

3 One example raised was the use of biometrics that are not linked to identity registration and verification systems for anonymous deduplication of aid (e.g., flagging where similar iris scans have been observed). Although such approaches require less data gathering and management (therefore generally respecting user privacy), aid recipients may be excluded where they cannot challenge the accuracy of the biometric system's decisions.

Box 2 Key learning for responsible adoption of biometrics in the humanitarian sector relating to governance

Lesson for responsible adoption of biometrics: technological risk assessments should consider a fuller range of future scenarios, including high-risk scenarios that seem unlikely in the present

The permanence of biometric data means that the risks of data misuse endure throughout an individual's lifetime. Historically, however, the humanitarian sector has struggled to adequately consider such long-term risks. Long-term risk assessment should include critically reflecting on how geopolitical dynamics might change 5, 10 or 15 years in the future, and the potential consequences if relationships with a variety of stakeholders, including malicious actors, were to change over this horizon.

Relatedly, risk assessments often consider risks that might arise during the design and use of a technology, but pay comparatively less attention to the risks encountered in post-deployment stages. These relate to potential data protection breaches, especially where large amounts of data are concerned. The risks and potential harms stemming from the Taliban government's access to the US military's Handheld Interagency Identity Detection Equipment (HIIDE) biometrics database following their withdrawal from Afghanistan were mentioned by workshop participants as a recent emblematic example.

Looking to the future, more formalised, human rights-based due diligence approaches (such as anticipated UN Secretary General guidelines on biometrics) are expected to increasingly shape the biometrics landscape. Participants speculated that organisations may increasingly rely less on user consent as a means of guiding biometric data use, given the sensitivities and complexities involved. Participants discussed the challenges of ensuring individuals' consent is freely given and informed in a context where they are reliant on biometric processing for aid and who may not understand the implications of data sharing or receive the information to do so. Future integrations of biometrics with artificial intelligence (AI) applications is also likely to make it increasingly difficult to understand (and therefore give informed consent for) data processing. Public–private partnerships to support dialogue between the technology sector and humanitarian actors have also had some success in supporting responsible deployment and could grow in influence. These include, for example, the Biometrics Institute and the Global System for Mobile Communications Association (GSMA)'s Biometrics for All initiative.

3.3. Local capacity

The development of local capacity in crises-affected contexts is believed to be a major enabler of the further deployment of biometrics. Developing local capacity and infrastructure for data security and management has enabled more responsible biometrics development, as have developing norms around non-humanitarian uses of biometrics systems (for example in India and Ethiopia, as referenced in Figure 1.).

In some places, however, the deployment of biometrics has been experienced as a mandatory, top-down development over which stakeholders at local levels have little agency. As a result, a universal roll-out of biometrics that neglects local contexts has sometimes impacted both the trust in biometrics programmes and their ability to enable access

to humanitarian services. In addition, concerns about the implementation and availability of effective informed consent processes in these contexts were also mentioned by several participants. Consideration of these dynamics was seen as particularly important for biometrics: legitimate criticisms about approaches to risk management, alongside common misconceptions, have posed significant barriers to its development. In this context, participants discussed how general mistrust in the funders of biometric systems has carried over to humanitarian biometrics programmes (e.g., leading to erroneous beliefs that national government funders have access to humanitarian databases), and how risks associated with a specific technical configuration and use cases have been inappropriately generalised to criticise all biometrics.

Box 3 Key learning for responsible adoption of biometrics in the humanitarian sector relating to local capacity

Lesson for responsible adoption of biometrics: the humanitarian sector should develop a more holistic framework for assessing the local impacts of technologies

Workshop participants discussed how conceptualisations of biometrics, and its potential benefits, are changing. While historically it has often been seen primarily as a tool for driving organisational efficiency (i.e., reducing the risk of fraud and aid diversion), it could increasingly be used to empower recipients of humanitarian aid in the future.

In practical terms, this increasingly means looking beyond organisation-centric cost–benefit analyses towards more holistic approaches, such as human rights impact assessments. Impact assessments that consider the wider historical background of technologies' deployment are also important. For humanitarian biometrics, this includes considering how surveillance apparatus have been deployed locally in historical local conflicts or by authoritarian governments, and the extent to which biometrics programmes mirror colonial power dynamics as a form of 'techno-colonialism'. In practice, increased information-sharing mechanisms with end users on data collection mechanisms can support efforts to ensure informed consent, secure data access and secure storage mechanisms, all considered to be important.

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