Monitoring, Evaluation, Research, and Learning:
The State of The Field of MERL Tech

THE EVOLUTION OF MERL TECH—"Waves" of MERL Tech

First wave: Tech for Traditional MERL

The use of digital technology (mobile phones, satellites, and increasingly sophisticated databases, among others) to conduct traditional MERL activities in new and more efficient ways, with a focus on digital data collection and management. There is a growing academic evidence base for the use of these technologies for MERL.
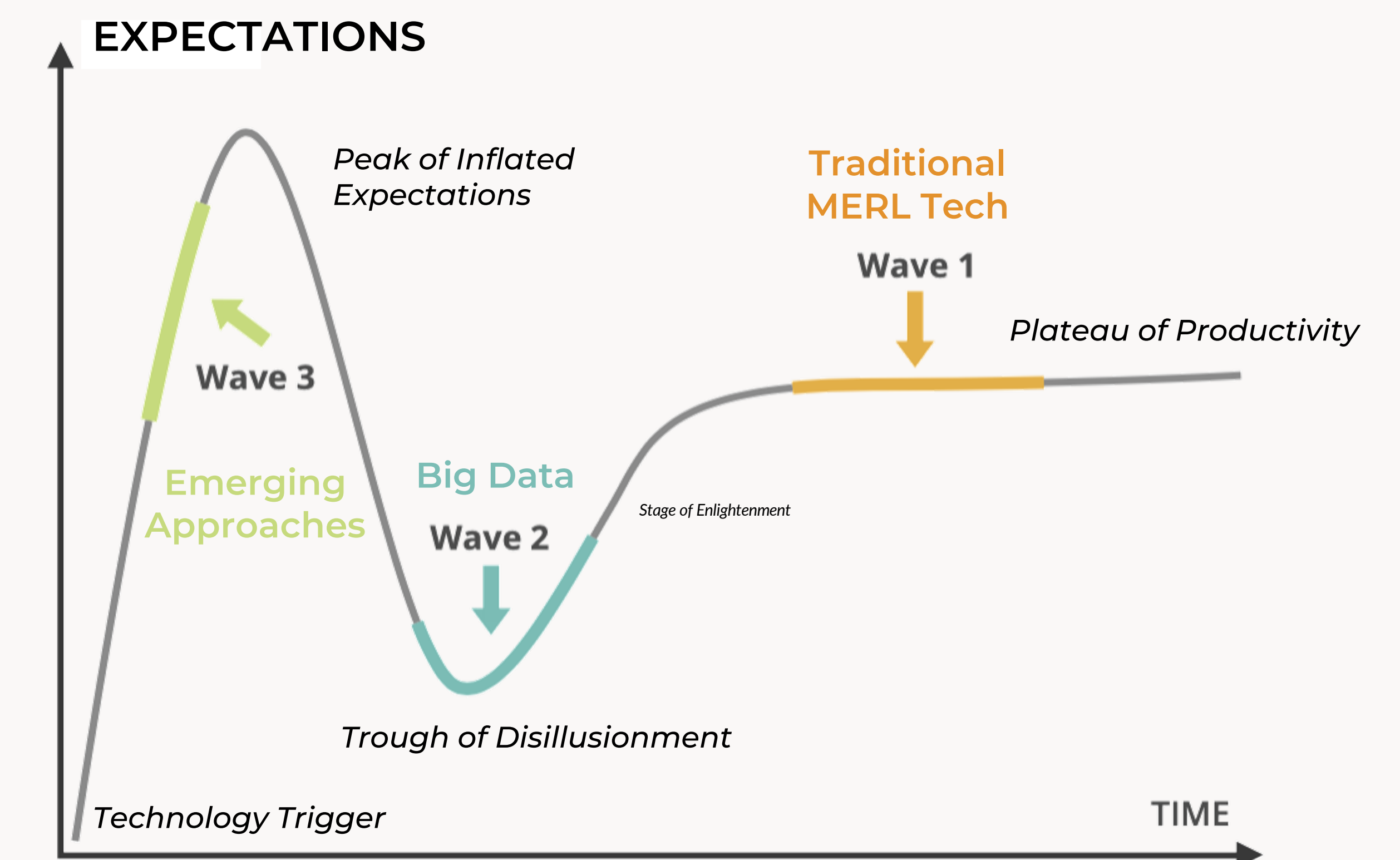
Second wave: Big Data

The use of big data and data science to expand and build knowledge for MERL purposes. Evidence and good practices for big data in MERL are beginning to appear in both academic and grey literature, but the focus is still often on potential rather than actual use.

Third wave: Emerging Approaches

Technologies and approaches that generate new sources and forms of data; present different ways to collect, organize, and store data; and provide new possibilities for data processing and analysis. To date, the evidence base on actual use of these approaches for MERL remains limited.

EXPECTATIONS — Peak of Inflated Expectations, Wave 3 Emerging Approaches, Big Data Wave 2, Trough of Disillusionment, Stage of Enlightenment, Traditional MERL Tech Wave 1, Plateau of Productivity, Technology Trigger, TIME

METHODS | KEY FINDINGS | "4 R's"

TRADITIONAL MERL TECH

METHODS
- Scoping review that screened 3,400 studies
- Extracted quant data from 886 studies
- Synthesized qual data from 256 studies
- Population: low-middle income countries
- Concept: 25 ICTs with 10 MERL activities
- Context: Int. Dev.; 2015-2019; English

KEY FINDINGS
- GIS, QuantDAS, MIS, Mobile Phones were the most reported technologies.
- Implementation & monitoring and data analysis were the most reported MERL activities.
- Scholarly studies likely under-represent learning about MERL Tech

"4 R's"
- Resourcing: Poor capacity and data quality
- Relevance: Build on trusted tech.
- ROI: Demand is high, supply is low.
- Responsibility: Practice-based evidence.

BIG DATA

METHODS
- Looked at the history of MERLTech conference submissions and acceptances
- Conducted a series of key informant interviews with experts working in this field
- Combined interview findings with a literature review to identify use cases, sector differences, issues and hypotheses

KEY FINDINGS
- High Barriers for Institutional Adoption: Require long-term, high costs investments
- Evidence of relevance correlated (qualitatively) to access to automated data (sensor, satellite, mobile, etc.)
- Benefits actualized vs. Hypothesized Value Proposition: Efficiencies realized, while impact on aid effectiveness lacks evidence
- Lack of proximity between analyzers and intended information consumers affects trust, data use
- PPPs have promise, but require institutional readiness (on part of governments, donors, non-profits), and should be needs-driven

"4 R's"
- Resourcing: High upfront infrastructure costs; skills gaps.
- Relevance: Some of these tech are more relevant (app data, sensors than others DLTs, ML)
- ROI: Difficult to demonstrate in projectized aid
- Responsibility: There are serious concerns with data privacy and regulatory compliance that need to be considered

EMERGING APPROACHES

METHODS
- Review of the peer reviewed (little) and grey literature (more) and conference presentations (even more) to curate key areas of emerging tech
- Specifically looked at applications in MERL - but often didn't find many (yet)

KEY FINDINGS
- There are new and emerging data sources in MERL (application data, sensors, drones)
- There are new and emerging kinds of data storage for MERL (DLTs, Cloud/Edge)
- There are new machine learning techniques for MERL - supervised and unsupervised machine learning.

"4 R's"
- Resourcing: Still mistrust of whether to invest in these technologies, sometimes low resourcing
- Relevance: Some of these tech are more relevant (app data, sensors than others DLTs, ML)
- ROI: The potential is very high
- Responsibility: There are serious concerns with data privacy that need to be considered

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