



Global DFA Initiative



**DFA Breaks into
The Global DE Community**

Presented by:

Rich Darrell

**International Forum on DFMA
June 12-13, 2012**

Global EMS DFA Initiative



AGENDA

- Teaming for Manufacturing Excellence
- Global DE Community
- Key measure of Design
- DFA Measurement Process
- Product Family DFA Index Ranges
- Closer Look at Products Effective measure
- Competitive Benchmarking
- Summary
- Questions

Global DFA Initiative



Teaming For Manufacturing Excellence

Share What Works

Develop/Adopt Best in Class

Teaming for Manufacturing Excellence is a process to bring experts from key manufacturing operations together to collaborate on important opportunities, share ideas and decide on common solutions, and drive deployment of those solutions across all of our operations.

Global DFA Initiative



TME Scope

- Review & Understand each others processes
- Collaborative Efforts with global engagement
- Learn from each other and share
- Establish common goals / Metrics
- Drive improvements with Design engineering with early involvement
- Address Big Opportunities
- Global Deployment
- Emphasis on Commonality where possible

Global DFA Initiative

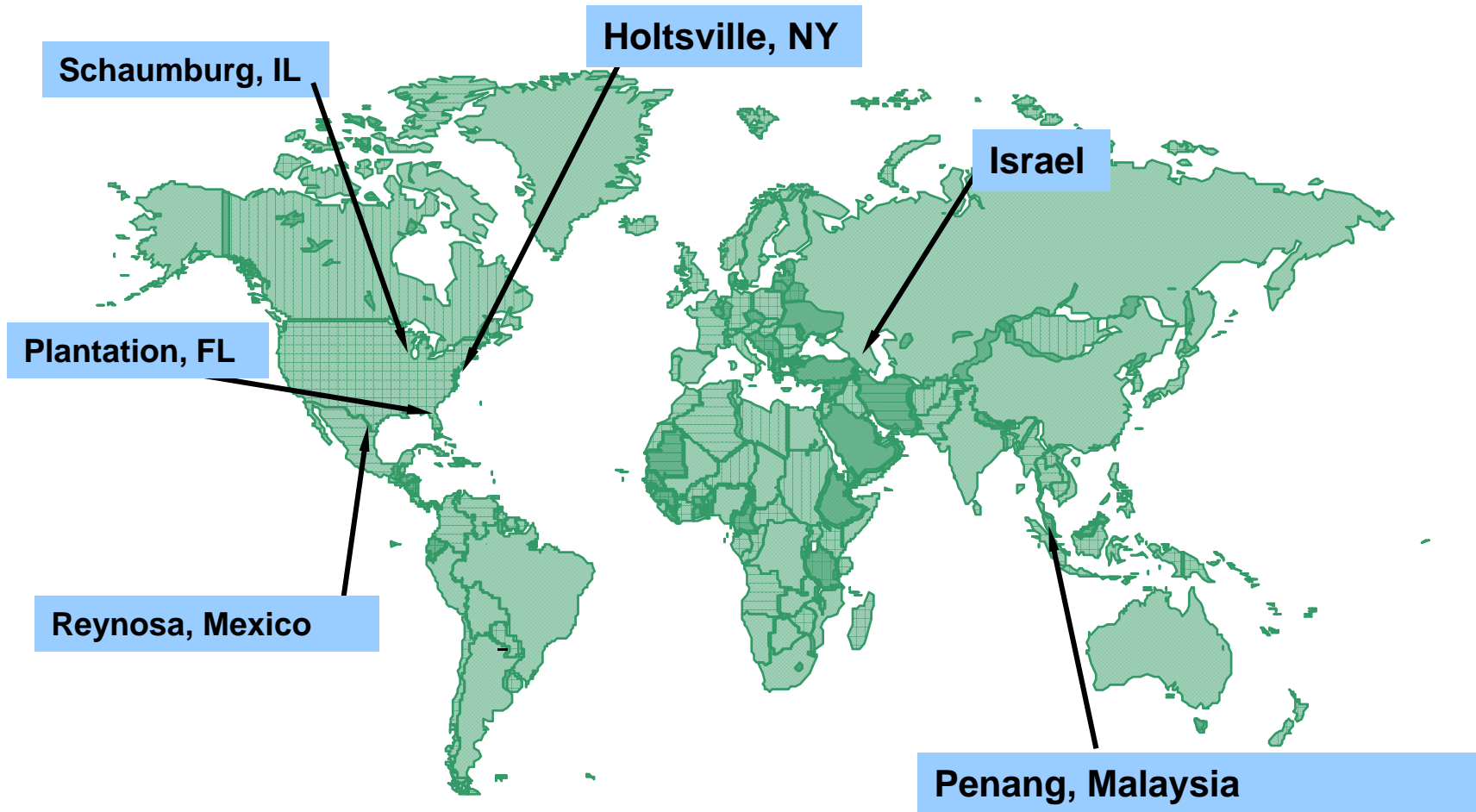


Our Mission

- Share DFX processes and how early involvement with engineering is achieved – identify successes
- Create one DFX methodology

Commit to Action

- Drive Disciplined Implementation in each site
- Look to streamline DFX process
- Achieve Substantial and Lasting Improvements
- Create Sustaining Processes



Manufacturing, Design, and NPI Locations World Wide



Highlights

- **Global Team formed.**
- **Team comprised from New York, Reynosa, Israel, Penang, Schaumburg and Plantation.**
- **Reviewing and establishing a common process and platform.**
- **Collaborative effort between all groups.**

Global DFA Initiative



The Key Question is:

**How to effectively
measure our Designs?**

Global DFA Initiative



**The answer to effectively measure
our designs is:**

DFA software (BDI)

**Key method of measure:
DFA Index**

Global DFA Initiative



DFA Index:

Provides a means to measure the design by comparing the number of parts that are required “by design” vs. the number parts that can be potentially combined or eliminated.

Global DFA Initiative



DFA Measurement Process

Steps to achieve the DFA Index:

- 1) Establish Product Families across Product Groups**
- 2) Compile DFA Index data for each Product**
- 3) Summarize the Data to establish an average DFA Index**
- 4) Create a DFA Index baseline for each Product Family**

Global DFA Initiative



***DFA Index Product Families –
Closer Look at how we use the Product
families.***

***We will look at both Scanner and Mobile
computing Products Family Range Min
and Max Summary charts....***



Global DFA Initiative

DFA Index Product Families Established – Scanner Products

	TOTAL DFA INDEX	# OF PRODUCTS	AVERAGE DFA INDEX	MINIMUM DFA	MAXIMUM DFA
Scanner, Laser Based	51.4	5	10.3	4.6	15.6
Scanner, Imager based	64.7	6	10.8	7.3	15.3
Scanner on a stick, Imager	14.9	1	14.9	14.9	14.9
Scanner on a stick, laser	27.3	2	13.7	10.9	16.4
Scanner w/radio, Imager	14.7	1	14.7	14.7	14.7
Scanner w/radio, Laser	25	2	12.5	10.6	14.4
MINI-KIOSH	8.2	2	4.1	3.2	5
Imager slot scanners	2	1	2.0	2	2



Global DFA Initiative

DFA Index Product Families Established – Mobile Computing Products

FAMILY	TOTAL DFA INDEX	# OF PRODUCTS	AVERAGE DFA INDEX	MINIMUM DFA	MAXIMUM DFA
RETAIL	30.7	2	15.35	11.2	19.5
LIGHT INDUSTRIAL	26.1	3	8.70	6.9	10.4
INDUSTRIAL	102.4	8	12.80	9.5	15.3
Retail w/WAN	0				
LT industrial w/WAN	31.9	2	15.95	12.3	19.6
Industrial w/WAN	59.6	4	14.90	13.4	18.5
Headsets	4.3	1	4.30	4.3	4.3
Smart Badges	12.8	1	12.80	12.8	12.8
Tablets	10.6	1	10.60	10.6	10.6

Global DFA Initiative



*DFA Index Product Families –
Closer Look at each product's
effective measure.....*

DFA Index

Global DFA Initiative



DFA Index – An effective measure

Model/NAME	DFA Index	TYPE OF PRODUCT	PRODUCT FAMILY	PRODUCT Release
MC9060	9.0	MOBILE COMPUTER - Brick / Gun	MCD	2003
MC9090	13.6	MOBILE COMPUTER - Brick / Gun	MCD	2006
MC9190	14.5	MOBILE COMPUTER - Gun	MCD	2011

** MC9200 is currently in development to be released in 2012*



Global DFA Initiative

DFA Index Product Families – Industrial WAN

OWNER	Model/NAME	PRODUCT FAMILY	DFA INDEX	TYPE OF PRODUCT	PRODUCT Release
MOTJDM - WISTRON	MC70	industrialwan	13.4	MOBILE COMPUTER - EDA WWAN	2004
MOT	MC9094	industrialwan	13.4	MOBILE COMPUTER - Brick WAN	2006
MOTJDM - WISTRON	MC75	industrialwan	14.3	MOBILE COMPUTER - EDA WWAN	2008



Global DFA Initiative

DFA Index Product Families – Industrial Light WAN

OWNER	Model/NAME	PRODUCT FAMILY	DFA INDEX	TYPE OF PRODUCT	PRODUCT Release
MOTJDM - ASKEY	MC55	industriallight wan	12.3	MOBILE COMPUTER - EDA WWAN	2009
MOTJDM - ASKEY	MC65	industriallight wan	19.6	MOBILE COMPUTER - EDA WWAN	2010



Global DFA Initiative

DFA Index Product Families – Industrial Light

OWNER	Model/NAME	PRODUCT FAMILY	DFA INDEX	TYPE OF PRODUCT	PRODUCT Release
MOTJDM- USI	MC1000	industriallight	6.9	MOBILE COMPUTER - Brick	2001
MOTJDM- USI	Onyx	industriallight	8.8	MOBILE COMPUTER - Wearable Scanner	2012
MOTJDM- USI	MC2100	industriallight	10.4	MOBILE COMPUTER- Brick	2012

Global DFA Initiative



*DFA Index of our competitors
products and how we measure
up.....*

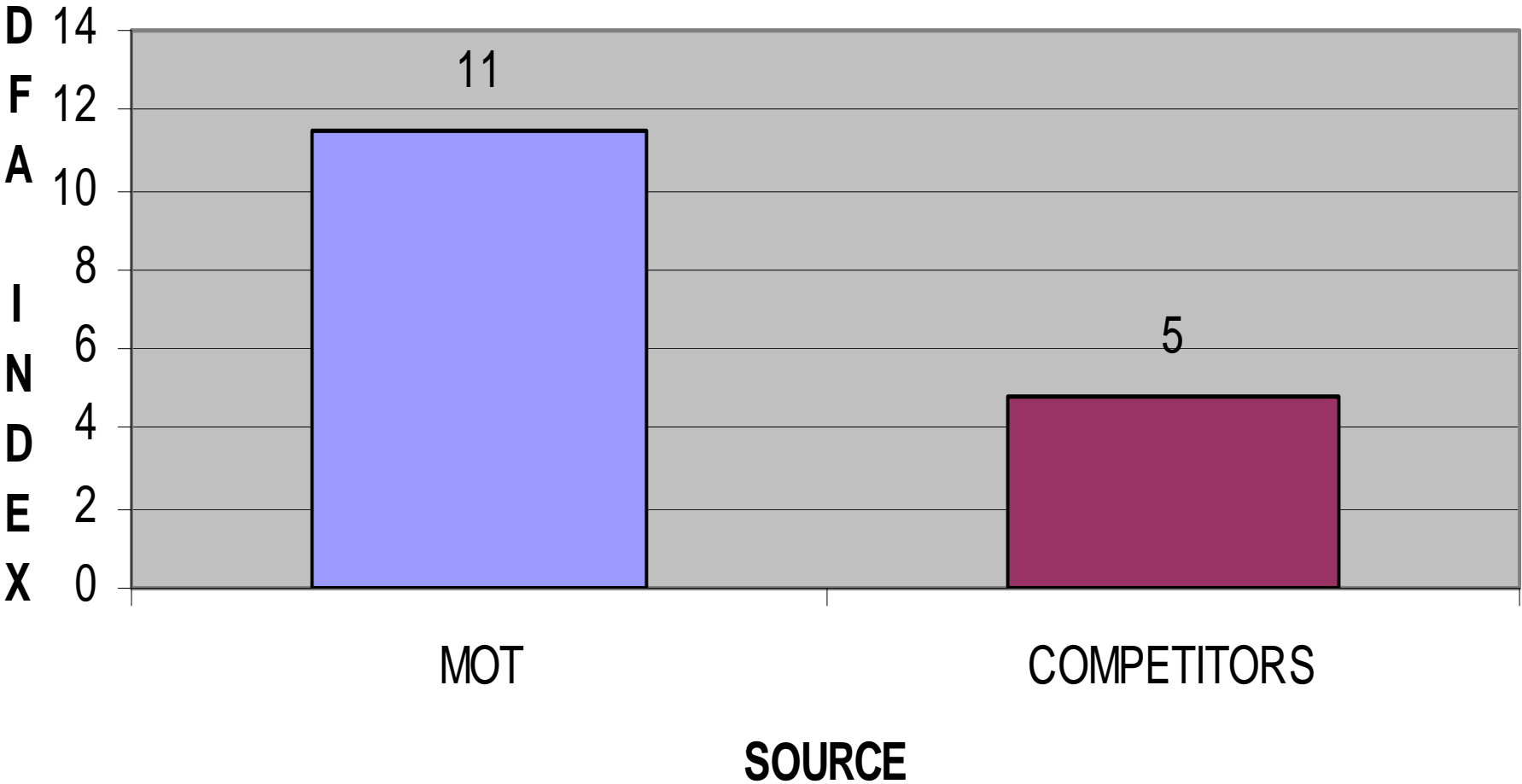
Global DFA Initiative



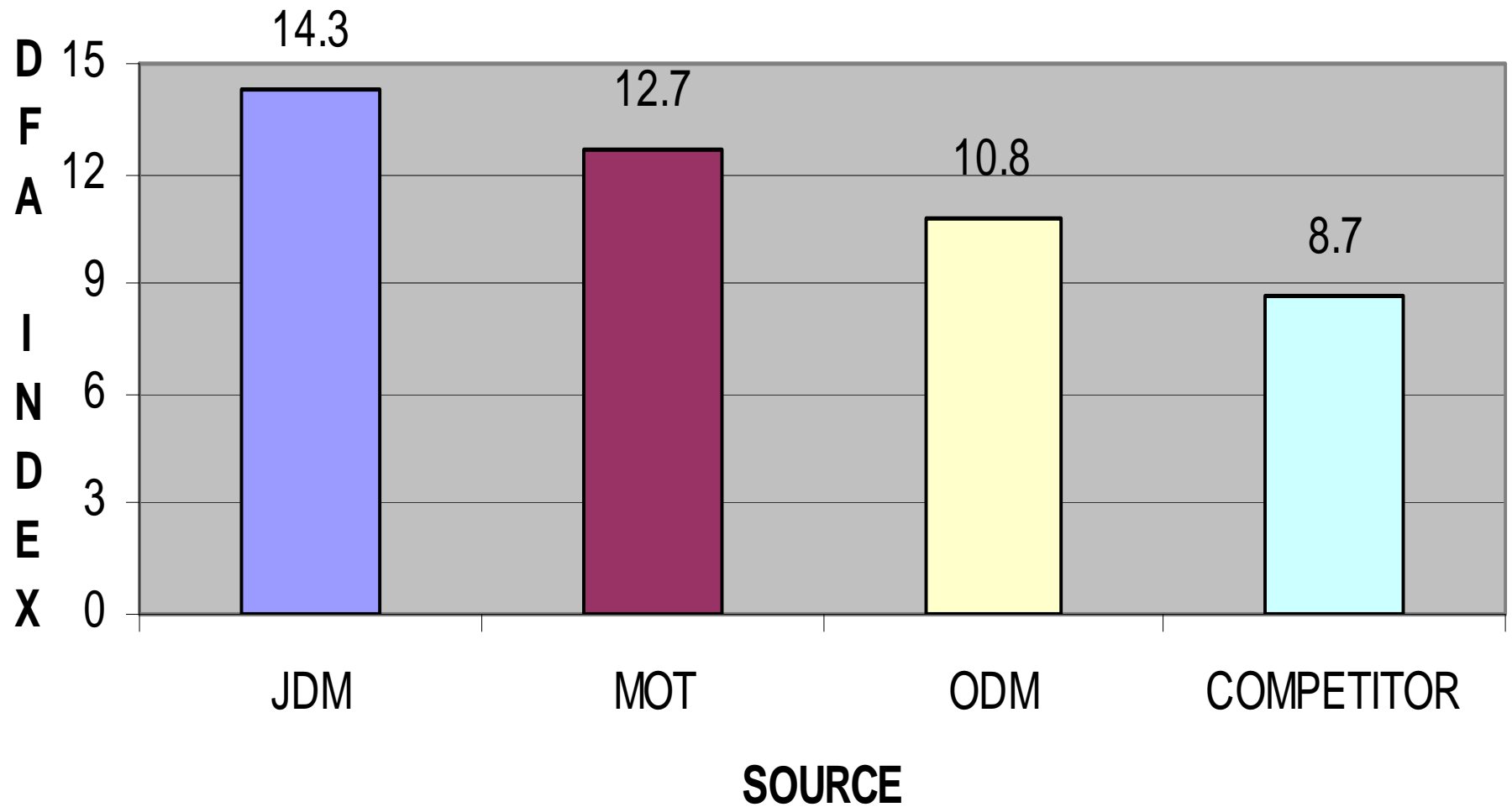
Competitor Measurements

- **Benchmark our competitors**
- **Use the same DFA Index procedure we measure ourselves upon**
- **Compare the DFA Indexes**
- **Identify “good” and “Bad” features**

ADC DFA INDEX BENCHMARKING



MCD DFA INDEX BENCHMARKING



Global DFA Initiative



Summary / Success with the DE Communities

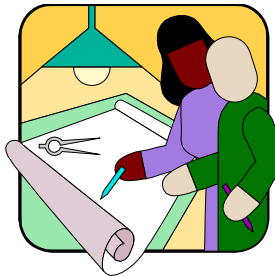
- We were able to show DE by comparing the old design (DFA Index Family Range) to the new DFA index they could quickly see if they were progressing in the right direction.
- We were able to show how our design's stacked up against our competitors as well.
- We added the tracking of the DFA index against the DFA Family range as part of the NPI metrics.
- The DFA Index family Range was established and used to rate our products performance.
- We were successful in meeting our objective of an effective measure of how we are designing our products.



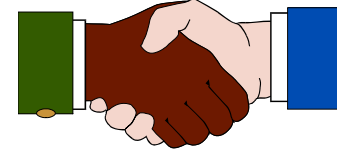
How do we accomplish DFA?



Team approach



Concurrent engineering



Consensus



Thank You...



Questions?

Agenda



Please provide:

- **2010 Goals/Objectives /Initiatives**
- **New Products Q4'09 & 2010 (attachment)**
- **BIC / Benchmarking**

Title of Presentation June 14, 2012

Motorola Confidential



Title of Presentation June 14, 2012

Motorola Confidential