Admont

D8.2 Initial report and updates on dissemination, exploitation and standardization activities

Project number:	661796
Project acronym:	ADMONT
Project title:	ADMONT – Advanced Distributed Pilot Line for More-than-Moore Technologies
Start date of the project:	1st May, 2015
Duration:	48 months
Programme:	H2020-ECSEL-2014-2

Deliverable type:	Report
Deliverable reference number:	ECSEL-661796 / D8.2/ FINAL | 1.0
Work package contributing to the deliverable:	All WPs
Due date:	January 2016 – M10
Actual submission date:	29th February, 2016

Responsible organisation:	X-FAB
Editor:	Karl-Heinz Stegemann
Dissemination level:	Public
Revision:	FINAL | 1.0

Abstract:	This report details the dissemination activities which have been ongoing during the first year of the ADMONT project, mainly focused on increasing its visibility and the public awareness of the project. It reports on the progress and future plans of the partners for their dissemination activities, standardization and exploitation of project results.
Keywords:	Dissemination, exploitation, standardization, conferences, awareness, impact

This project has received funding from the ECSEL Joint Undertaking under grant agreement No 661796. This Joint Undertaking receives support from the European Union's Horizon 2020 research and innovation programme and Germany, Finland, Sweden, Italy, Austria, Hungary.
In detail, the following national institutes (including logos) support the ADMONT project:

- Austrian Ministry for Transport, Innovation and Technology (BMVIT) under the program ICT for future.
- Swedish Governmental Agency for Innovation Systems.

Bundesministerium für Bildung und Forschung
STAATSMINISTERIUM FÜR WIRTSCHAFT ARBEIT UND VERKEHR
Freistaat SACHSEN
Tekes
ECSEL Joint Undertaking

Editor

Karl-Heinz Stegemann (X-FAB)

Contributors (ordered according to beneficiary numbers)

Sandra Moschitz (TEC)

Contributions of all partners

Executive Summary

This deliverable is a report describing the dissemination, standardization and exploitation activities of the consortium during the first ten months of the project. Furthermore, it provides a refinement of the initial plans from the project proposal stage. In this document the ADMONT consortium documents the efforts and intentions to promote the project amongst stakeholders, engage the target audience and maximize the uptake of project results.

The dissemination strategy is divided into three consecutive phases: awareness-, result-, and exploitation-oriented phase (see Chapter 2.1). The ADMONT project has been disseminated mainly by means of presenting the project at conferences (ENF, SEMICON etc.), as well as by being present at digital media channels such as Internet or Twitter. Further, the ADMONT website including a project blog as well as continuous updates raised interest for visitors to get to know more about the project (see Chapter 2.2). Furthermore, the project partners made particular dissemination plans for period of M11-M18 (see Chapter 2.3).

Within the exploitation chapter, various potential markets are analyzed together with particular key applications that the ADMONT pilot line is addressing. Moreover, some project partners updated their exploitation plans based on current development of business environment (see Chapter 3). Overall, the ADMONT project has very high potential due to the positive market situation and expertise of the project partners. Furthermore, first standardisation plans were identified, added to the ones proposed in the DoA and summarized in Chapter 4.

The performed and planned dissemination, exploitation and standardisation activities are effective means for raising awareness of the project and highly influence future success of the ADMONT project.

Contents

List of Figures

List of Tables

Chapter 1 Introduction

This deliverable presents the dissemination, standardization and exploitation activities of the ADMONT consortium during the first 10 months of the project. Besides the reported activities it is also a refinement of the plans from the project proposal stage.

WP8 – “Dissemination and Preparation of Exploitation” is divided into three tasks. Task 8.1 “Dissemination and Communication”, Task 8.2 “Exploitation and Intellectual Property Rights” and Task 8.3 “Standardisation”. The initial outcomes and updated plans are presented within this Deliverable.

Chapter 2 describes all dissemination activities carried out in order to ensure the visibility of the project and activities to promote ADMONT to various stakeholders. Chapter 3 focuses on the market potential and describes how each partner will be able to exploit project results. Chapter 4 shortly summarizes the consortiums’ effort with regards to standardization. Chapter 5 summarizes major results and gives an outlook to planned activities for the next project period.

Chapter 2 Dissemination

2.1 Dissemination Strategy

The dissemination strategy of ADMONT is made up of three consecutive phases:

- The **awareness-oriented** phase aims to create awareness and to raise public interest.
- The **result-oriented** phase will promote results of the project to potentially interested parties.
- Finally, during the **exploitation-oriented** phase, specific activities will be undertaken in order to actually start the exploitation.

The three phases of dissemination require different methods and activities to be undertaken in order to achieve their goals.

Awareness-oriented phase

Raising the public awareness involves the setting up of the basic marketing materials and awareness-raising presentations about the project and the problems it aims to tackle. Thus, the main activities are the following:

- Setting up a common project design, such as an ADMONT logo, templates for documents and presentations.
- Creating and maintaining the project website, which will describe the challenges and the goals of the project and which will introduce the project members.
- Designing the project information materials (such as a leaflet and an introductory off-the-shelf presentation), which can be distributed later on without investing greater efforts.
- Giving introductory presentations at conferences and workshops about the challenges and goals of ADMONT in order to raise awareness among the scientific and industrial stakeholders and to establish the basic brand name of ADMONT.

This phase mainly coincides with the first months of the project and this is what has been mainly carried during the Period 1 and 2 covered in this report.

Result-oriented phase

For promoting the results of the ADMONT project, this dissemination phase will address stakeholders in programmable hardware related security issues. The planned activities are:

- Display and promote public deliverables and news for viewing and downloading on the project website in order to show the liveliness and progress of the project and to keep interested parties up-to-date.
- Presentations at international conferences and workshops covering the technical findings of the ADMONT project. These presentations will be research-oriented.
- High-quality papers will be submitted to scientific and industry conferences.
- The ADMONT consortium will publish and disseminate press releases after having reached important milestones. These press releases will be circulated to representatives of the international press focusing on hardware security.

Exploitation-oriented phase

The exploitation is specifically targeted at potential clients of the ADMONT project. Specific planned activities of this phase include:

- Exploitation-oriented upgrade of the project website, including optimisation for search engines and optional registration for specific keywords.
- Individualised demonstrations at interested stakeholders during the negotiation of business projects.

2.2 Dissemination Activities M01 – M10

The ADMONT project and its activities have been disseminated by means of presenting the project at international conferences (such as ENF, SEMICON etc.) and raising awareness for ADMONT through media. The following section presents our dissemination activities in order to document the extent to which we have executed our above mentioned dissemination strategy.

2.2.1 Visual Identity of the project

The creation of a corporate visual identity plays a significant role in the way the ADMONT project presents itself to both internal and external stakeholders. A corporate visual identity expresses the values and ambitions of our project and its characteristics. Our corporate visual identity provides the project with visibility and "recognizability". It is of vital importance that people know that the organization exists and remember its name and core business at the right time. The following subchapters present the actions, which were taken in order to create a visual identity of the project.

2.2.1.1 Project Logo

To improve of its visibility, the ADMONT project has adopted a project logo. The logo is used on all internal templates as well as on external dissemination tools.

Figure 1: ADMONT logo

2.2.1.2 Leaflet

The official ADMONT leaflet is a two page informative and graphically appealing A4 flyer, highlighting the objectives and the work programme of ADMONT. It can be, and has already been used for distribution at conferences or certain other events in order to provide further visibility to the ADMONT project. TEC was mainly responsible for the content and design of the leaflet and distributed it to all partners after finalisation. An electronic version of the leaflet is available on the ADMONT website.

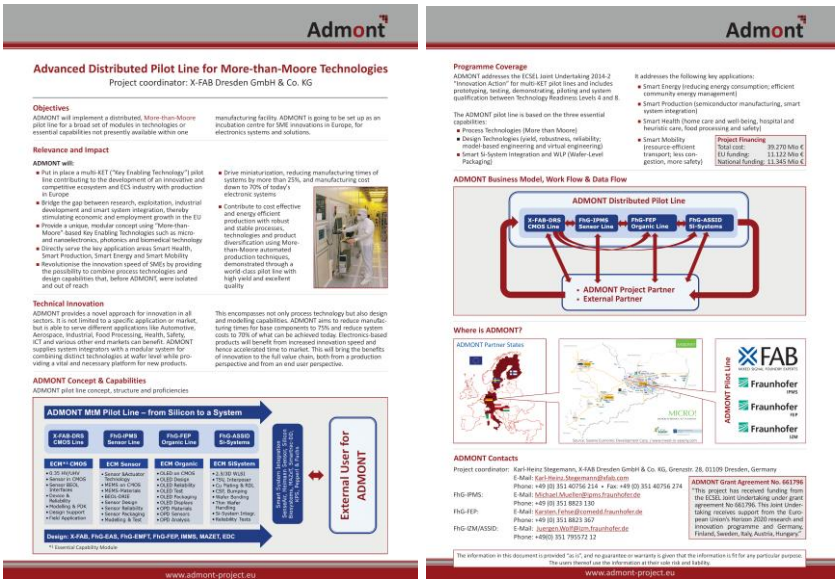


Figure 2: ADMONT Project Leaflet

2.2.1.3 Project Templates

The project identity is reflected in all documents created by the consortium for internal as well as for external use. The project management team established templates for different formats as MS-Word, MS-Excel, MS-Power Point, Latex etc.

2.2.2 Project Website

For the visibility of the project the project website was launched in first months of the project. It provides an overview of the project and up-to-date information on its activities and results, as well as contact details, partner information and information on events. The website, which is hosted by Technikon, is based on the Content Management System (CMS) "Joomla!", and a whole tool set including web servers which provide the public website of the project and additionally functionalities within the restricted areas for members only. The website can be viewed with a standard web browser and will be kept alive throughout the project period and at least 3 years afterwards. The project website has been designed such that it can be handled intuitively to give an introduction to the project.

The project website is updated continuously by TEC, whereas all partners participate in the process by sending notifications of important news and developments.

The ADMONT project website is available on the following link: http://www.admont-project.eu. The following illustration shows the Welcome page of the ADMONT website.

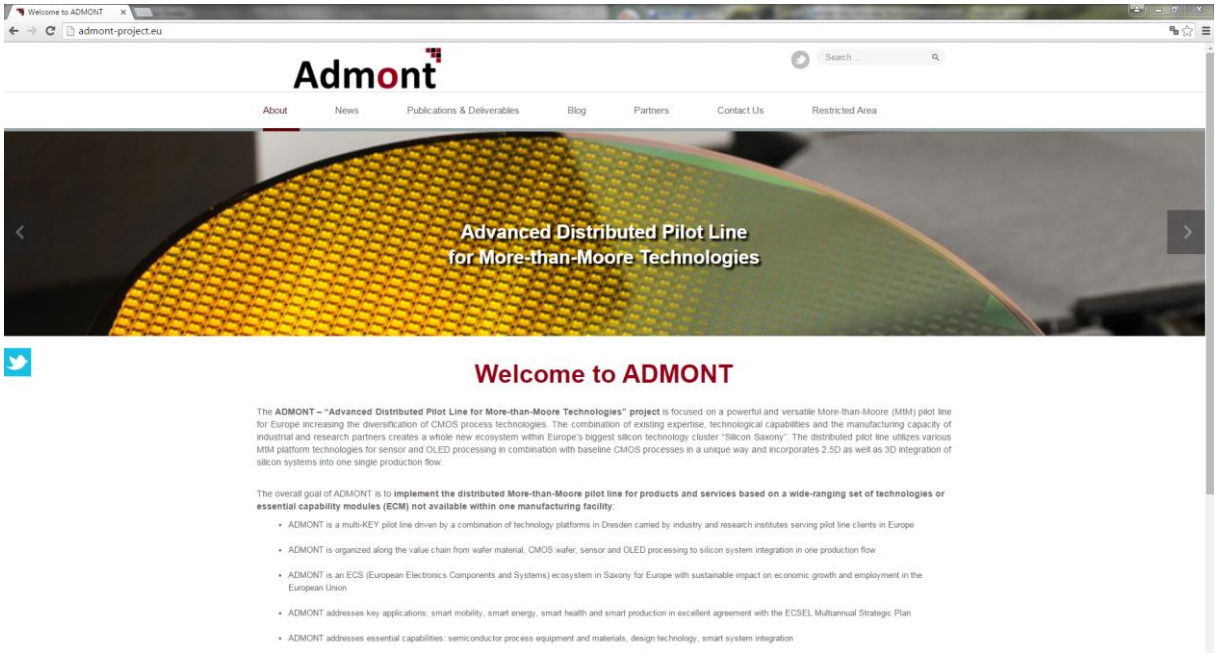


Figure 3: Welcome-page of the ADMONT Homepage

Within the first 10 months it was a primary goal to raise awareness for our webpage and get stakeholders to visit the ADMONT project website. In total, 2333 users created 6249 page views. This number is quite high, but still the goal is to promote the ADMONT website in order to make more stakeholders read information on the project website. A further goal for the next months is to increase the number of returning visitors.

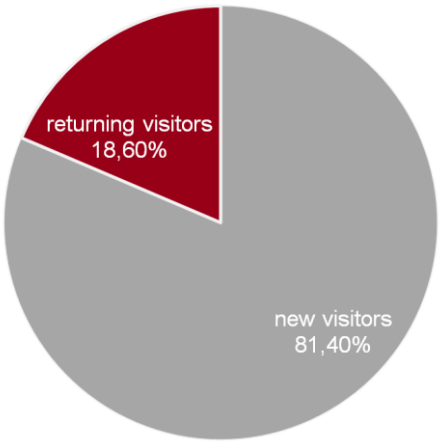


Figure 4: ADMONT website users

Currently 18,60% of all users visiting the ADMONT website come back. Through additional services, updates on the project progress and available downloads, the ADMONT consortium targets to increase the number of returning visitors.

Figure 5: ADMONT website worldwide

Moreover, Figure 5 displays that the ADMONT project website is visited from users worldwide. The highest number of visitors was for sure counted in Europe. But it is remarkably that also users from the USA, China, Southeast Asia as well as Australia visited the webpage to get to know more about the ADMONT project.

2.2.3 Conferences

Participation to conferences in order to promote and introduce the ADMONT approach to the community as well as receiving feedback for the project progress are central for the project success. Therefore, the ADMONT consortium participated in the following conferences.

Name of Conference, Fair, Panel, external meeting, etc.	Date	Place	Link	Participating Partner(s)
2015 International Nano-Industrial City Forum	24.09.2015	Daejeon / S. Korea		FhG-IPMS; ADMONT part of larger presentation by Michael S.
SEMICON Europe	6-8.10.2015	Dresden	http://www.semiconeuropa.org/	Fraunhofer Group for Microelectronic
Semicon Europe Tech Lounge: Opportunities and Challenges Using Self-Navigating Systems in Semiconductor Fabs	07.10.2015	Dresden	http://semiconeuropa.org/node/3106	RRO Presentation by Karli Hantzschmann
EUROPEAN NANOELECTRONICS FORUM	01. - 02. 12.2015	Berlin	www.nanoelectronicsforum.org	EU funding organization, poster presentation K.-H. Stegemann
12. Dresdner Sensor-Symposium	07. - 09. 12.2015	Dresden	http://www.fms-dresden.de/12_+Dresdner+Sensor_Symposium-p-58210.html	Fraunhofer-FEP

Table 1: List of conferences

Special attention was given to the European Nanoelectronics Forum as well as to the SEMICON Europe.

2.2.3.1 SEMICON Europe

From Tuesday, 6th October to Thursday, 8th October, the European semiconductor industry met at the trade fair „SEMICON“ in Dresden (Germany). Over 400 exhibitors from the nano- and microelectronics industry showed their technological developments. More than 5000 visitors from about 60 countries joined the SEMICON fair.

XFAB and Fraunhofer presented the achieved and planned developments within ADMONT. A lot of visitors joined interesting discussions regarding ADMONT at our booth.

Partner RRO gave a presentation in SEMICON Europe TechLounge on “Opportunities and Challenges Using Self-Navigating Systems in Semiconductor Fabs” and performed a SCOUT Demonstration.

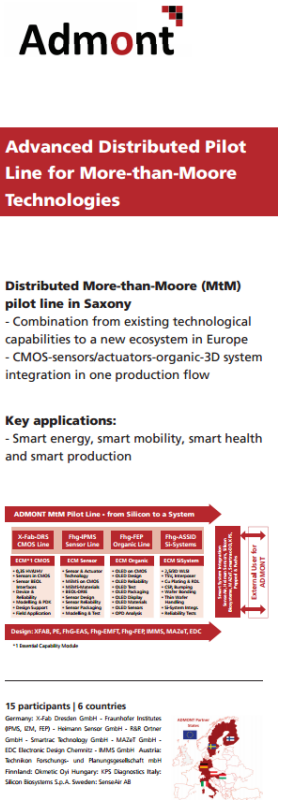


Figure 6: SEMICON Poster

2.2.3.2 European Nanoelectronics Forum

Figure 7: ENF Poster

ADMONT joined the European Nanoelectronics Forum on 1st and 2nd December 2015 in Berlin. During the 2 days, visitors learned about the latest innovations and industry trends and received updates on policy developments, European strategies and collaborative funding programs.

More than 70 projects were exhibited, interactive information sessions and a top notch plenary programme, ENF2015 aimed to offer a unique networking opportunity for all attendees and a comprehensive snapshot of nanoelectronics R&D&I in Europe today.

We seized this opportunity to present the ADMONT project to a wide audience and got in touch with new stakeholders. The projects’ technical lead, Roberto Gärtner, presented a project poster and leaflets just hot off the press. The participation in the ENF 2015 was a great success.

2.2.4 Scientific Publication

Fraunhofer published in cooperation with the technical university of Dresden, a scientific article related to ADMONT in the Electronics 2015 Journal.

"Narrow Bandwidth Top-Emitting OLEDs Designed for Rhodamine 6G Excitation in Biological Sensing Applications" , Matthias Jahnel, Beatrice Beyer, Michael Thomschke, Karsten Fehse, Felix Krujatz and Karl Leo, Electronics 2015/4, pp. 982-994.

Download the full paper following https://admont-project.eu/downloads/Electronics-2015.pdf

2.2.5 Workshops, Presentations etc.

ADMONT partners further represented the project in the following workshops and industry forums:

Name of Conference, Fair, Panel, external meeting, etc.	Type of Event	Date	Place	Link	Participating Partner(s)
FhG-IPMS/CNT 2015 partner day	Workshop	11.06.2015	Dresden	http://www.ipms.fraunhofer.de/de/events/cnt-industry-partner-day-2015.html	FhG-IPMS/CNT, X-FAB presentation K.-H. Stegemann
Workgroup Silicon Germany	Industry Forum	06.10.2015	Dresden	-	Microelectronic Industry Forum, presentation Dr. Jens Kosch
APC-Workshop AMS in Graz	Workshop	15. - 16. 10.2015	Graz	http://ams.com/eng	Bosch, Vishay, Elmos, AMS, Micronas, TI, XFAB

Table 2: List of workshops and presentations

2.2.6 Press Releases

As ADMONT combines leading industry and research partners, press and media are interested in the project progress and include press releases about ADMONT in their news.

Main leader	Title	Year	Weblink (if applicable)
XFAB	Deutsche Investitionen stärken die Mikroelektronik in Europa	2014	http://www.bmbf.de/press/3707.php
XFAB	Deutsche Investitionen stärken die Mikroelektronik in Europa	2014	http://www.klamm.de/news/deutsche-investitionen-staerken-die-mikroelektronik-in-europa-forschungsprojekte-geben-europa-neuen-schub-19N526242.html
XFAB	Deutsche Investitionen stärken die Mikroelektronik in Europa	2014	http://www.prmaximus.de/118871
XFAB	Deutsche Investitionen stärken die Mikroelektronik in Europa	2014	http://www.pressemeldungen.com/2014/12/18/deutsche-investitionen-staerken-die-mikroelektronik-in-europa/
XFAB	Silicon Saxony Jahresbericht "NEXT" 2014	2014	http://www.silicon-saxony.de/home.html
XFAB	Schub für Europas Elektronik	2015	Physik Journal 14(2015)No.2
FhG - IPMS	MEMS Report	2015	http://www.admont-project.eu/downloads/fraun_mem.pdf
FhG - IPMS	Offizieller Start des ECSEL Projekts ADMONT für eine leistungsfähige More-than-Moore-Pilotlinie in Dresden	2015	http://www.ipms.fraunhofer.de/de/press-media/press/2015/2015-05-12.html

Main leader	Title	Year	Weblink (if applicable)
XFAB	Silicon Saxony Jahresbericht "NEXT" 2015	2015	http://www.silicon-saxony.de/home.html
XFAB	Wirtschaftsförderung Sachsen MIKRO 2015	2015	http://www.wfs.sachsen.de/
IMMS	IMMS receives iENA silver medal	2015	http://www.imms.de/en/press-media/press-releases/imms-receives-iena-silver-medal-for-energy-efficient-solutions-in-integrated-circuits-2079.html%20target=_blank
XFAB	Produktionslinie für More-than-Moore-Technologien	2015	http://www.elektroniknet.de/halbleiter/sonstiges/artikel/126266/
XFAB	An idea turned into a project and becomes reality	2015	http://www.admont-project.eu/downloads/XPRESS_ADMONT_ENG_final.pdf

Table 3: Press releases

2.2.7 *Social Media Strategy*

Making use of the advantages of social media helps spreading project information to a large audience. As a consequence, they are valuable means to disseminate project ideas and results.

Twitter is an online social networking service and microblogging service that enables its users to send and read text-based messages of up to 140 characters, known as "tweets". The ADMONT project is available on https://twitter.com/AdmontMgt

Figure 8: TWITTER on ADMONT website

2.3 Planned Dissemination Activities M11-M18

For upcoming period between March (M11) and October (M18) 2016, the project partners planned to participate in various conferences, workshops and meetings.

Conferences & Workshops:

- 9th – 10th of March 2016, Smart System Integration Conference, Munich/Germany

  Partner FhG-IPMS will present "Back-End-Of-Line Integration Technology of Capacitive Micromachined Ultrasonic Transducers (CMUT)"

  Partner X-FAB will present the project ADMONT on their booth.

- 10th – 12th of May 2016, Sensor & Test (IRS²) Conference, Nuremberg/Germany

  The new Thermopile 80x64d array will be released and presented from partner Heimann Sensors at the Sensor & Test Conference

  Partner X-FAB will present the project ADMONT on their booth.

- 20th – 23rd of September 2016, 14th European Conference on Thermoelectrics (ECT2016), Lisbon/Portugal

Moreover, the project will be disseminated at the expert meeting during Semicon West (12th – 14th of July 2016) in San Francisco/USA. Furthermore, partner RRO will give presentation at the Technology Seminar "Autonomoous Navigation for mobile Systems, and at the VDI Seminar "Autonomous Production". Besides that, the SCOUT will be demonstrated at Hannovermesse and above mentioned Semicon West.

There were two scientific papers published regarding the ADMONT project:

- M. Jahnel, B. Beyer, M. Thomschke, K. Fehse, F. Krujatz, K. Leo, "Narrow Bandwidth Top-Emitting OLEDs Designed for Rhodamine 6G Excitation in Biological Sensing Applications", Electronics 2015, 4, 982-994
- B.Kinzel et al., "An integrated dual-polarity high-voltage driver concept for micropump applications," SSI Conference, Munich, 2016.

Based on the planned dissemination activities, it can be observed that the project partners are very active and have a positive attitude towards disseminating the ADMONT project.

Chapter 3 Exploitation

3.1 ADMONT market potential

The ADMONT pilot line addresses the following key applications:

- Smart Energy (reducing energy consumption; efficient community energy management)
- Smart Production (semiconductor manufacturing, smart system integration)
- Smart Health (home care and well-being, hospital and heuristic care, food processing and safety)
- Smart Mobility (resource-efficient transport; less congestion, more safety)

For all key applications are in our DoA Part-B (Figure 2-8, Table 1) demonstrator defined witch are linked to potential market segments. The main market segments for ADMONT pilot line are:

- Sensor and MEMS for health and diagnostic
- Sensor and MEMS for automotive
- High Voltage IC for industrial power management
- IR-Sensor for consumer, safety and health
- RFID Tag for mobility, production and identification

Figure 9 shoes the MEMS market forecast for the main sensor market area up to 2020.

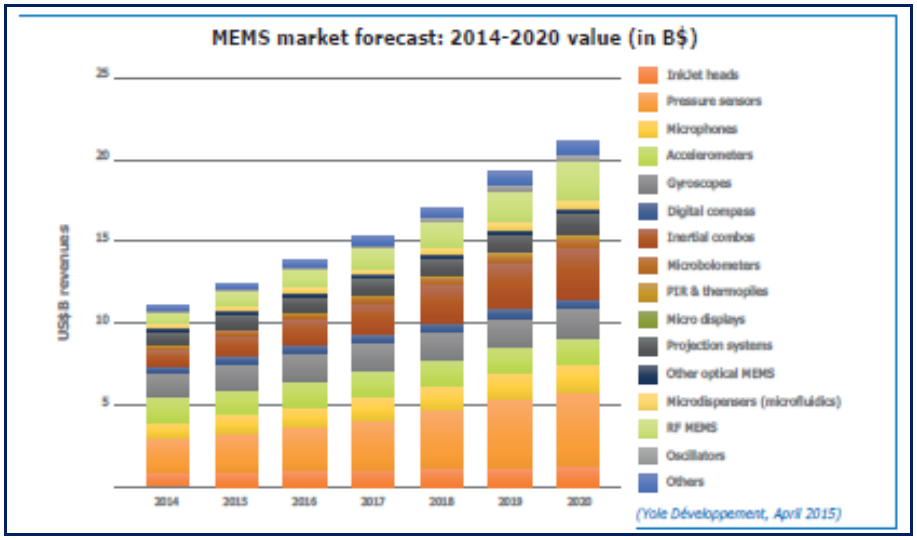
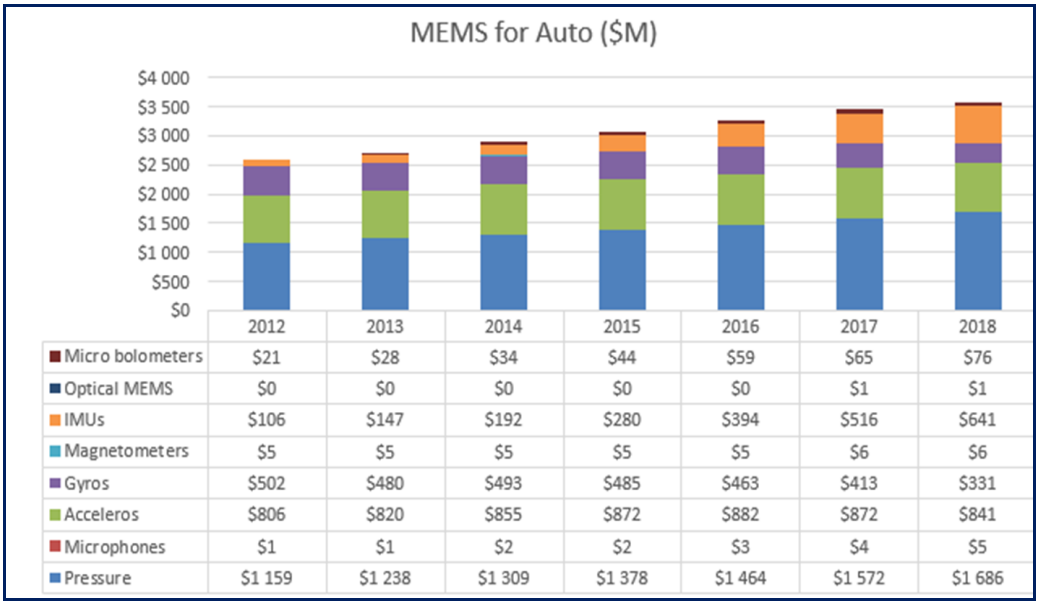


Figure 9: MEMS market forecast YOLE Technology 04/2015

The market growth is >10% per annum and all sensor types are participating.

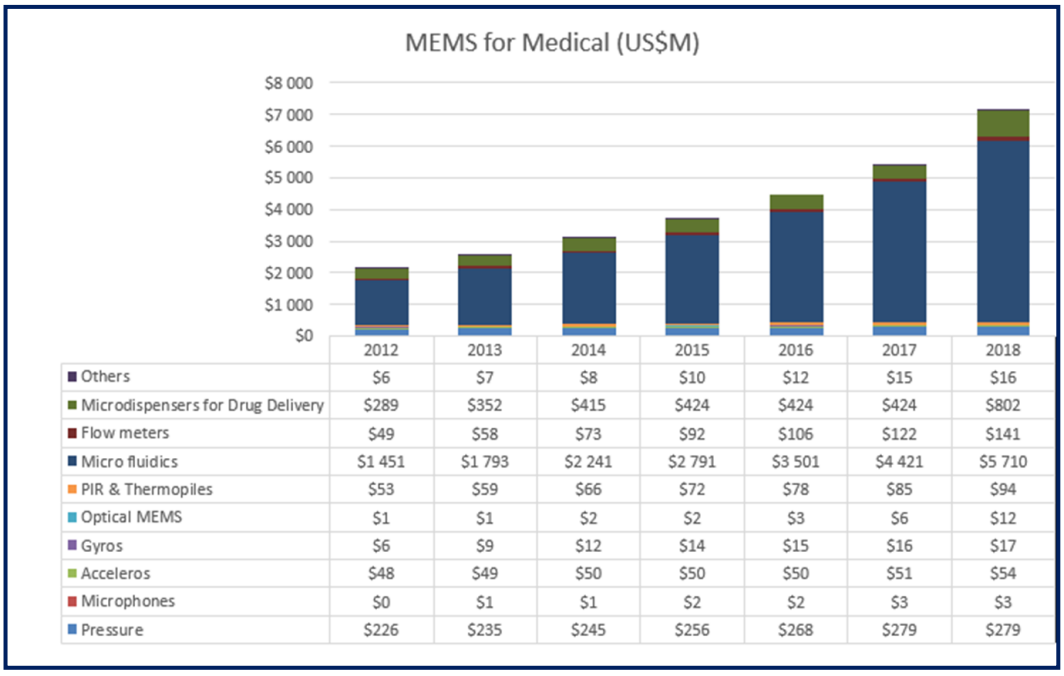
The Automotive sensor market is growing ~6-7% up to 2018. Especially the pressure sensor and pressure sensor IC market is important for ADMONT (Figure 10). In ADMONT is a demonstrator for integrated pressure sensor IC under development.



	2012	2013	2014	2015	2016	2017	2018
Micro bolometers	$21	$28	$34	$44	$59	$65	$76
Optical MEMS	$0	$0	$0	$0	$0	$1	$1
IMUs	$106	$147	$192	$280	$394	$516	$641
Magnetometers	$5	$5	$5	$5	$5	$6	$6
Gyros	$502	$480	$493	$485	$463	$413	$331
Acceleros	$806	$820	$855	$872	$882	$872	$841
Microphones	$1	$1	$2	$2	$3	$4	$5
Pressure	$1 159	$1 238	$1 309	$1 378	$1 464	$1 572	$1 686

Figure 10: MEMS and sensor forecast for automotive (YOLE Technology 2013)

The MEMS and sensor market for medical and diagnostic application is the fastest growing market segment (Figure 10). An annual growth from ~30% is forecasted. That's why one focus area from ADMONT is bio-medical and diagnostic micro systems demonstrator for different application.



	2012	2013	2014	2015	2016	2017	2018
Others	$6	$7	$8	$10	$12	$15	$16
Microdispensers for Drug Delivery	$289	$352	$415	$424	$424	$424	$802
Flow meters	$49	$58	$73	$92	$106	$122	$141
Micro fluidics	$1 451	$1 793	$2 241	$2 791	$3 501	$4 421	$5 710
PIR & Thermopiles	$53	$59	$66	$72	$78	$85	$94
Optical MEMS	$1	$1	$2	$2	$3	$6	$12
Gyros	$6	$9	$12	$14	$15	$16	$17
Acceleros	$48	$49	$50	$50	$50	$51	$54
Microphones	$0	$1	$1	$2	$2	$3	$3
Pressure	$226	$235	$245	$256	$268	$279	$279

Figure 11: MEMS market forecast for Medical (YOLE Technology 2013)

In the field of discrete thermopile sensors is the market leader Heimann Sensor (Figure 12) partner in ADMONT. X-FAB, Heimann Sensor and SenseAire will extent there market position and growth together with the market leader.

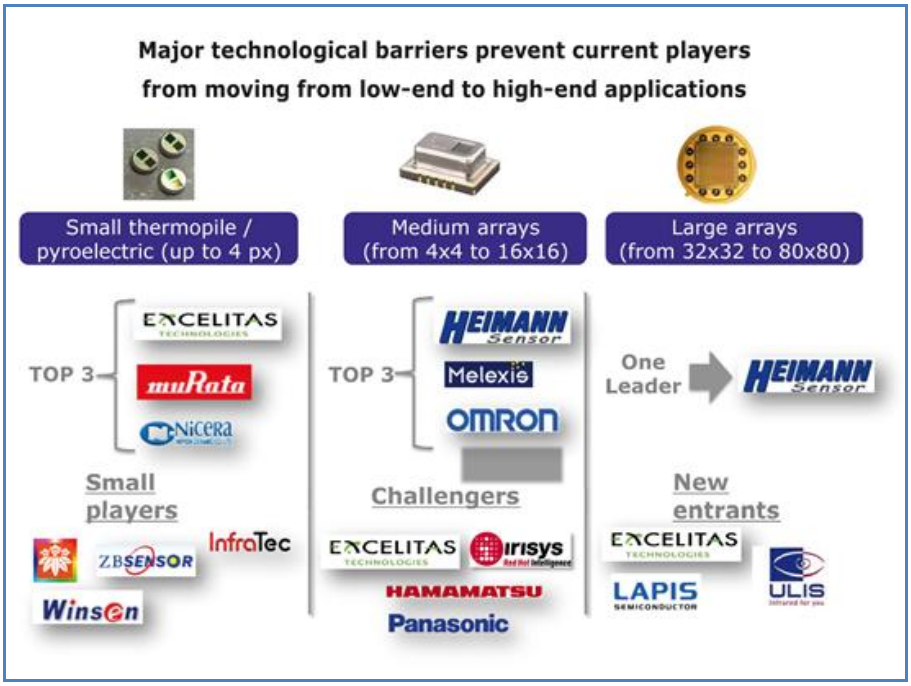


Figure 12: Major players in IR sensor market (YOLE Technology 2013)

The IR-sensor market is growing with ~30% per year in the period 2013-2018 (Figure 13). Included are array detectors which range from medium size (4x4 to 16x16 pixels) to large size (32x32 and above). On our technical meeting January 2016 Heimann Sensor reported first functional IR-arrays.

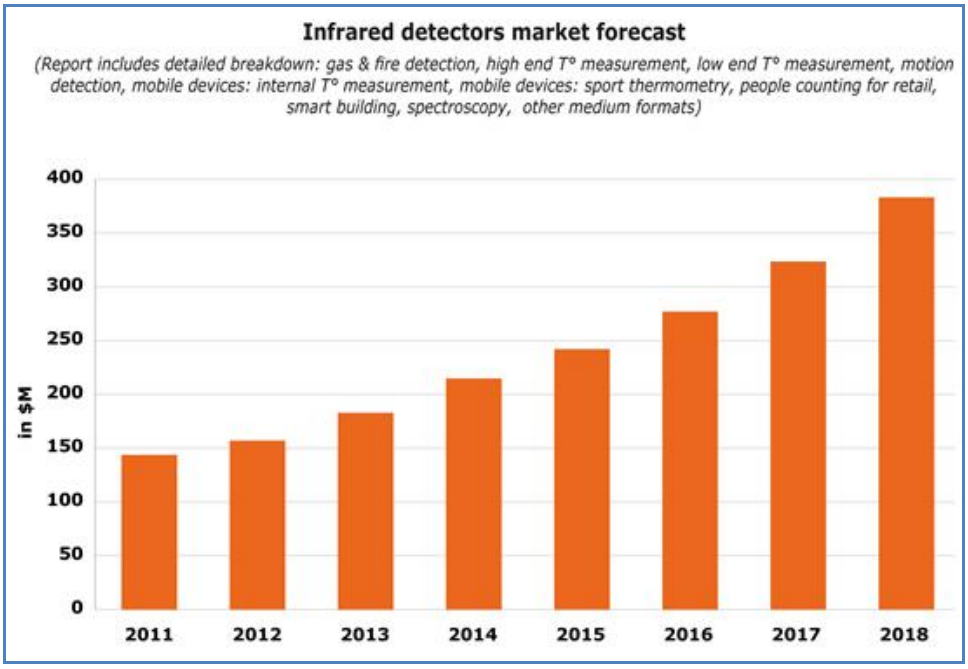


Figure 13: IR-Sensor market forecast (YOLE Technology 2013)

In conclusion ADMONT is addressing with many demonstrators the fast growing MEMS and sensor market segments. The market potential for all ADMONT partners is given and especially for IR-sensors and MEMS for medical application the market forecast is very strong.

3.2 Individual Exploitation

In order to address individual exploitation, the partners have been asked to update their initial exploitation plans (as indicated in DoA, section 2.2) or if they are still valid to provide information with regards to the following leading questions:

- Did you start any exploitation activities with regards to market analysis etc.?
- How will the developments within ADMONT improve your business situation with regards to new markets, new costumer-segments, market share?

Within this chapter, the activities per partner are summarized.

3.2.1 Partner X-FAB

In comparison to our exploitation plan we have to skip the plans for LED-driver market activities. The partner PE dropped out the project and also the demonstrator for LED driver IC's. X-FAB started to intensify the market activities for industrial and medical application. The sales distribution over different market segments shows Figure 14.

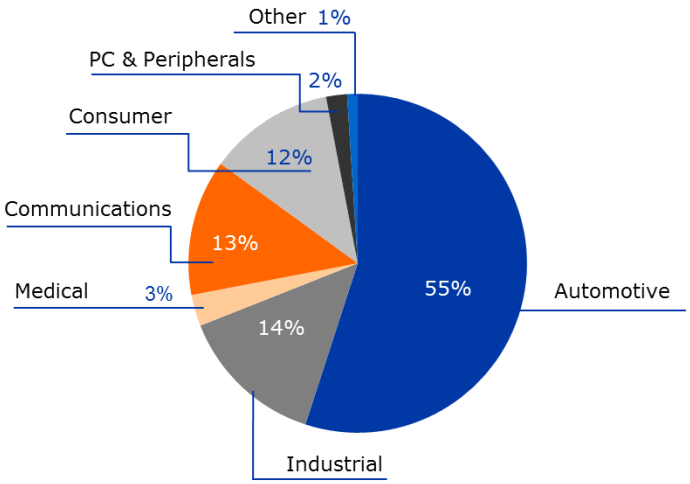


Figure 14: Sales distribution from X-FAB by markets 2015

In our product marketing organization a new business segment industrial & medical application is established 2015 and involved in all ADMONT activities. The goal is to find and contact new customer for ADMONT pilot line on both business fields. Especially for MEMS and sensors for medical and diagnostic and IR-sensors X-FAB will growth with the market.

3.2.2 Partner HEI

HEI started already first market analysis with regards to YOLE etc. Thermopile arrays with improved NETD (WP4 developments) will enter new markets and could bring better products to existing markets like building automation, medical applications like blood circulation. Market share in Infrared detection will be extended. Heimann will defend technology leadership for Thermopile arrays with high resolution (above 32x32).

3.2.3 Partner OKM

Okmetic has arranged with existing and potential new customers technical meetings, where Okmetic results and roadmaps of silicon wafers and has formed understanding of the competitive landscape. First commercial deliveries have been done including wafers in HV-SOI, and FZ replacement NTD n-type silicon and p-type silicon wafers. Okmetic sees new

market potential for special polished and SOI MCZ wafers in PowerMOSFET and IGBT as well as in some power discrete devices especially in 200 mm wafer diameter. These controlled resistivity defect free wafers have good development synergy with other fast growing segment, very high resistivity wafers for different RF-applications.

3.2.4 Partner SYS

Analysis of market situation has been started (analysis / categorization of products available in the area of Real-time information systems). Analysis of the general strategy of industry has been done participating in various trade shows (e.g. Semicon, Automotive, Sensor and Test, ASMC, ASIM, etc.) congresses and study groups, as well as analysis of solutions, methodologies and systems available in the context of semiconductor and discrete manufacturing (e.g. Saratoga Springs, San Francisco, US, 2015); reported to VDI.

First results will be presented during APCM 2016 conference [EUROPEAN Advanced Process Control and Manufacturing Conference; Reutlingen (Stuttgart), GERMANY, April 11 – 13, 2016]: Gissrau / Luhn: A way to monitor variability in manufacturing.

Goal is to establish early contact to potential customers. Second goal is to continue the analysis concerning methodologies, solutions and systems in the context of research activities, as well as regarding available solutions. In mid- and long-term perspective (2 - 5 years after project end), the development of systems, components and services will allow SYSTEMA to offer to customers flexible solution suites and services. This can result in revenue increase of up to 5 – 10% in sales and a leading market position in Real-Time information processing and to expand the market from semiconductor into discrete industries.

3.2.5 Partner RRO

Development of solutions, components and systems for intralogistics automation will allow RRO to automation offer solution to mature fabs which cannot be automated at all or only partially. This can result in a revenue increase of up to 1 Mio € in the midterm range of 2- 5 years after project end.

3.2.6 Partner SMT DD

Smartrac has begun an evaluation of the literature and the market in line with the requirements for the task 7.4. Initial market evaluation has helped to improve the design configuration of the RFID Chip in Task 7.3 & Task 7.4, where the protocols, interfaces and chip configuration were aligned to the probably market need.

RFID Chip with a sensor component is an important asset for future use of RFID in IOT applications. Smartrac as one of the largest RFID transponder suppliers worldwide can play an important role in the extension of RFID in the IOT infrastructure. Since the evaluation of a physical feature is an important add-on to RFID capability, e.g. measurement of temperature via RFID etc. this has been given sharp focus for the chip specification. At this point in time, the focus of the Admont project is the generate the chip in the Admont line configuration and thereby enable new products with Smartrac customers.

3.2.7 Partner SA

SenseAir AB will use the result of this project to improve its market penetration within the gas sensor business. The mobile gas sensor unit will enables deeper penetration in to the market, where mobility is necessary. The sensor can also enable new products with a need for higher resolution and faster response time. The new products will be exposed to the market at different expos / shows like Sensor & Test in Nuernberg, Electronica in Munich and ASHREA in North America. Furthermore, the new products will be pushed throughout the

company's sales and distribution channels around the world. The mobile gas sensor will increase the possibility to access new markets, where mobility is a need.

3.2.8 Partner SIB

Participating to the AACR Annual Meeting 2016 and communicating the ADMONT achievements of Silicon Biosystems to attendees and visitors. The AACR (American Association for Cancer Research) is the oldest and largest scientific organization in the world focused on every aspect of high quality, innovative cancer research. Its reputation for scientific breadth and excellence attract the premier researchers in the field. The programs and services of the AACR foster the exchange of knowledge and new ideas among scientists dedicated to cancer research, provide training opportunities for the next generation of cancer researchers, and increase public understanding of cancer. Furthermore, SIB has started a market access analysis for medical applications.

The main achievement of Silicon Biosystems within the ADMONT project is the optimization of the DEPArray™ system (CMOS/MEMS, Microfluidics, Automatic machine and Software) with the purpose of exploiting the advantages offered by the MtM pilot line to accelerate the penetration of DEPArray™ technology in diagnostic markets and execute the verification and validation of the system and applications.

The key elements for the successful penetration of this unique technology in the diagnostic market, which will benefit from the ADMONT project, are the following:

- Introduction in the design process of specific requirements oriented to manufacturing, testability, interface and integration.
- Setup of manufacturing processes and quality controls capable to satisfy specific requirements in term of reproducibility, testability, volumes, yield and costs.

Integration within an automatic and robust instrument and software that is capable to guarantee reliable and reproducible results with an appropriate throughput.

3.2.9 Partner MAZ

We started our market activities in 2015. Selected key costumer got prototyps for evaluation in lighting applications. We have published data sheets and application notes. Next step will be validation of samples. Our market work focused on aircraft interior light, street lighting, high quality ambient lighting and automotive lighting. We could imagine the sensor additional in use for color measurement. Some investigations are running now.

The partner network helps us to solve tasks and delivers us needed technologies. Without ADMONT we had a lot of more problems and less possibilities to solve them. The EU and BMBF fund supports SMEs and creates the base to develop innovative products. We will get a better competition position in the market and an increasing sensor business.

3.2.10 Partner EDC

EDC Electronic Design Chemnitz GmbH is a SME. We experienced in design and development of specialized and customized electronic solutions. Our range of services in the area of ASIC-Design comprises the development of analog, digital and mixed-signal circuitries for evaluation and control electronics in MEMS applications (yaw rate, acceleration, pressure, proximity), low power systems and high-voltage applications especially high-voltage-amplifier for driving actuators. EDC plans to transfer and optimize a prototype of a monolithic integrated system with pressure sensor in the 350nm HV technology developed in an earlier research work together with X-FAB. For consistent and reliable series production of the pressure sensor elements it is essential to develop a model (design rules) of the sensor for simulation of combined systems of sensor and electronics. Furthermore EDC will develop and optimize the sensor-frontend and sensor-interfaces with the new high voltage technology of the pilot-line developed in ADMONT. The final goals are

to have a series production design kit and IPs for pressure-sensor-systems used in diverse applications with different pressure ranges. EDC will actively start exploitation activities in the middle of 2016.

3.2.11 Partner TEC

Technikon will try to make use of the project setup to drive further the exploitation of hardware intrinsic security anchors based on physically unclonable functions. TEC will support the requirements and specifications for the pilot line and plans to use the outcomes of the project to foster the relationship to future customers in the security domain. TEC plans to implement the PUF based solution in the pilot line and use the outcome of the project in custom security devices. TEC will extend the collaboration with semiconductor manufacturers in the ADMONT team, to prepare the design of the ASIC, including an additional security IP, based on PUFs. Further TEC plans to funnel the experience gained into its industrial services on requirement engineering. It will highly profit from the project approach of solving complex problems, deriving system solutions for industrial driven use cases, applying projections and developing roadmaps for emerging technologies and future products. As an emerging SME, the reputation gained from the project will positively influence its future acquisition activities. Practical experience from carrying out the project will trigger improvements of TEC's "Trusted Knowledge Suite" and verify its integration and usability with mobile devices and commodity clouds. Novelties demanded and consequently introduced will elevate the market position of the IT tool. As the national representative of the European association for "Women in Science, Engineering and Technology" (WiTEC) Technikon will also use the project to promote the objectives of WiTEC.

3.2.12 Partner FhG

Department FhG-EMFT: Project promotion to customers in medical sector and competitor product analysis. Further promotion planned on SSI Conference in 03/2016. Contribution to XFAB HV process development planned. The IP block generation that is planned within the ADMONT project will strengthen EMFT micro-pumps on the market as they can be used for new, area critical applications in the medical domain.

Department FhG-IPMS: New CMUT generation will be presented at SSI conference and Sensor & Test exhibition to achieve attention in the related industrial community. The activities in the field of IR- Sensors will contribute to an improved business situation / market share due to the existing collaboration network in the pilot line. Based on the development of a new CMUT integration level, completely new markets and customer, especially in the field or CMUT array applications will be addressable.

Department FhG-ASSID: The results generated in ADMONT will the base for new SiP solutions/products for innovative integrated CMOS - Sensor systems which is a central topic in the MEMS community.

Department FhG-EAS: The ADMONT activities will widen its modeling portfolio for semiconductor reliability by establishing advanced modeling approaches.

Department FhG-FEP: The sensor development within ADMONT will improve the IP-situation and enable FEP to show devices in the new technology of organic sensor devices integrated on CMOS backplanes. This new chip generation allows for entering the market of miniaturized sensors.

3.2.13 Partner IMMS

The IMMS is has long experience in engineering, rapid prototyping and high quality manufacturing services in microelectronics, mechatronics and system design. At the microelectronics site the bioanalytical and biomedical sensors division is focused on the development of front-end electronics for application specific integrated circuits (ASICs) and

on biocompatible system assembly to observe and impact on multi-physical effects from the areas of biology, chemistry, biotechnology and medicine. These available know-how and competences are used and further developed within the ADMONT project. Novel and innovative miniaturised and automated systems being designed by IMMS and project partners enable novel sensor systems using new diagnostic settings. The developed technologies and diagnostic concepts will be exploited in cancer research, bioanalytics and biotechnology applications. The commercial exploitation of the developed products is explicitly envisaged.

Participation at the Medica 2015 and communicating the ADMONT activities of the IMMS to business partners and visitors

The ADMONT project will help

- to establish competence in microelectronic integrated circuit based cancer diagnostics, biocompatible packaging methods as well as cell and liquid handling
- to establish competence in the design of low power analog to digital converter circuits

to significantly extend the available technical knowledge in designing wireless RFID sensor systems for bioanalytical sensors

3.2.14 Partner KPS[1]

KPS has an existing international market in the field of oncology and personalized therapy. It provides not just diagnostic services but also uses the molecular profile of the tumour to select the most effective personalized targeted anti-cancer therapies. During the ADMONT project KPS, as an end user, will use the results to develop a new product on the market and enter new market fields. The developed new diagnostic device will provide fast and accurate information about the cancer cells. This new product can provide a complete and more complex picture about the heterogeneous tumour cells, the cell-based technology is more comfortable for the patients and the objective detection of breast cancer cells can help medical practitioners to identify the most effective therapy.

[1] Please note the KPS is currently progressing a legal name change and will provide an update of exploitation plans within the 1st Periodic Report.

Chapter 4 Standardization

Standardization is a key activity to avoid closed systems that cannot inter-operate and to ensure a market size that yields economies of scale. Furthermore, standardization is more and more important to ensure that the technologies developed within a research project are widely accepted and available in general.

X-FAB already has available several industrial standardized testing procedures for their CMOS based wafer products and reliability monitoring, none of which can be reliably be applied to CMOS technologies dedicated to OLED or sensor/actuator interface integration or smart health applications. Accordingly, a new set of parameters such as roughness and topology will be defined which can directly or indirectly be correlated to the yield of the finished sensor or actuator devices. This set may include: monitoring of the layer thickness and uniformity, reflectivity of metal layers, surface roughness, edge height, sheet resistances, shunt resistances, and leakage currents. These pre-normative measurements of the CMOS wafer will be compared with electrical, electro-optical and biochemical tests of the resulting sensor or micro system.

X-FAB is a member of the European Semiconductor Industry Association (ESIA) and will promote this new test standard within the industrial community. European law recognises three standards bodies: CEC, CENELEC and ETSI; while the text of the proposed standard will be worked out under consultation with ESIA and CEN (the European Committee for Standardization), through the appropriate national member (in this case the Deutsches Institut für Normung). Representation may also be made through the 'Small Business Standards' association[12] which has been set up with EC funds in order to give SME's a voice in creating standards. In order to ensure global acceptance, contact will also be made with the international industry association SEMI (Semiconductor Equipment and Materials International).

First activities for possible standardization plans are identified and summarized in Table 4.

Partner	Standardisation plans
X-FAB, FhG-FEP	Standard measurement and parameter definition for CMOS surfaces for OLED integration. Fraunhofer FEP and X-FAB are currently in discussion about the target parameter of the CMOS surface and the process options to realize these parameter. A first draft of the standard “CMOS-Surface for organic semiconductors” can be agreed between X-FAB and Fraunhofer-FEP after realization of the first demonstrator and characterization of the CMOS-surface. Fraunhofer FEP expects the draft of the standard to be available within ADMONT by mid of 2017.
X-FAB, FhG-FEP, FhG-IPMS, FhG-ASSID, HS	Standard for technological structures (Alignment marks for stepper and 1:1 lithography, overlay structures,…) needed for integrated wafer processes in the different facilities of the pilot line.
X-FAB, FhG-FEP, FhG-IPMS, FhG-ASSID, HS	Standards for data transfer between the partners for mask fabrication.

Partner	Standardisation plans
X-FAB, SIB	Standard measurement and parameter definition for biomedical interfaces for rare cell sorting.
X-FAB, IMMS	Standard measurement and parameter definition for CMOS interface for biochemical diagnostics

Table 4: Updated Standardization Plans

Chapter 5 Summary and conclusion

This document provides an overview of dissemination, exploitation, and standardisation activities during the first 10 months of the ADMONT project.

A clear dissemination strategy for the entire project period was set up by the consortium and realized effectively by the partners until now. The ADMONT project is actively present at various digital media channels, as well as being disseminated at various international conferences and workshops. Particular events suitable for upcoming ADMONT dissemination were already selected and preparations are ongoing.

Various potential markets were analyzed and are being constantly monitored, in order to maximize exploitation of the ADMONT project. Each partner provided and update of exploitation activities which included market studies and presentations to costumers as well as described the impact of exploiting ADMONT results to the company. Furthermore, the key standardisation activities were identified and will be continuously updated by the partners.

Based on the performed activities, it can be concluded that the ADMONT project is on the right track in raising awareness and is highly effective in monitoring potential opportunities for maximization of exploitation results.

Chapter 6 List of Abbreviations

CMOS	Complementary Metal-Oxide-Semiconductor
DoA	Description of Action
ENF	European Nanoelctronics Forum
IC	Integrated Circuit
PUF	Physically Uncloneable Function
TP	Thermo Pile