

MEMS Commercialization Report Card:2010

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OUTLINE

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SITUATIONAL ANALYSIS

- Design for manufacture and test and infrastructure development are key elements for the successful commercialization of MBSS
- Both of these “grades” have progress favorably from their 1998 levels
- With the commoditization of many MEMS sensors for autos and games, companies have learned to optimize their design for high volume manufacture just to keep competitive (Darwinian)
- There is sufficient infrastructure in place with good history from a device supplier, signal conditioning supplier, software developers, wafer foundries and a host of packaging strategies including wafer scale and chip stacking to create a low barrier to entry for potential suppliers
- Companies owning unique IP for MEMS devices are realizing that in-house vertical integration / value add significantly increases profit margin e.g. HP, Polychromix(Thermo-Fisher)

MEMS COMMERCIALIZATION REPORT CARD

SUBJECT	98	99	00	01	02	03	04	05	06	07	08	09	10
R&D	A	A	A	A	A	A-	A-	A-	A-	A-	B+	B	B
Marketing	C-	C	C+	C+	C+	C	C	C+	C+	C+	C+	C	C
Market Research	C	B-	B-	B-	B	B	B+	B-	B	B	B	B+	A-
Design For Manufacturing	C+	B-	B	B	B	B	B	C+	B-	B	B+	A-	A-
Established Infrastructure	C+	B	B+	A	A	A	A	A-	A-	A-	B+	B+	A-
Industry Association	INC	INC	INC	B	B+	B+	B+	B	B	B+	B	B	A-
Standards	INC	INC	INC	INC	C	B-	B-	B-	C+	C	C	C	C+
Management Expertise	C	C	C+	C+	C+	C+	C+	B-	B-	B	B	B	B
Venture Capital Attraction	C	B-	B+	A	C	C-	C	C+	C+	C	C-	D	D+
Creation Of Wealth	C	B-	B+	A	C	C-	C-	C-	C-	C	C-	D+	C-
Industry Roadmap	N/A	B-	B	B+	A-	A	A	B	B-	C+	C-	C-	C
Profitability	C-	C-	C-	C-	C-	C-	C-	C	C+	C	C-	D+	D
Employment	INC	INC	INC	INC	INC	C	C	C+	C+	C+	C	C-	C
Cluster Development	INC	INC	INC	INC	INC	B	B+	B+	B	B-	C+	C+	C+
Overall Grade							B	B	B-	B-	C+	C+	B-

ESTABLISHED INFRASTRUCTURE

- 2009 Grade = B+ 2010 Grade = A-
- Key infrastructure elements
 - Foundries*
 - Wafer
 - Packaging
 - Test
 - Materials
 - Software design
 - Equipment
- We foresee continued improvement in this topic as a result of the exploding MEMS market over the next 5 years

*Reference: Solid State Technology October 2011 authored by
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COMMERCIALIZATION OPPORTUNITIES

- Point of care diagnostics(bio/inertial)
- Portable micro analytical systems(chem/bio)
 - Environmental monitoring
 - In-situ process control and monitoring
 - Homeland security/military threat monitoring
 - “Non-lab” medical analysis
- Wireless autonomous systems (inertial/temp./pressure)
 - Structural/machine health monitoring
- Navigation/guidance/motion(inertial)
 - Smart munitions
 - Toys/games
 - Medical

SUMMARY AND CONCLUSIONS

- The overall report card grade for MEMS Commercialization rose from a C+ in 2009 to B- in 2010 based on our research
- Advances came in key areas including Market Research, Established Infrastructure, Standards, V.C. Attraction, Creation of Wealth, Industry Roadmap and Employment.
- Decrease came in Profitability
- Early indications for 2011 are positive that we will see continued improvement in many areas
- Stay tuned for the 2012 Report Card due out at end of Q-1 2012

UPCOMING CONFERENCES OF INTEREST

MEMS Industry Group (MIG) Executive Congress, Monterey CA,
Nov.2-3, 2011

www.memsindustrygroup.com

MEMS Industry Group (MIG) Executive Congress, Zurich Switzerland,
March 20, 2012

www.memsindustrygroup.com

Smart Systems Integration Conference
Zurich Switzerland, March 21-22, 2012
www.smartsystemsintegration.com

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