

IMAGING BREAST & PROSTATE CANCER: Technologies, Markets Trends and Customers' Needs

BREAST & PROSTATE CANCER IN TODAY'S WORLD

REPORT OUTLINE

- Title: IMAGING BREAST & PROSTATE CANCER: Technologies, Markets Trends and Customers' Needs
- 80+ slides (PDF)
- € 1 990 - Multi users license

KEY FEATURES OF THE REPORT

- Existing, New and Evolving Imaging approaches for detecting and treating Breast & Prostate Cancers
- Market revenue breakdown for the main Imaging modalities
- Market forecast of Imaging modalities from 2020-2026
- Presentation of dominant market trends
- Summary of ongoing clinical trials, funded projects, investments and M&A's for cancer imaging.
- Review of most promising upcoming systems/devices

Buy the report and find all our publications here:
<https://tematys.fr/reports/en/>

CONTACT

Jacek Kulakowski
jkulakowski@tematys.com
TEMATYS
6 Cité de Tréville
75009 PARIS
Tel: +33 7 54 36 84 54
Fax: +33 9 72 39 44 39
www.tematys.com

Breast & Prostate cancers have always been in the news due to their widespread occurrence, nature, complexity and aggressiveness. They are the two most commonly found invasive cancers in women and men, respectively.

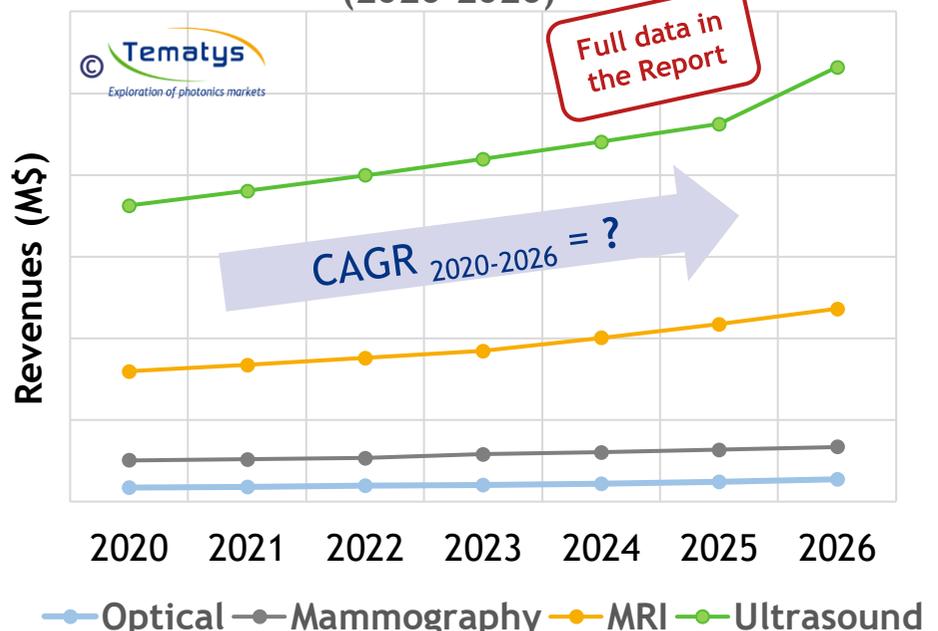
In the last couple of decades, the detection, localization and diagnosis of these cancers has seen tremendous advances thanks to technology and innovation in the field of **Medical imaging**, recently focusing on non-invasive optical techniques. Imaging is an important part of cancer clinical protocols and can provide a variety of information about morphology, structure, metabolism and bodily functions.

Biomedical imaging can thus be used in the prediction, staging, screening, prognosis, biopsy guidance for diagnosis,

plan of treatment, therapy guidance, therapy response recurrence and palliation of these cancers. With increasing cancer risk globally, there is a higher need for screening and diagnosis as early as possible.

Speaking of the Breast & Prostate imaging market as an entity, the most commonly used imaging modalities are **Mammography, MRI, Ultrasound and Optical Imaging**. This report thus provides a comprehensive view on these imaging modalities, their techniques, functionalities, current markets and forecast (2020-2026), R&D and Patents' landscape and upcoming devices in the market. The **Ultrasound** market, currently the largest market covering Breast & Prostate cancer imaging, was valued at 7.25 B\$ in 2020 with an expected CAGR of 6.6% in 2026.

Market for Breast & Prostate Imaging (2020-2026)

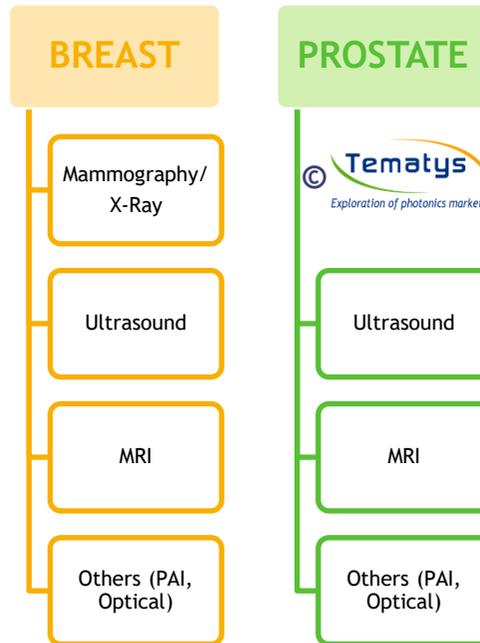


MARKET SEGMENTS FOR BREAST & PROSTATE CANCERS



INFORMATION SOURCES

- Tematys' in-house knowledge of Imaging technologies and markets for Breast & Prostate cancer.
- Interviews with key companies that assemble/manufacture *in vivo* imaging systems.
- Bibliographic research.
- Attendance of several international conferences and webinars in the field of cancer imaging.



Imaging Breast & Prostate cancer is a very complicated and heterogenous process, that involves several imaging steps and techniques including conventional and functional methods used in different clinical scenarios with their very own advantages and limitations. Based on the progression and stage of the disease, different medical imaging technologies are used for: Screening, Diagnosis/Localization, Pre- surgery, Intraoperative/Surgery and Post- Surgery.

The primary diagnostic tool for both these cancers, is still manual examination followed by current standards like Mammography, MRI and Ultrasound.

BREAST & PROSTATE CANCER RESEARCH AND RAISING AWARENESS

Even with decades of technological advances, the doctor's cannot seem to have enough information about the structure and localisation of tumours in these soft tissues, and this has pushed the need for R&D and clinical trials.

Currently, for Breast cancer, the main focus is on MRI, PET/CT scans, closely followed by optical methods like PAI in fusion with MRI or Ultrasound.

Prostate cancer research is centralized on MRI and Ultrasound fusion techniques.

Thus the Breast and Prostate cancer markets are split into these conventional imaging methods, each having its own requirements (performance, costs, design, operating conditions, etc.). But these methods, do not come without any disadvantages, and are being fast replaced by non-invasive, label-free optical imaging techniques like Photoacoustic Imaging (PAI), Optical Coherence Tomography (OCT), Hyperspectral Imaging (HSI), and so on, which forms the 4th and most important segment of this market.

Screening, Diagnosis, Localization and Post-operative imaging: This report mainly focuses on all the used *in vivo* imaging techniques and variations stemming from these 4 market segments. **Intra-operative imaging:** the current gold standards are still *ex vivo* techniques like frozen section analysis, imprint cytology etc. are only mentioned and is not in the scope of this report.

The key players of conventional imaging systems are usually the well known giants like GE Healthcare, Phillips, Siemens, etc. But a lot of new products and systems are emerging from optical imaging based companies, that will be key in expanding the Breast & Prostate Cancer Imaging market. Considering the large number of regulatory approval awaiting products, a market disruption can be expected at the horizon of 2023-2024, beating the negative effects of Covid-19.

Buy the report and find all our publications here:
<https://tematys.fr/reports/en/>

CONTACT

Jacek Kulakowski
jkulakowski@tematys.com
TEMATYS
6 Cité de Tréville
75009 PARIS
Tel: +33 7 54 36 84 54
Fax: +33 9 72 39 44 39
www.tematys.com

The EU commission and US governmental organizations have contributed to a combined sum of ~\$ 35M for R&D projects.

Countries all over the world also have programs set up for Breast & Prostate cancer awareness, screening, diagnosis and treatment. In the months of October and November, various cancer societies and international organisations work towards awareness & fundraising for Breast and Prostate cancer respectively.



AUTHORS



Susmita Sridhar, PhD, is a Photonics Markets' Analyst at Tematys. She holds a Doctoral Degree in Optics, Photonics and Image Processing. She is an experienced researcher having worked in reputed research institutes like ESPCI Paris - PSL, Institut Curie, ICFO, Institut Fresnel, ...



Benoît d'Humières is an expert in Optics, Electronics and Instrumentation for industrial and research applications. He has run many marketing and technological studies for major companies (THALES, ESSILOR, EDF, ...), SMEs and research institutes. He is Partner and Strategy Consultant at Tematys.

Buy the report and find all our publications here:
<https://tematys.fr/reports/en/>

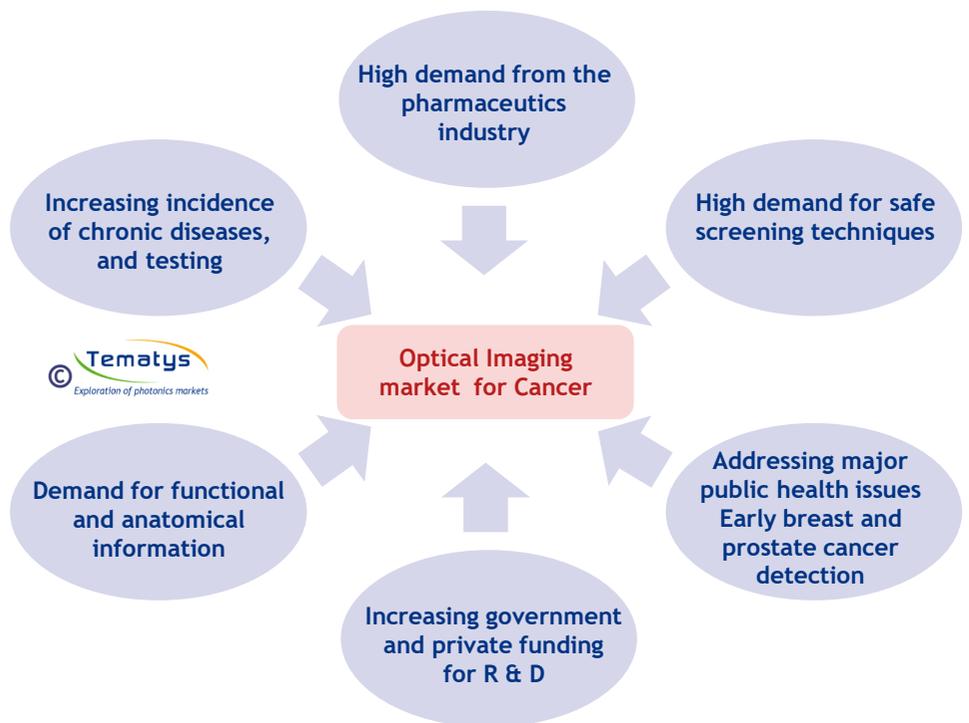
WILL OPTICAL IMAGING SOON REPLACE OTHER IMAGING REGULARS?

Optical imaging is an emerging technology, with great potential for improving disease prevention, diagnosis, and treatment in the medical office or in the operating room. Optical imaging offers the potential to differentiate among soft tissues, and between the affected tissues. This ability of optical imaging to differentiate among the healthy and cancerous tissues is creating a **huge opportunity**, in the **medical diagnosis industry** as a strong competitor to other conventional techniques.

Furthermore, optical imaging uses non-ionizing radiation, which significantly reduces patient radiation exposure, compared to other harmful effects of radiation-based imaging like Mammography or MRI. This feature allows the patient to undergo repeated studies over time.

These advantages have also led to an **exponential market growth** in the last decade, with a lot of investments for R&D and technological advancements.

MARKET DRIVERS FOR OPTICAL IMAGING SYSTEMS



The global optical imaging market can be broken down in to 3 major segments : Optical Coherence Tomography (OCT), Photoacoustic Imaging (PAI) and Others (Hyperspectral Imaging, NIR-Spectroscopy, ...).

This segment has been the go-to technique in the intra-operative imaging landscape for ophthalmology, cardiology, Breast and Prostate cancers. It is also a market with the most advanced proof-of-concept systems and clinical products related to breast cancer detection.

Although, the majority of the market for cancer is still dedicated to small animal imaging (especially PAI and OCT) and other R & D applications, the advances in medical diagnosis have been tremendous.

Looking at the pipeline of regulatory approved & awaiting products and those in clinical trial, the next few years should see a sharp rise in market growth slowly beating the likes of Mammography, MRI, PET/SPECT etc.



OTHER TEMATYS REPORTS

- **2021:** Interband & Quantum Cascade Lasers
- **2020:** Miniature, Micro and Chip-size Spectrometers: Technologies, Markets Trends and Customers' Needs
- **2019:** Mid-IR Photodetectors and Systems: Applications & Markets
- **2018:** LIDAR technologies for the Automotive Industry: Technology benchmark, Challenges, Market forecasts
- **2018:** Spectral Imaging: End-user needs, Markets and Trends
- **2018:** Photoacoustic Imaging: Technology, Systems, Market and Trends
- ...

Buy the report and find all our publications
<https://tematys.fr/reports/en/>

CONTACT AND ORDERS

Jacek Kulakowski
jkulakowski@tematys.com
 TEMATYS
 6 Cité de Tréville
 75009 PARIS
 Tel: +33 7 54 36 84 54
 Fax: +33 9 72 39 44 39
www.tematys.com

BREAST IMAGING SYSTEMS MANUFACTURERS MENTIONED IN THE REPORT

AB-CT, Adani, AGFA Healthcare, Bio Medical International, Canon, CMR Naviscan, DMS Imaging, Ecoray, Esaote, EXO, GE Healthcare, Genoray, Hologic, IMS Giotto, Italray, Konica Minolta, Koning, Landwind Medical, Leica Biosystems, Lorad, Metaltronica S.P.A., Mindray, MS Westfalia, Panacea Engineering Medicine, OncoVision, Philips, Planmed, Seno Medical, Siemens Healthineers, SIUI, Shimadzu, Sternmed, Toshiba, Villa Sistemi Medicali S.P.A.

PROSTATE IMAGING SYSTEMS MANUFACTURERS MENTIONED IN THE REPORT

BK Medical, Canon, Echoston, EDAP TMS, Esaote, EXO, Fujifilm - Visualsonics, GE Healthcare, Hitachi, Karl Storz, Koelis, Konica Minolta, Landwind Medical, Mindray, Philips, Promaxo, Siemens Healthineers, SIUI, Sonacare Medical, Sternmed, Zeiss

TABLE OF CONTENTS

1. INTRODUCTION
 - Study Goals and Objectives
 - Information sources and methodology
 - Scope of the report
 - Glossary
 - Definitions
 - List of companies mentioned in the report
2. BREAST & PROSTATE CANCER FACTS
 - Prevalence
 - Scanning & Surgeries
3. TECHNOLOGY SEGMENTATION
 - Existing Technologies
 - Imaging Techniques for Breast & Prostate Cancer
 - Breast Imaging
 - Prostate Imaging
 - Medical Expectations
4. MARKET DATA AND TRENDS
 - Market Segmentation
 - Overview of Key Imaging Systems' manufacturers
 - Market and Forecast
 - Finance & Takeovers
5. NOTICEABLE UPCOMING R & D TECHNOLOGIES
 - Major centres/organisations for clinical trials
 - Funding/Projects
 - Patents' Landscape
 - Major Trends
6. REGULATORY ASPECTS
7. CONCLUSIONS
8. ABOUT TEMATYS

IMAGING BREAST & PROSTATE CANCER: Technologies, Markets Trends and ...

BILL TO

Name (Mr/Ms/Dr/Pr): _____

Job title: _____

Company: _____

Address: _____

City: _____ State: _____

Postcode/Zip: _____

Country⁽¹⁾: _____

⁽¹⁾VAT Number (EU members): _____

Tel: _____

Email: _____

RELEASE DATE: 1ST DECEMBER 2021

- Corporate multi user license: 1 990.00 €HT⁽²⁾ _____

*(2) For price in dollars please use the day's exchange rate
For French customer, add 20 % for VAT
All reports are delivered electronically in PDF format*

I hereby accept TEMATYS' Terms and Conditions of Sale ⁽³⁾

Date: ____ / ____ / ____

Signature: _____

SHIPPING CONTACT

Name (Mr/Ms/Dr/Pr): _____

Tel: _____

Email: _____

PAYMENT

BY CREDIT CARD

VISA Mastercard AMEX

Name of the Card Holder: _____

Card Number:

Card Verification Value:

Expiration date:

/

BY BANK TRANSFER

BANK INFO: CREDITCOOP GARE DE L'EST
102, boulevard Magenta, FR-75010 PARIS
Bank code : 42559, Branch code : 00003
Account No : 41000001859-92
SWIFT or BIC code : CCOPFRPPXXX
IBAN : FR76 4255 9000 0341 0000 0185 992

RETURN ORDER BY

SARL TEMATYS

By Post mail:

6 Cité Trévisse 75009 PARIS / France

By fax: +33 9 72 39 44 39

By Email: info@tematys.com

CONTACT

Susmita SRIDHAR, PhD

ssridhar@tematys.com

Tel: +33 7 54 36 84 54

NAF 7490B - Siret 528 943 616 00011

TVA Intracommunautaire : FR03528943616

www.tematys.com

**MARKET RESEARCH - CUSTOM STUDIES - STRATEGY
OPTICS - PHOTONICS - SENSORS - MATERIAL ENGINEERING**



⁽³⁾ Our Terms and Conditions of Sale are available on the following pages of this form and on our web site <http://tematys.fr/Publications/>

The price advertised for the present Report is only valid during the promotional period which ends on October, 7th 2020.

Our prices are subject to change. Please check on <http://tematys.fr/Publications/>

Definitions:

"acceptance": action by which the Buyer accepts the terms and conditions of sale in their entirety. It is done by signing the purchase order which mentions "I hereby accept TEMATYS's terms and Conditions of sale".

"Buyer": any business user (i.e. any person acting in the course of its business activities, for its business needs) entering into the following general conditions to the exclusion of consumers acting in their personal interests.

"Seller": Based in Paris (France headquarters), TEMATYS is a market research and business development consultancy company, facilitating market access for advanced technology industrial projects. TEMATYS works worldwide with the key industrial companies, r&d institutes and investors to help them understand the markets and technology trends.

"Contracting Parties" or **"Parties"**: the Seller on the one hand and the Buyer on the other hand.

"Intellectual Property rights" ("IPR") means any rights held by the Seller in its Products, including any patents, trademarks, registered models, designs, copyrights, inventions, commercial secrets and know-how, technical information, company or trading names and any other intellectual property rights or similar in any part of the world, notwithstanding the fact that they have been registered or not and including any pending registration of one of the above mentioned rights.

"License": For the reports and databases, different licenses are proposed. The Buyer has to choose one license:

1. Single user license: a single individual at the company can use the report.
2. Corporate license: the report can be used by unlimited users within the company regardless of location. Subsidiaries are not included.
3. Clusters & professional association license: allows clusters & professional associations to provide the reports and databases to their members without extra payment. When purchasing a report with this license, Clusters & Professional Associations can add the reports and databases in their Extranet and let their members download it for free.

"Products": depending on the purchase order, reports or database on optics, photonics, sensors, material engineering,... and their applications, to be bought either on a unit basis or as an annual subscription. (i.e. subscription for a period of 12 calendar months). The annual subscription to a package (i.e. a global discount based on the number of reports that the Buyer orders and/or a consulting approach), is defined in the order. Reports are established in PowerPoint and delivered on a Pdf format and the database may include excel files. The products are produced either by TEMATYS itself, either by publishers for which TEMATYS acts as a reseller.

1. Scope

1.1 The Contracting Parties undertake to observe the following general conditions when agreed by the Buyer and the Seller. ANY ADDITIONAL, DIFFERENT, OR CONFLICTING TERMS AND CONDITIONS IN ANY OTHER DOCUMENTS ISSUED BY THE BUYER AT ANY TIME ARE HEREBY OBJECTED TO BY THE SELLER, SHALL BE WHOLLY INAPPLICABLE TO ANY SALE MADE HEREUNDER AND SHALL NOT BE BINDING IN ANY WAY ON THE SELLER.

1.2 This agreement becomes valid and enforceable between the Contracting Parties after clear and non-ambiguous consent by any duly authorized person representing the Buyer. For these purposes, the Buyer accepts these conditions of sales when signing the purchase order which mentions "I hereby accept TEMATYS's terms and Conditions of sale". This results in acceptance by the Buyer.

1.3 Orders are deemed to be accepted only upon written acceptance and confirmation by the Seller, within [7 days] from the date of order, to be sent either by email or to the Buyer's address. In the absence of any confirmation in writing, orders shall be deemed to have been accepted.

2. Mailing of the Products

2.1 Products are sent by email to the Buyer:

- within [1] month from the order for Products already released; or
- within a reasonable time for Products ordered prior to their effective release. In this case, the Seller shall use its best endeavours to inform the Buyer of an indicative release date and the evolution of the work in progress.

2.2 Come weeks prior to the release date the Seller can propose a pre-release discount to the Buyer

The Seller shall by no means be responsible for any delay in respect of article 2.2 above, and including in cases where a new event or access to new contradictory information would require for the analyst extra time to compute or compare the data in order to enable the Seller to deliver a high quality Products.

2.3 The mailing of the Product will occur only upon payment by the Buyer, in accordance with the conditions contained in article 3.

2.4 The mailing is operated through electronic means either by email via the sales department or automatically online via an email/password. If the Product's electronic delivery format is defective, the Seller undertakes to replace it at no charge to the Buyer provided that it is informed of the defective formatting within 90 days from the date of the original download or receipt of the

Product.

2.5 The person receiving the Products on behalf of the Buyer shall immediately verify the quality of the Products and their conformity to the order. Any claim for apparent defects or for non-conformity shall be sent in writing to the Seller within 8 days of receipt of the Products. For this purpose, the Buyer agrees to produce sufficient evidence of such defects.

2.6 No return of Products shall be accepted without prior information to the Seller, even in case of delayed delivery. Any Product returned to the Seller without providing prior information to the Seller as required under article 2.5 shall remain at the Buyer's risk.

3. Price, invoicing and payment

3.1 Prices are given in the orders corresponding to each Product sold on a unit basis or corresponding to annual subscriptions. They are expressed to be inclusive of all taxes. The prices may be reevaluated from time to time. The effective price is deemed to be the one applicable at the time of the order.

3.2 TEMATYS may offer a pre-release discount for the companies willing to acquire in the future the specific report and agreeing on the fact that the report may be release later than the anticipated release date. In exchange to this uncertainty, the company will get a discount that can vary from 15% to 10%.

3.3 Payments due by the Buyer shall be sent by cheque payable to TEMATYS, credit card or by electronic transfer to the following account:

CREDITCOOP GARE DE L'EST
102, boulevard Magenta, 75010 PARIS FRANCE
Bank code : 42559, Branch code : 00003
Account No : 41000001859-92
SWIFT or BIC code : CCOOPFRPPXXX
IBAN : FR76 4255 9000 0341 0000 0185 992

To ensure the payments, the Seller reserves the right to request down payments from the Buyer. In this case, the need of down payments will be mentioned on the order.

3.4 Payment is due by the Buyer to the Seller within 30 days from invoice date, except in the case of a particular written agreement. If the Buyer fails to pay within this time and fails to contact the Seller, the latter shall be entitled to invoice interest in arrears based on the annual rate refi of the «BCe» + 7 points, in accordance with article L. 441-6 of the French Commercial Code. Our publications (report, database, tool...) are delivered only after reception of the payment.

3.5 In the event of termination of the contract, or of misconduct, during the contract, the Seller will have the right to invoice at the stage in progress, and to take legal action for damages.

4. Liabilities

4.1 The Buyer or any other individual or legal person acting on its behalf, being a business user buying the Products for its business activities, shall be solely responsible for choosing the Products and for the use and interpretations he makes of the documents it purchases, of the results he obtains, and of the advice and acts it deduces thereof.

4.2 The Seller shall only be liable for (i) direct and (ii) foreseeable pecuniary loss, caused by the Products or arising from a material breach of this agreement

4.3 In no event shall the Seller be liable for:

a) damages of any kind, including without limitation, incidental or consequential damages (including, but not limited to, damages for loss of profits, business interruption and loss of programs or information) arising out of the use of or inability to use the Seller's website or the Products, or any information provided on the website, or in the Products;

b) any claim attributable to errors, omissions or other inaccuracies in the Product or interpretations thereof.

4.4 All the information contained in the Products has been obtained from sources believed to be reliable. The Seller does not warrant the accuracy, completeness adequacy or reliability of such information, which cannot be guaranteed to be free from errors.

4.5 All the Products that the Seller sells may, upon prior notice to the Buyer from time to time be modified by or substituted with similar Products meeting the needs of the Buyer. This modification shall not lead to the liability of the Seller, provided that the Seller ensures the substituted Product is similar to the Product initially ordered.

4.6 In the case where, after inspection, it is acknowledged that the Products contain defects, the Seller undertakes to replace the defective products as far as the supplies allow and without indemnities or compensation of any kind for labor costs, delays, loss caused or any other reason. The replacement is guaranteed for a maximum of two months starting from the delivery date. Any replacement is excluded for any event as set out in article 5 below.

4.7 The deadlines that the Seller is asked to state for the mailing of the Products are given for information only and are not guaranteed. If such deadlines are not met, it shall not lead to any damages or cancellation of the orders, except for non-acceptable delays exceeding [4] months from the stated deadline, without information from the Seller. In such case only, the Buyer shall be entitled to ask for a reimbursement of its first down payment to the exclusion of any further damages.

4.8 The Seller does not make any warranties, express or implied,

including, without limitation, those of saleability and fitness for a particular purpose, with respect to the Products. Although the Seller shall take reasonable steps to screen Products for infection of viruses, worms, Trojan horses or other codes containing contaminating or destructive properties before making the Products available, the Seller cannot guarantee that any Product will be free from infection.

5. Force majeure

The Seller shall not be liable for any delay in performance directly or indirectly caused by or resulting from acts of nature, fire, flood, accident, riot, war, government intervention, embargoes, strikes, labor difficulties, equipment failure, late deliveries by suppliers or other difficulties which are beyond the control, and not the fault of the Seller.

6. Protection of the Seller's IPR

6.1 All the IPR attached to the Products are and remain the property of the Seller or the publisher of the Product for which the Seller acts as a reseller and are protected under French and international copyright law and conventions.

6.2 The Buyer agreed not to disclose copy, reproduce, redistribute, resell or publish the Product, or any part of it to any other party other than employees of its company. The Buyer shall have the right to use the Products solely for its own internal information purposes. In particular, the Buyer shall therefore not use the Product for purposes such as:

- Information storage and retrieval systems;
- Recordings and re-transmittals over any network (including any local area network);
- Use in any timesharing, service bureau, bulletin board or similar arrangement or public display;
- Posting any Product to any other online service (including bulletin boards or the Internet);
- Licensing, leasing, selling, offering for sale or assigning the Product.

6.3 The Buyer shall be solely responsible towards the Seller of all infringements of this obligation, whether this infringement comes from its employees or any person to whom the Buyer has sent the Products and shall personally take care of any related proceedings, and the Buyer shall bear related financial consequences in their entirety.

6.4 The Buyer shall define within its company point of contact for the needs of the contract. This person will be the recipient of each new report in Pdf format. This person shall also be responsible for respect of the copyrights and will guaranty that the Products are not disseminated out of the company.

6.5 In the context of annual subscriptions, the person of contact shall decide who within the Buyer, shall be entitled to access on line the reports on I-micronews.com. In this respect, the Seller will give the Buyer a maximum of 10 passwords, unless the multiple sites organisation of the Buyer requires more passwords. The Seller reserves the right to check from time to time the correct use of this password.

6.6 In the case of a multisite, multilicense, only the employee of the Buyer can access the report or the employee of the companies in which the Buyer have 100% shares. As a matter of fact the investor of a company, the joint venture done with a third party etc. cannot access the report and should pay a full license price.

7. Termination

7.1 If the Buyer cancels the order in whole or in part or postpones the date of mailing, the Buyer shall indemnify the Seller for the entire costs that have been incurred as at the date of notification by the Buyer of such delay or cancellation. This may also apply for any other direct or indirect consequential loss that may be borne by the Seller, following this decision.

7.2 In the event of breach by one Party under these conditions or the order, the non-breaching Party may send a notification to the other by recorded delivery letter upon which, after a period of thirty (30) days without solving the problem, the non-breaching Party shall be entitled to terminate all the pending orders, without being liable for any compensation.

8. Miscellaneous

All the provisions of these terms and Conditions are for the benefit of the Seller itself, but also for its licensors, employees and agents. Each of them is entitled to assert and enforce those provisions against the Buyer.

Any notices under these terms and Conditions shall be given in writing. They shall be effective upon receipt by the other Party.

The Seller may, from time to time, update these Terms and Conditions and the Buyer, is deemed to have accepted the latest version of these terms and conditions, provided they have been communicated to him in due time.

9. Governing law and jurisdiction

9.1 Any dispute arising out or linked to these terms and Conditions or to any contract (orders) entered into in application of these terms and Conditions shall be settled by the French Commercial Courts of Paris, which shall have exclusive jurisdiction upon such issues.

9.2 French law shall govern the relation between the Buyer and the Seller, in accordance with these terms and Conditions.