

The world MEMS devices, equipment and materials market survey 2006.

General proposal

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Organization of the WMEM market survey

The Participants

- Bring together several companies interested in analyzing the devices, equipment and materials markets for MEMS/MST
 - Have 5 to 7 companies involved, suppliers or potential suppliers of the MEMS industry

The work to be done by Yole for the participants

- In-depth description & analysis of this area (quantitative evaluation of the market)
- PLUS Custom work for each participant (qualitative analysis)
- Schedule :
 - Starting point : at the signature of the contract
 - Duration : 4 to 6 months, with frequent synthesis

The cost for each participant

- Share the cost between the different companies for a budget per company of 25 kEuros

WMEM market survey: objectives

- **General objectives, common to each company :**
 - **Analyze the industrial food chain of this fields : material manufactures, service providers, components manufacturers, capital equipment manufacturers**
 - **Analyze and describe the technologies for the manufacturing of MEMS components (bottlenecks, achievements, process steps ...)**
 - **Describe the Mems markets in details, per application**
 - **Description of all companies and major research labs involved in this field world wide**
- **Specific work for each company :**
 - **Answer specific marketing and commercial questions linked to the development of the MEMS business**
 - **Describe the specific devices, equipment and material markets for the period 2004-2010 :**
 - **Mems devices : accelerometer, gyroscopes, RF Mems ...**
 - **Materials : Si wafer, SOI wafer ...**
 - **Front-end : lithography equipment/mask aligner, wafer aligner, wafer bonder, spinner, coater, developper, hot embossing, CVD, PECVD ...**
 - **Back end equipment : assembly, packaging, test**

Added value of Yole Développement

- **Unique expertise of the MEMS fields, from equipment manufacturers up to device manufacturers**
- **Unique database of the 350 MEMS fabs worldwide**
- **Success of the first World mems equipment and material analysis in 2003, 2004 and 2005**
- **Strong network of contacts in the MEMS companies in Europe, USA and Asia (many of them are our customers)**
- **Solid methodology able to provide valuable market data using scenario analysis.**

Areas covered

- **Physical MEMS :**
 - Pressure sensor, acceleration and gyro sensor, flow sensor ...
- **Optical MEMS :**
 - DLP, scanners ...
- **RF MEMS :**
 - FBAR, switches, varicap, ...
- **Actuator :**
 - Ink jet head, minimotors, microreactors ...
- **Miscellaneous :**
 - To be defined before the start of the action with the participating companies

Description of the common work to be done

- **Description of the industrial food chain :**
 - **Wafer manufacturers** : who is producing what, type of products, development stage, production level today and in the future
 - **Capital equipment manufacturers** : major world manufacturers for the process steps in the MEMS business, characteristics of the activity and of the offer
 - **Components manufacturers** : who is producing what, type of products for which applications, development stage, production level today and in the future, major characteristics of the process (technology, cost, yield ... if available)

Description of the common work to be done (2)

- **Analyse and describe the main technologies for the manufacturing of MEMS components :**
 - **Process steps for the manufacturing of the different Mems devices**
 - **Bottlenecks & achievements**
 - **R&D organisations on a world basis**
 - **Technology roadmap for the different products and process**
 - **Who is developing what ?**
 - **Wafer diameter evolution**
 - **...**

Description of the common work to be done (3)

- **For each type of MemS device, analysis and evaluate the linked market :**
 - **Market size in volume (number of device) and value (M\$) for 2004 and projection up to 2010**
 - **Strategic analysis and major trends per application**
 - **Competing situation and market share**
 - **Scenario analysis in order to understand the future evolutions of this market**

Description of the common work to be done (4)

- **Description of all industrial players involved in the MEMS business in Europe, North America and Asia by providing the World MEMS Fab database.**
- **Description of the major R&D labs**
- **Identification per company of the planned investment 2006-2007-2008 (if available)**
- **Typical profile : (see next slide)**

Company profile

- **Company name and address**
- **Key managers and/or contacts**
- **Company Overview, market and customers, agreements and Alliances**
- **Financial data**
 - **Investors**
 - **Sales and benefit of the last 3 years**
 - **Capital investment forecast**
 - **Number of employes**
- **Main Products & Technologies**
- **Manufacturing Facilities:**
 - **Activity of the plant**
 - **Status of the plant**
 - **Total Investment**
 - **Type of material**
 - **Wafer size (mm)**
 - **Clean room size (m²), clean room class**
 - **Production capacity (wpw)**
 - **Staff involved in production**

Specific work for each participant

- To be defined at the beginning of the survey
- For each type of device, material and equipment under interest for your company, analysis of the linked market :
 - Market size in volume (number of units) and value (M\$) for 2004 and projection up to 2010
 - Strategic analysis and major trends
 - Detailed analysis for a specific area/market : automotive, mobile phone ...
 - Competing situation and market share
 - Scenario analysis in order to understand the future evolutions of this market
- Can include also include :
 - Detailed analysis of a company (customer or competitor) with enhanced profile
 - ...
- The custom work represents 70% of the time spent on the survey (30% for the general analysis).

Schedule

- **Starting point : at the signature of the contract**
 - Analysis of the company information needs (for each company involved in this action)
 - Definition of the different review meetings
 - Specific objectives, timing ...
 - Definition of the companies to be met and why
 - Definition of the information gathering tools : interview guide ...
- **Duration : 4 to 6 months**
- **Several meetings will be set-up, approximately every 7 to 9 weeks, with each participant in order to make the status of the search of information, get feed-back on the results ...**
- **Final synthesis in 2 rounds in order to take care of important new questions.**

Methodology

- **Direct contact with each targeted company (face-to-face meeting) with the different persons important for our analysis :**
 - R&D manager, purchasing manager, fab manager, marketing manager ...
 - Several contact per company is feasible due to the different companies involved in this action
 - Several meetings in a company is feasible in order to analyse different points
- **Approximately 80 companies will be analyzed, chosen at the beginning of the action and regularly updated**
- **All the 350 Mems fabs worldwide will be analysed in order to have a complete analysis of the industry**
- **Presence at the main conferences and exhibitions (Micromachine 06, Convergence 06, Semi Exhibitions, MEMS, Transducers...)**

Methodology (2)

- **Strong interaction with each company is key to the success (meeting every 7 weeks)**
- **Synthesis made in common**
- **Specific analysis made for each company with the team of Yole and the team of the company :**
 - **Marketing analysis**
 - **Synthesis of the action for the company**
 - **Proposal of actions**
- **Key persons of YOLE Développement :**
 - **P. Roussel, responsible of the semiconductor equipment markets**
 - **Eric Mounier, MEMS activity manager**
 - **JC Eloy, director**

Budget

- **Budget per company : 25.000 Euros**
- **This budget includes :**
 - **Time spent on the global and custom analysis**
 - **Travel expenses and cost linked to the gathering of the information**

General conditions

- **Term of paiement :**
 - 30% at the beginning of the action
 - 40% after two months
 - 30% at the end of the action
- **An NDA agreement will be signed between Yole Développement and each customer in order to keep the confidentiality of the exchanges**

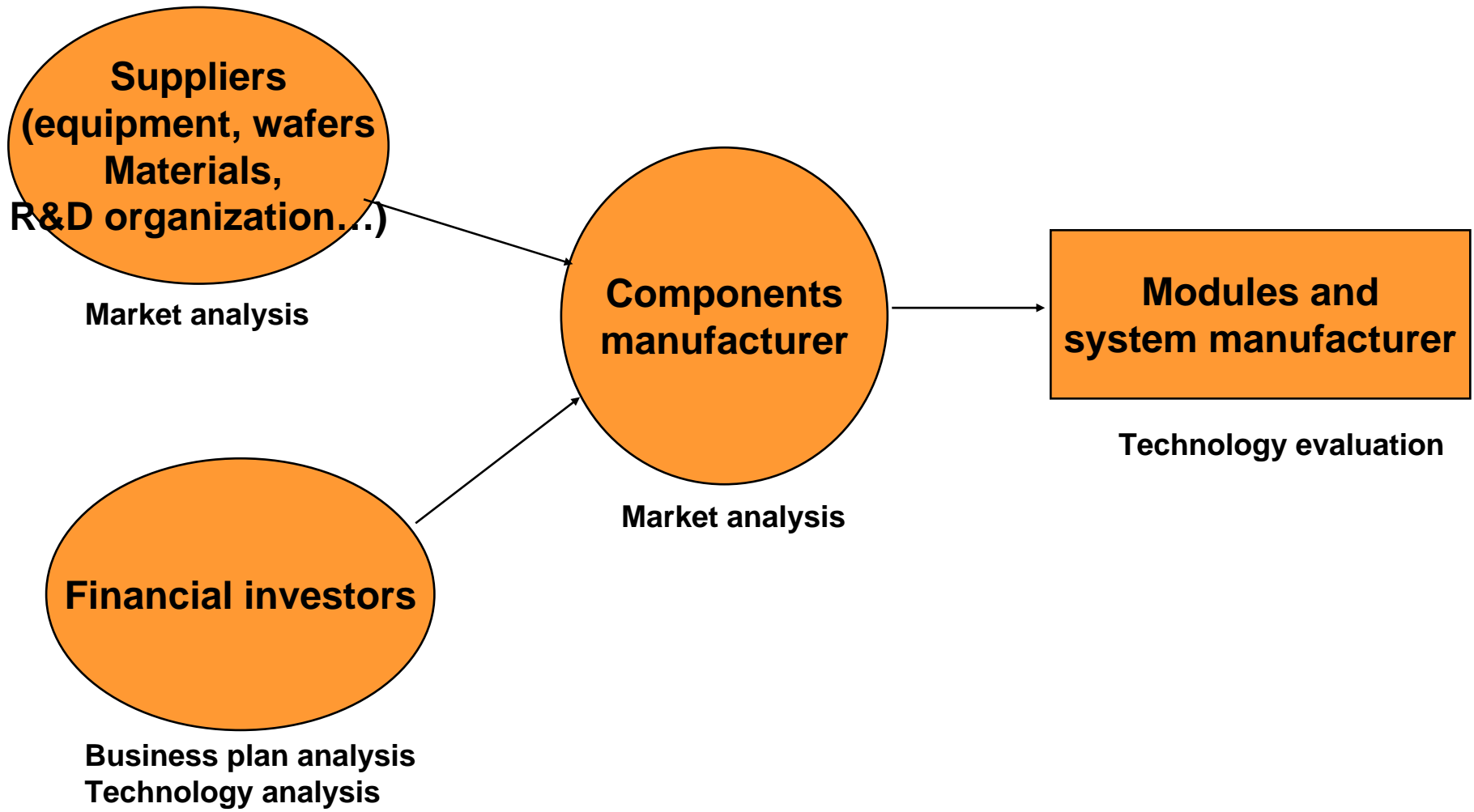
Presentation of Yole Développement

Presentation of Yole Développement

- Yole Développement is a market research and strategy consulting company, created in 1998.
- We are involved in the following fields:
 - MEMS fields, strategy and market research, **World leader**
 - Compound semiconductor business (SiC, GaN and thick SOI), **First European marketing consulting company**
 - Optics and optoelectronics
 - Instrumentation for life science
 - Nanomaterials and linked equipment
 - Energy related areas
- Yole Développement has 18 consultants, with both technical and marketing/management background, working worldwide
- We have different activities :
 - **Custom strategic and market research analysis**
 - **Edition of reports**
 - **Edition of a monthly newsletter :**



Typology of our customers



Lines of services for custom analysis

- **Strategic and marketing analysis :**
 - Strategic analysis
 - Identification of new applications and markets, set-up of market segmentation
 - Proposal of actions and marketing plan
 - Scenario analysis
- **Technology strategies**
 - Analysis of technical areas and definition of technology strategy
 - Define and find the right partners
 - Scenario analysis
- **Specific services for investors :**
 - Evaluation and analysis of business plan
 - Evaluation of production infrastructure
 - Expertise and due diligence before M&A
 - Company, market and technology expertise
 - Strategy, marketing and technical due diligence
- **Realisation of multi-customer analysis**

Added value of Yole Développement

- **Development of specific methodologies in order to analyse and evaluate markets linked to new technologies**
- **In-depth industrial and technical knowledge of the different fields of specialties of Yole Développement**
- **Global contact network:**
 - **Participation to all major events**
 - **Contact data base of 45,000+ names**

A specific offer : multi-customer actions

- **Bring together 5 to 7 companies interested to analyze a specific field :**
 - **Materials manufacturers**
 - **Equipment manufacturers**
 - **Device manufacturers**
 - **R&D organizations**
- **Make a complete and in-depth description of this area and provide specific answers to the participants of this action :**
 - **General analysis common to each partner**
 - **Key specific questions defined by each partner**
- **Schedule :**
 - **Starting point : at the signature of the contract**
 - **Final synthesis : after 5/6 months**
- **Share the cost between the different companies : budget per company 25 kEuros.**

New multi-customer analysis on the way

- **World MEMS equipment markets 2005**
- **Microreaction technologies**
- **Nano imprint lithography**
- **New technologies for power devices**
- **3rd generation photovoltaic solar cells**
- **Advanced packaging**

- **Compound semiconductor fields :**
 - **Thick SOI : status of the markets and new developments**
 - **GaN : from devices to equipment and material markets**
 - **InP : from devices to equipment and material markets**
 - **AlN : from devices to equipment and material markets**
 - **SiC : from devices to equipment and material markets**

Major device manufacturers customer of Yole Développement

- **Europe** : Sensoror, QinetiQ, Bosch, Unaxis, Thalès, SMB, AMIC, Infineon, Colibrys, Tronic's, Silex, STM, Philips, Varioptic, Modulight, VTI ...
- **North America** : Micralyne, Honeywell, Endevco, Freescale, HP, TI, Qualcomm, Knowles, Microfabrica ...
- **Asia** : Denso, Samsung, DNS, Canon, Panasonic, Nozomi Photonics, Sony, Sharp, Toshiba ...
- **R&D organizations** : CEA/Leti, CNRS, FhG, INSERM, IMEC, Université de Franche Comté, University of Strathclyde, INEX, IEMN, Sandia, Itri ...

Major customers in the equipment and material fields

- **Equipment** : AMAT, ASML, Steag Hamatech, Jenoptik, EVGroup, STS, Sysmelec, Isméca, Mirae, Datacon, Mesatronic, Ebara, Applied MST, Xsil, Altatech, Riber, Ebara, TEL, Ultratech, Lam research ...
- **Wafer manufacturers** : Soitec, Umicore, Lumilog, Tracit Technologies, Okmetic, Tocera, Sixon, InPact, Bridgestone ...
- **Materials and chemical materials producers** : Schott, Ablestik, Dow Corning, Honeywell, Xenocs ...

Other Yole Développement offers

- **Edition of reports describing specific markets and technologies :**
 - MEMS reports
 - Compound semiconductor reports
 - Microfluidics and biochip reports
- **Edition of a monthly newsletter, Micronews**
 - 10 000 subscribers, 30 000 readers
 - More than 3% growth per month
 - Worldwide coverage
 - Key magazine of the industry
- **Edition of a MEMS executive newsletter :**
 - 18 issues per year
 - Analysis of what is happening behind the scene
 - Comments on the major MEMS industry events every 3 weeks

For more information ...

Take a look at our web site

www.yole.fr

You can register on line for free issues of Micronews

Save the date :

**Yole Développement is part of the organisation of
Transducers 2007 in Lyon (10th to 14th of June 2007)**

