

# MEMS Market

Illustration

It is surprisingly difficult to find reliable numbers about the **MEMS** market in the Net. What one finds quite easily, however, are announcements of detailed studies about the **MEMS** market that you can buy for a price of several **1 000 \$**.

That makes it clear that some kind of **MEMS** "gold-rush" is happening right now. If you know where the nuggets are, you won't tell anybody but go for it yourself. If you can't do that, you try to sell your treasure map.

Nevertheless, here are a few numbers that seem to be trustworthy:

The worldwide **MEMS systems** market is expected to reach **\$ 95 · 10<sup>9</sup>** by **2010**.

If we look at the **device** market in **2005**, we have the following numbers (partially calculated from other data):

Region	Gross 10 <sup>9</sup> \$	%
USA	2,6	53
Japan	1,1	20
Europe	0.815	16
Singapore	0.45	11
Σ	4.22	100

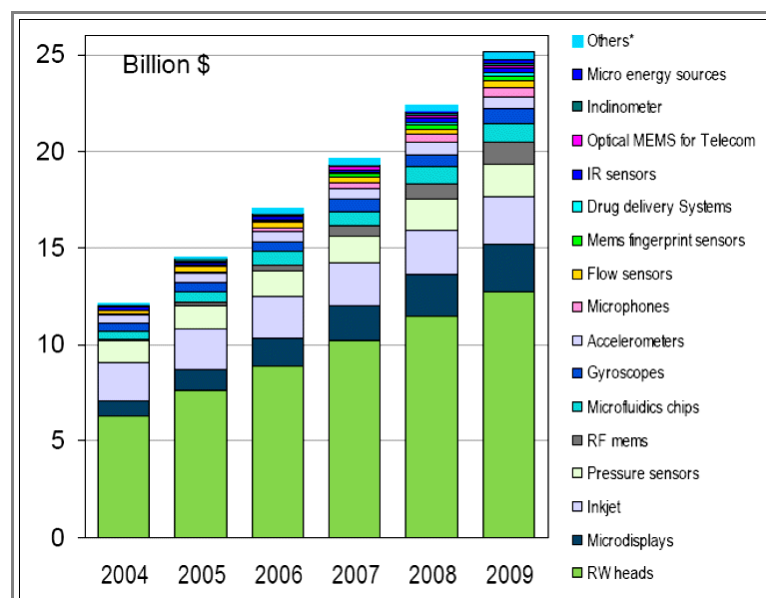
Besides the market for the **MEMS** devices, there is a market for all the things you need to make **MEMS** devices.

You need machinery or equipment for the **front-end** and **back-end** process, and you need materials. Front-end means more or less everything going on in the clean room, back-end describes essentially the packaging of the raw chips - an often quite sophisticated process in **MEMS** technology.

Area	Gross 10 <sup>6</sup> \$	Share
Front-end	?	53 %
Back-end	?	31 %
Materials	≈ 270	

No numbers for the machinery, but **270 Mio \$** is really money, too; and the gross for the equipment is certainly much higher.

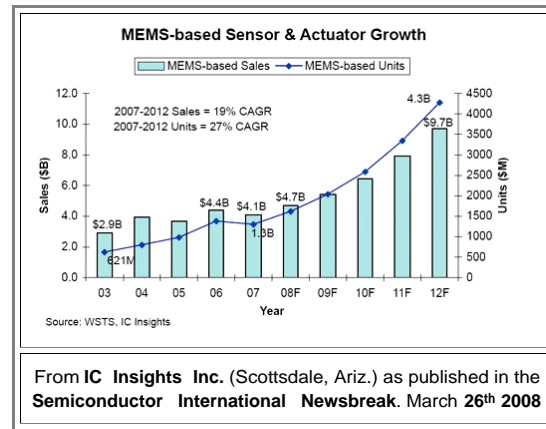
Here is an overview from the "Silicon Technology I" script of **Prof. Wagner**, belonging to the Master Study course.



The discrepancy to the numbers above comes from unclear definitions: Are "RW" (reading and writing) heads included in the numbers above? Are we discussing devices or systems? Are we discussing just the product market or also the "making **MEMS**" market?

Whatever. Two things are clear enough: There is a lot of money in **MEMS**, and it is a rapidly growing market.

The "Semiconductor International" in March **2008** agrees: Below are some data concerning the **MEMS** sensor and actuator market.



Note that between "Units" and "Sales" we have roughly a factor of **3**. There might be a mistake here: Units probably should not have the \$ sign - it's just how many devices are made. If this is true, we see that a **MEMS** chip sells for about **3 \$**.

The message is loud and clear: The future belongs to **MEMS** (and **Solar**, and ...) - and that may be part of your future as materials scientist, too.