DHS SCIENCE AND TECHNOLOGY

Port of Entry – People Screening

Homeland Security
Science and Technology

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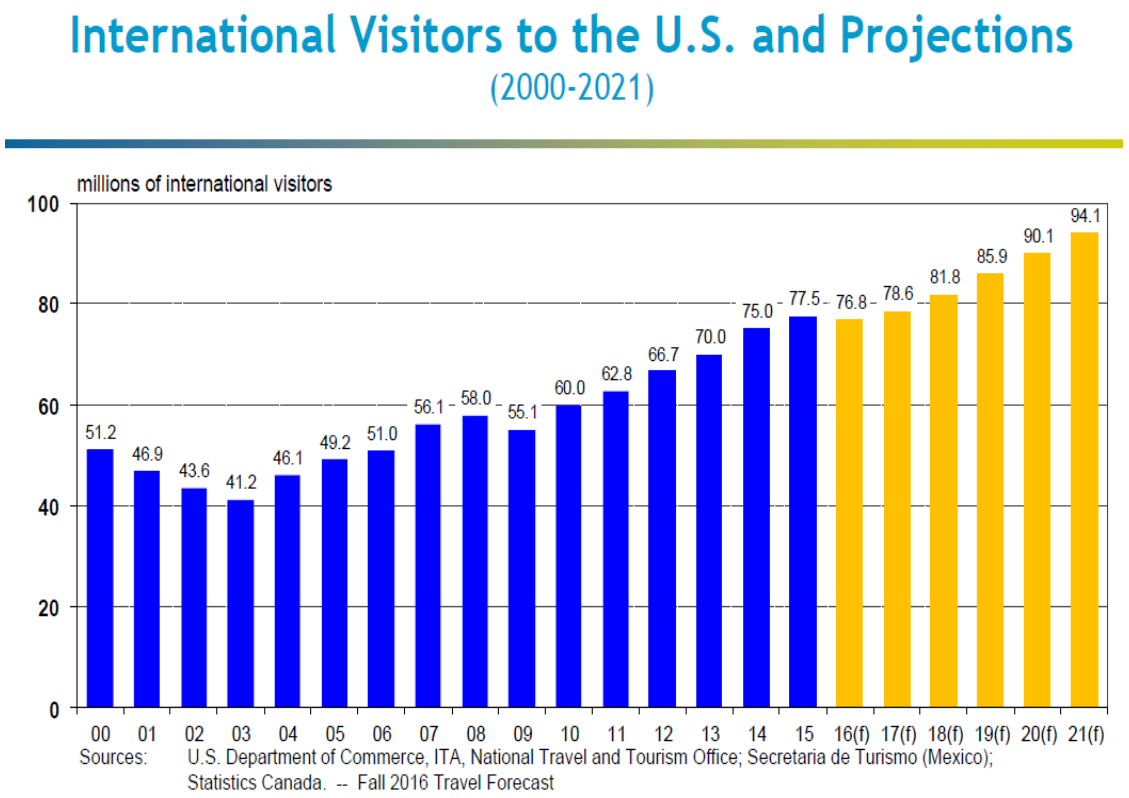
Port of Entry – People Screening

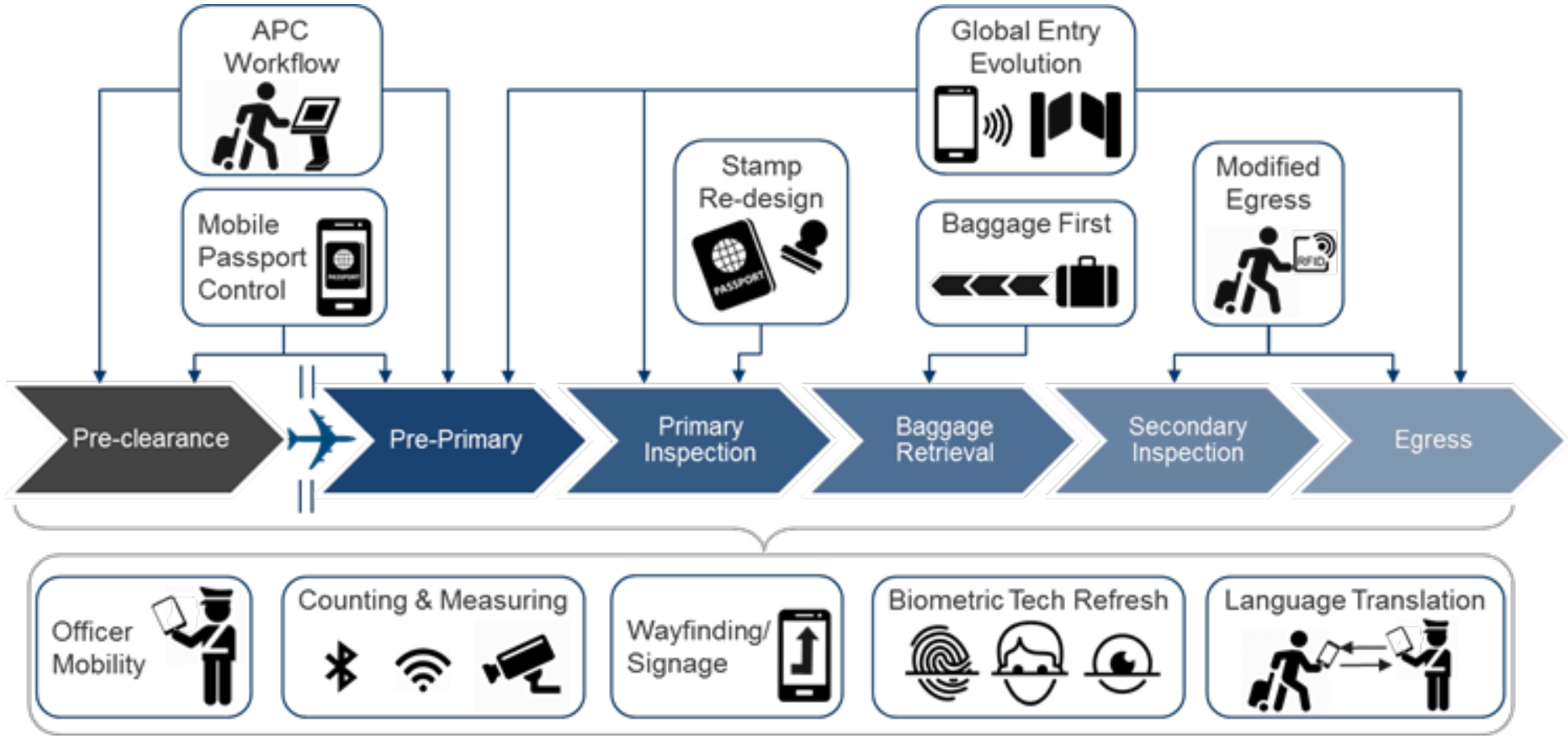
Scaling Operations for Growing Volumes of People…

- CBP processed 390 million travelers in FY16, 119 million at air ports of entry
- International air arrival volume is projected to grow 4%/yr for next 5 yrs
- For comparison: domestic air travel volume screened by TSA surpassed 2.2 billion travelers in 2016 and is projected to grow an average 1.5%/yr over next 4 years
- Small improvements in throughput have an outsize economic impact



…staffing and infrastructure can't keep up

Re-considering the Process

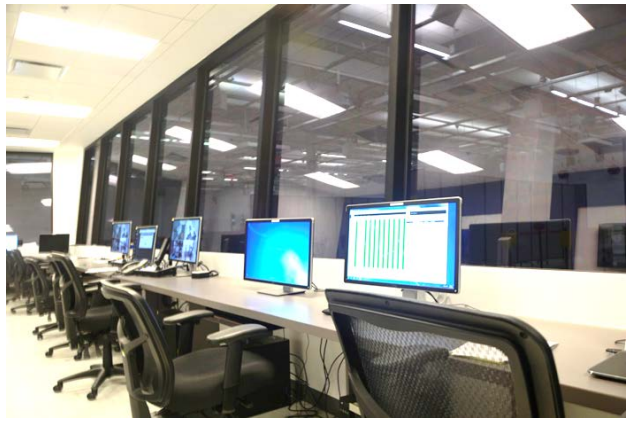


Prototyping and Formative Evaluations

- Technology/Process and CONOPS Tested at MdTF
  - **Laboratory (experienced users)**
    - Best case scenario performance
    - Check vendor technical claims, inter-operability
  - **Scenario (untrained naïve participants)**
    - More realistic, but still optimistic performance
    - Staffed – device has dedicated staff to guide user (e.g. primary booth)
    - Unstaffed – user has to figure out the device using signage / instructions (e.g. kiosk)
  - **Simulated (reuses previously collected data)**
    - Enables evaluations of different matching systems and configurations
- Field Test and Observations at Component Locations
  - Real world conditions and errors
  - Difficult to tease apart root causes, or examine alternatives

The Maryland Test Facility

- 10,000 square feet of test space, consenting and debriefing areas
- Facilitate DHS efforts to incorporate technologies at border crossings
- To date over 2000 subjects have progressed through the MdTF
  - Ages 18-81
  - Over 66 countries of origin
- Typical test contains 300-500 subjects



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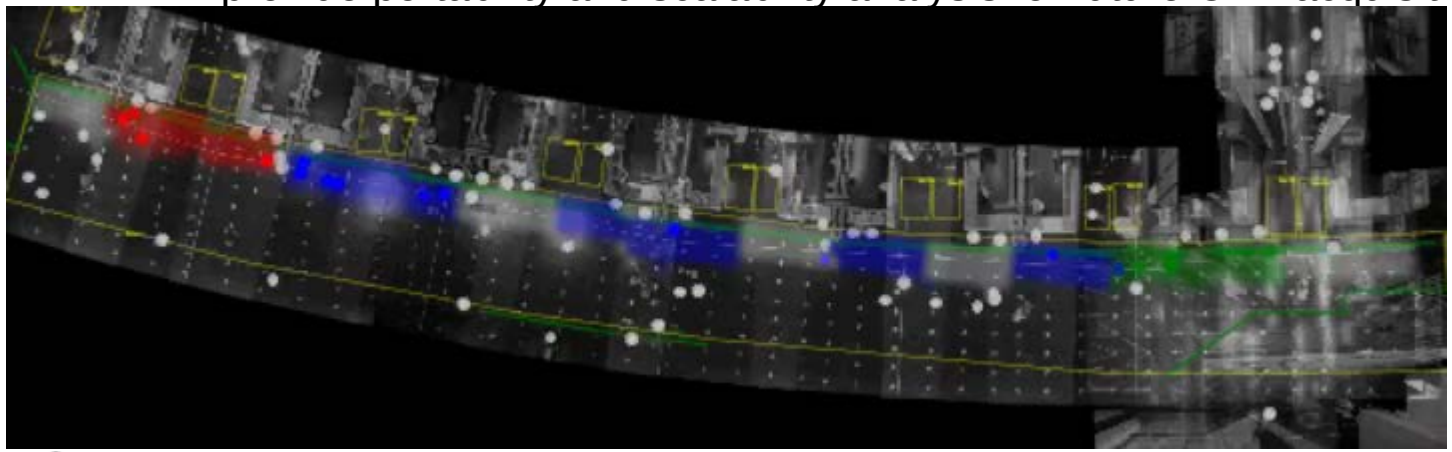
Counting & Measuring (C&M)

Purpose:
Provide real-time enhanced situational awareness using automated measures of the number, flow, and location of travelers throughout Federal Inspection Service (FIS) areas.

Objectives:
- Determine optimal sensors technologies and systems for C&M
- Test and evaluate C&M system(s) in a live FIS area

Benefits:
- Informed CBP's C&M planning
- Will provide portability and scalability analysis for future CBP acquisitions



Courtesy of XOVIS: https://www.xovis.com/solutions/detail/security-checkpoint/

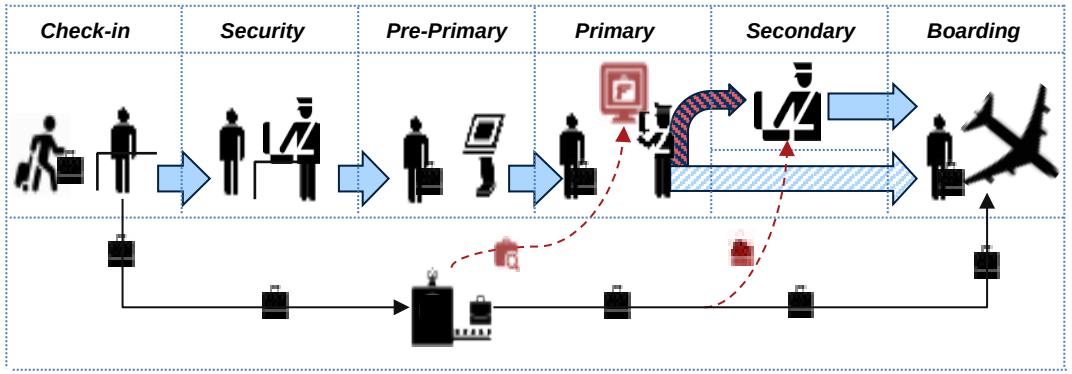
	Name	Queue Length	Wait. Back.	Wait. Forw.	Out Flow
	Business	0	0m	0m	0
	Eco	0	0m	0m	0
	Transfert	0	0m	0m	0

Pre-Clearance / Flexible Facilitation

Purpose:
Market analysis and assessments of capabilities to support flexible and scalable traveler inspections at diverse International locations

Objectives:
- Enable increased mobility, flexible workspace options, efficient communication, and reach-back capabilities for CBP officers
- Enhance baggage inspection without increasing staff
- Enhance CBP officer's awareness of travelers and their bags

Benefits:
- Links baggage information to traveler
- Improve traveler inspection and security
- Provide more effective inspection tools to assist evolving officer needs



CBP receives baggage photos and scans – can be retrieved for secondary

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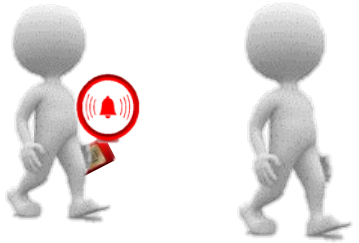
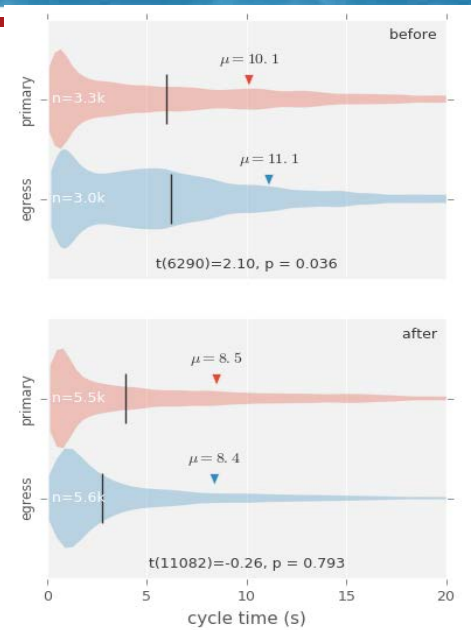
Modified Egress

Purpose:
Streamline the FIS Egress and reduce egress queues by identifying alternative process and technology solutions to ensure referred travelers go to secondary inspection without additional escorts.

Objectives:
- Reduce Egress queues after baggage claim
- Eliminate use of CBP Form 6059B as a control document
- Reduce need for officer escorts for secondary referral
- Identify/facilitate the availability of commercially available solutions

Benefits:
- Relieve dedicated secondary escort staffing requirements
- Allow limited officer resources to shift from administrative tasks to security operations
- Improve traveler throughput and reduce missed connections





	Solution 1	Solution 2	Solution 3
Operational Effectiveness Score	xxx	xxx	xxx
Financial Analysis: ROI	xxx%	xxx%	xxx%
Lifecycle Cost (constant FY 2018 $ millions)	$xxxM	$xxxM	$xxxM
Risk Analysis: Risk Score	x (Low)	x (Low)	y (Medium)

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Global Entry Evolution

Purpose:
Provide premier facilitation to eligible low-risk travelers while maintaining appropriate enforcement

Objectives:
- Improve process for Global Entry traveler
- Facilitate enrollment process for new applicants
- Business case analysis for acquisition planning
- Optimize primary and secondary inspection operations

Benefits:
- Ability to increase staffing resources per demand
- Improve traveler inspection and facilitation
- Allow limited Officer resources to shift from administrative tasks to security operations

Biometric Technology Refresh and Biometric Technology Rallies

Purpose:
Conduct Testing & Evaluation and Total Cost of Ownership evaluations to inform CBP/DHS biometric collection technology refresh

Objectives:
- Enhance traveler identification validation
- Enhance operations by integrating biometrics validation into multiple CBP's capabilities

Benefits:
- Improving hardware and software capability of dated biometric collection units
- Potential cost reduction per unit
- Enhance traveler's inspection and facilitation

DHS S&T Biometric Rally Video omitted due to email size limitations. Already Cleared.
https://youtu.be/imv82Cuo2Pw

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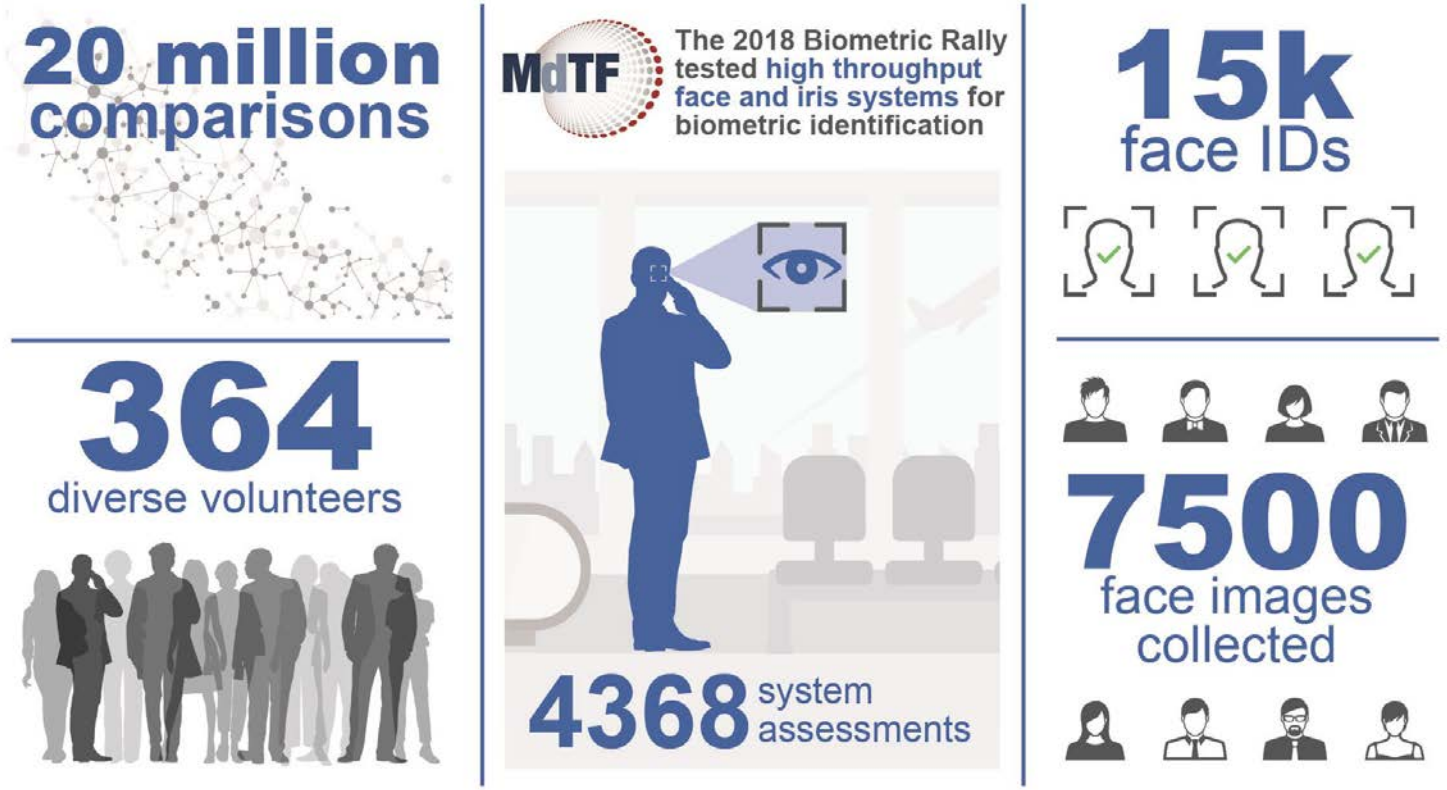
2018 Biometric Technology Rally



		Iris/Face					Face					
		Elbert	Evans	Gray	Harvard	Plata	Antero	Blanca	Castle	Crestone	Lincoln	Massive
	Efficiency	8.9	11.2	9.4	11.0	3.1	10.7	3.2	5.5	4.7	5.3	2.7
	Satisfaction	93.6	90.9	92.3	86.0	89.3	68.8	92.6	96.4	96.7	93.4	91.7
within 5 seconds	Face FtAR	9.1	98.1	100.0	62.5	15.7	40.5	4.7	0.6	0.8	2.2	12.9
within 5 seconds	Iris FtAR	52.1	99.7	100.0	77.7	15.2	NA	NA	NA	NA	NA	NA
within 5 seconds	Face vTIR	71.3	0.8	NA	NA	NA	34.4	63.4	98.1	96.7	91.5	81.3
within 5 seconds	Face mTIR	90.4	1.9	0.0	37.2	81.0	59.5	82.6	97.8	97.8	94.8	85.1
within 5 seconds	Iris mTIR	47.7	0.3	0.0	22.0	0.0	NA	NA	NA	NA	NA	NA
within 20 seconds	Face FtAR	2.5	11.3	10.2	11.0	12.4	24.5	1.4	0.3	0.8	2.2	12.9
within 20 seconds	Iris FtAR	12.7	11.3	13.2	14.0	9.6	NA	NA	NA	NA	NA	NA
within 20 seconds	Face vTIR	76.3	87.9	NA	NA	NA	45.7	64.5	98.9	97.0	91.5	81.3
within 20 seconds	Face mTIR	97.0	88.2	88.7	88.4	82.6	75.5	88.7	97.5	97.8	94.8	85.1
within 20 seconds	Iris mTIR	86.2	84.0	81.5	81.5	0.0	NA	NA	NA	NA	NA	NA

This figure presents a summary of the performance of the participating face and face/iris systems, plotting the code name for each Rally Participant as column headers and each rally metric as the row headers. Circles show the value for each metric. The units are seconds for efficiency and are proportions for all other metrics. Circles are coded are as follows: ○ - below rally threshold; ◒ - below rally goal; ● - meets or exceeds rally goal. The number to the lower right of each circle is the denominator and the number on the top right of each circle is the numerator for the proportion.

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DIVERSE PERSPECTIVES + SHARED GOALS = POWERFUL SOLUTIONS