

# Artificial Intelligence in Medical Diagnostics

Patent Landscape Analysis – August 2019

*Artificial intelligence is revolutionizing the healthcare industry.*

*What are the most-targeted medical applications, and which companies are going for them?*

## REPORT OUTLINE

- AI in Medical Diagnostics
- Patent landscape analysis
- August 2019
- Ref.: KM19005
- PDF includes over 170 slides
- Excel file includes over 22,600 patents
- €6,490 for a multi-user license



## REPORT'S KEY FEATURES:

- **IP trends**, including time-evolution of published patents, and countries of patent filings
- Ranking of **main patent assignees**
- **Key players' IP position** and **relative strength** of their patent portfolios
- **Key patents analysis**
- Identification of start-up firms and IP newcomers
- **Main litigations** analysis
- **Summary of the IP related to the medical exams**: including ECG, EEG, EMG, MRI, CT scan, PET scan, facial analysis, speech analysis, and OCT.
- **Summary of the IP related to clinical areas involved**: including Cardiology, Oncology, Diabetes, and Osteology.
- **Excel database** containing all patents analyzed in the report, including both medical exam and clinical area segmentations.

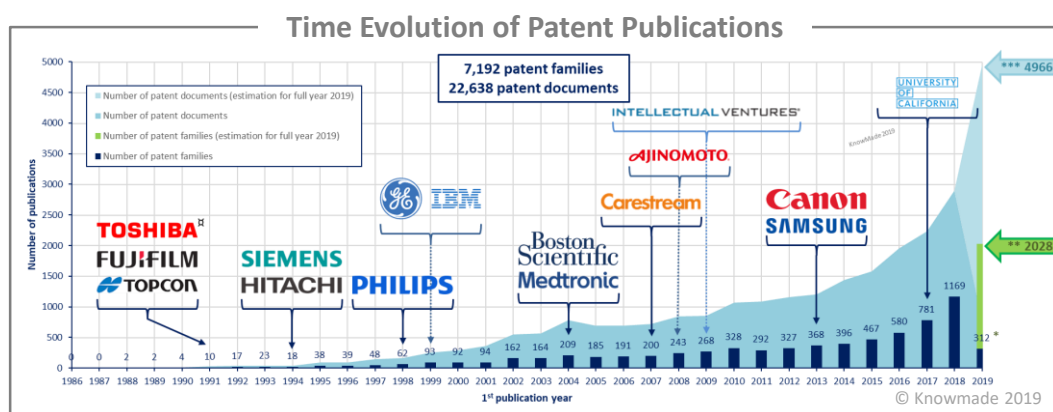
## LINKED REPORTS

- [Optical Coherence Tomography Medical Imaging – Patent Landscape Analysis. Knowmade. Feb 2018](#)
- [BioMEMS & Non-Invasive Sensors: Microsystems for Life Sciences & Healthcare 2018 – Market Report. Yole Développement](#)
- [Medical Wearables: Market and Technology Trends 2019 – Market Report. Yole Développement](#)
- [X-Ray Detectors for Medical, Industrial and Security Applications 2019 – Market Report. Yole Développement](#)

## Artificial intelligence is revolutionizing the medical diagnostics industry thanks to its new learning capabilities

With the development of deep learning and neural networks, artificial intelligence (AI) has gained learning capabilities. The result is that some new AIs can now recognize patterns better than human eyes. It paves the way for the emergence of a new generation of medical diagnostic devices capable of surpassing the detection skills of the best medical practitioners. Because artificial intelligence can be replicated, the expertise of these systems can become accessible to a large number of patients. Moreover, **AI has numerous and diverse applications in medical diagnostics**, such as image analysis for tumor detection, video detection for gait disorders and fall prediction, biochemical tests such as for diabetes or speech analysis of emotional state and psychiatric disorders. Therefore, **AI will considerably disrupt the traditional model of medical diagnosis**.

According to Yole Développement, more than US\$1.1 billion has been invested since 2016 by companies working on the development of artificial intelligence for medical imaging. Companies such as Heartflow received US\$340 million investment in the past 5 years. The main expected players in this market are the medical diagnostic systems manufacturers like General Electric, Philips and Siemens, but also artificial intelligence-guru companies like IBM or Microsoft. Beside these big companies, the number of Intellectual Property (IP) newcomers is important and growing. Unlike the development of new medical devices, artificial intelligence software development costs are moderate. As a result, **the number of IP newcomers developing innovative software is likely to continue to rise sharply in coming years**. Thereby, with emergence of many new companies like Aidence, Bay Labs and doc.ai, and given the many advantages and new applications of AI for medical diagnostics, **it is crucial to understand the intellectual property (IP) position and strategy of these different players**. Such knowledge can help detect business risks and opportunities, anticipate emerging applications, and enable strategic decisions to strengthen one's market position.



The analysis of the time evolution of patent publications shows that the development of medical diagnostic systems with built-in computer-assisted detection features is not new. The first patents related to this topic were published in the 1980s. In the 1990s Japanese medical imaging system manufacturers like Toshiba, Fujifilm, Topcon, Fujitsu and Hitachi started to invest investigate this topic soon followed by European companies like Siemens and Philips and then by American companies like IBM, Medtronic and General Electric. The number of patent families published each year increased progressively until 2015. Since then it has rapidly increased, and now we see the publication of **more than 1,100 new patent families in 2018**. This shows that AI in medical diagnostics is a very hot topic that is mobilizing great R&D efforts from different players. **The main patent assignee in the field of this study is Siemens, with more than 500 patent families**. It is followed by Philips and General Electric, with more than 150 patent families each. Most main patent assignees have developed an international IP strategy. Europe-based corporations are showing the widest geographical protection for their inventions. American players mainly protect their inventions in the US and to a lesser extent in Europe and in Asian countries.

## Identifying the companies that have recently emerged in the IP landscape

Among the players that have filed patents about AI in medical diagnostics, **over 90 newcomers were identified**. Many of these companies are startup firms currently developing their first products. These products consist of software solutions such as software for ultrasound imaging analysis, image resolution improvement or real-time brain monitoring, or medical devices capable of live analysis of biological parameters such as blood glucose monitoring apparatus, sleep monitoring sensors and ECG. Numerous IP newcomers are based in the US while some are based in Israel, in Europe or in Asia. It is possible that one of these innovative companies could become one of the next healthcare 'unicorns' that the big corporations will be tempted to acquire.

## Analysis by segment

AI applications in medical diagnostics were investigated and the selected patent families were labeled according to the applications to which they relate. **Two main categories of applications were investigated.**

### 1/ Medical examination modalities including:

Biochemical tests, Blood pressure, Cardiopulmonary sounds, Computed tomography (CT) scanners, Elastography, Electrocardiogram (ECG/EKG), Electroencephalogram (EEG), Electromyogram (EMG), Facial analysis, Magnetic Resonance Imaging (MRI), Minimally invasive imaging, Movement analysis, Optical Coherence Tomography (OCT) imaging, Photoacoustic imaging, Positron-Emitting Tomography (PET) scanners, Speech analysis, Ultrasound imaging, X-rays.

### 2/ Medical specialties including:

Allergies, Anesthesia monitoring, Arthropathology and Osteopathology, Brain injuries and neurodegenerative diseases, Cardiology and angiology, Diabetes diagnosis, Gait disorders and Fall prediction, Hepatology, Infectiology, Irritable bowel syndrome and Inflammatory bowel disease, Ophthalmology, Pneumopathology, Pregnancy-related & Fetal conditions, Psychiatry and Psychology, Sleep disorders, Stomatology, Oncology and its subsegments.

### Brain injuries and Neurodegenerative diseases: Key players

Assignee (Top players ranked by strength score)	Player country	Nb of patent families	% of player's AI in med. diag. Portfolio	Number of patent documents	Number of granted patents						Number of pending patent applications						
					All countries	USA	Europe	Japan	China	South Korea	All countries	USA	Europe	Japan	China	South Korea	WO (PCT appl.)
MEDTRONIC	IE	22	23%	75	34	25	6	0	1	0	4	1	2	0	1	0	0
SIEMENS	DE	13	2%	30	6	4	2	0	0	0	9	3	3	0	3	0	0
UNIVERSITY OF FLORIDA	US	5	15%	22	4	4	0	0	0	0	1	1	0	0	0	0	0
MIT	US	6	18%	17	3	3	0	0	0	0	3	1	0	0	0	0	0
CHILDRENS HOSPITAL MEDICAL CENTER	US	6	43%	14	1	1	0	0	0	0	5	3	2	0	0	0	0
FLINT HILLS SCIENTIFIC	US	5	100%	23	16	16	0	0	0	0	4	4	0	0	0	0	0
UNIVERSITY OF PENNSYLVANIA	US	2	15%	16	6	6	0	0	0	0	0	0	0	0	0	0	0
LIVANOVA	UK	5	83%	18	9	9	0	0	0	0	1	1	0	0	0	0	0
GREAT LAKES NEUROTECHNOLOGIES	US	4	100%	25	15	15	0	0	0	0	6	1	4	0	0	0	0
GENERAL ELECTRIC	US	7	5%	12	4	3	1	0	0	0	3	1	1	0	0	0	1
PHILIPS	NL	5	3%	29	5	1	1	2	1	0	14	2	5	1	2	0	1
UNIVERSITY OF KANSAS	US	1	50%	9	1	1	0	0	0	0	0	0	0	0	0	0	0
NEW YORK UNIVERSITY	US	4	33%	19	9	4	3	0	1	0	4	1	1	0	0	0	0
EMORY UNIVERSITY	US	2	50%	7	1	1	0	0	0	0	1	1	0	0	0	0	0
PERYST DEVELOPMENT	US	5	71%	37	10	3	0	4	3	0	15	4	6	1	3	0	1
UNIQUE LOGIC & TECHNOLOGY	US	2	100%	2	2	2	0	0	0	0	0	0	0	0	0	0	0
SMART MONITOR	US	2	67%	6	1	1	0	0	0	0	2	2	0	0	0	0	0
NEUROVISTA	US	4	80%	15	3	3	0	0	0	0	0	0	0	0	0	0	0
UNIVERSITY OF SOUTH FLORIDA	US	2	13%	3	0	0	0	0	0	0	0	0	0	0	0	0	0
ARIZONA STATE UNIVERSITY	US	3	20%	9	0	0	0	0	0	0	1	1	0	0	0	0	0

For each of over 40 segments, the patent publication timeline and the patent portfolios of main players were analyzed.

## Key patent analysis

This IP study includes selection and description of key patents. The key patent analysis includes the legal state of the family for each of the main territories, the number of received citations, the review of the main claim(s), the description of interesting features about the innovation discloses and relevant figures illustrating how the innovation works. The description also contains information about a patent family that was involved in patent litigation in the USA.

### Key Patent Analysis

<b>Title</b>	Systems, environment and methods for evaluation and management of autism spectrum disorder using a wearable data collection device		
<b>Assignee(s)</b>	Brain Power		
<b>1<sup>st</sup> priority date:</b>	2013-10-09	<b>Publication number of a representative member of the family:</b>	US 9,936,916
<b>1<sup>st</sup> publication date:</b>	2015-04-09	<b>Family involved in a US Patent Infringement case?</b>	NO
	<b>Received citation count</b>	67	
	<b>Number of citing assignees</b>	63	

**Abstract:**  
The various systems and methods described in this patent family support anticipation and identification of adverse health events and/or atypical behavioral episodes such as Autistic behaviors, epileptic seizures, heart attack, stroke, and/or narcoleptic "sleep attacks" using a wearable data collection device. In another aspect, the systems, environment, and methods described herein support measurement of motions and vibrations associated with recurring transitory physiological states and events using a wearable data collection device.

**Key figures:**

**Claim 1 (US 9,936,916):**  
1. A system comprising:  
a portable data collection device designed to be held by a user or worn upon a body of the user, the data collection device comprising:  
processing circuitry; and  
a non-transitory computer readable medium having instructions stored thereon; and  
one or more input capture elements connected to and/or in communication with the portable data collection device, wherein the one or more input capture elements are positioned upon or proximate to a head of the user or directed toward the head of the user;  
wherein the instructions, when executed by the processing circuitry, cause the processing circuitry to:  
collect, over a period of time via at least one of the one or more input capture elements, sensor data, wherein the sensor data includes at least one of image data, audio data, electromagnetic data, and motion data;  
analyze the sensor data to identify a time progression of measurements including at least one of a) a plurality of involuntary small motion measurements, and b) a plurality of vibration measurements;  
analyze the time progression of measurements to identify a physiological pattern, wherein the physiological pattern comprises at least one of a pronounced head motion pattern and a slow-wave change pattern, and the physiological pattern is based at least in part on at least one of a) the plurality of involuntary small motion measurements and b) the plurality of vibration measurements;  
analyze the physiological pattern to identify a physiological state indicated by the physiological pattern, and provide, to at least one of a user of the portable data collection device and a third party computing device, feedback corresponding to the physiological pattern, wherein providing feedback to the user comprises providing feedback responsive to the physiological state indicated by the physiological pattern, wherein the feedback comprises at least one of visual, audible, haptic, and neural stimulation feedback to the user, and the feedback is provided via at least one output feature of one or more output features of the portable data collection device, and providing feedback to the third party computing device comprises transmitting, via a wired or wireless transmission link, a data transmission to the third party computing device identifying at least one of the physiological pattern and an identification of a physiological state indicated by the physiological pattern.

In dependent claims it referred that one or more features of the user comprise at least one of a physiological disability, a sensory sensitivity, and a digestive disorder diagnosis (claim 9).

Moreover, the report also includes an **Excel database** with the **over 22,600 patents** analyzed in this study. This useful patent database allows for **multi-criteria searches** and includes patent publication numbers, hyperlinks to the original documents, priority date, title, abstract, patent assignees, each patent's current legal status, **medical exam modalities** and **clinical areas**.

**COMPANIES MENTIONED IN THIS REPORT (NON-EXHAUSTIVE LIST)**

ABBOTT, AJINOMOTO, ALIPH, ALPHABET, BAUSCH HEALTH, BERG PHARMA, BIOMERIEUX, BOSTON SCIENTIFIC, BRACCO, CANON, CARESTREAM HEALTH, CARIS LIFE SCIENCES, CARL ZEISS, COGNOA, DEXCOM, FACENSE, FUJIFILM, FUJITSU, GENERAL ELECTRIC, HEARTFLOW, HITACHI, HOLOGIC, IBM, IMAGING THERAPEUTICS, JOHNSON & JOHNSON, KONICA, MEDTRONIC, MYSKIN, NESTLÉ, OLYMPUS, PHILIPS, RESMED, ROCHE, SAMSUNG, SENSYS MEDICAL, SIEMENS, TOPCON, VERACYTE, VERMILLION, ZOLL MEDICAL

**TABLE OF CONTENTS**

<b>INTRODUCTION</b>	<b>6</b>	<b>KEY PATENT FAMILIES</b>	<b>56</b>	<b>Clinical specialties</b>	<b>147</b>
- AI in medical diagnostics		- Potential future plaintiffs		- Allergies	
- Scope of the report		- Key patent family descriptions		- Anesthesia monitoring	
- Key features of the report		<b>MAIN PATENT LITIGATIONS</b>	<b>86</b>	- Arthropathology and Osteopathology	
- Objectives of the report		<b>IP NEWCOMERS</b>	<b>106</b>	- Brain injuries and Neurodegenerative diseases	
- Related reports		<b>ANALYSIS BY SEGMENTS</b>	<b>121</b>	- Cardiology and Angiology	
<b>METHODOLOGY</b>	<b>13</b>	Segmentation summary		- Diabetes	
<b>MAIN ASSIGNEES MENTIONED</b>	<b>21</b>	<b>Medical examination modalities</b>	<b>128</b>	- Gait disorder and Fall prediction	
<b>EXECUTIVE SUMMARY</b>	<b>27</b>	- Biochemical tests		- Hepatology	
<b>PATENT LANDSCAPE OVERVIEW</b>	<b>31</b>	- Blood pressure measurement		- Irritable bowel syndrome	
<b>Global overview</b>	<b>31</b>	- Cardiopulmonary sounds		- Infectiology	
- Time evolution of patent publications		- Computed tomography scanner		- Pregnancy-related and Fetal conditions	
- Countries of patent filings		- Electrocardiogram (ECG/EKG)		- Ophthalmology	
- Time evolution by country of filing		- Electroencephalogram (EEG)		- Pneumopathology	
- Main patent assignees		- Elastography		- Psychology and Psychiatry	
- Mapping of main current IP holders		- Electromyogram (EMG)		- Sleep disorders	
- Patenting activity of IP leading companies		- Facial analysis		- Stomatology	
- Time evolution for main patent assignees		- Movement analysis		- Oncology	
<b>IP position of main patent assignees</b>	<b>42</b>	- Minimally invasive imaging		- Breast cancer	
- Strength index of patent portfolios		- Magnetic resonance imaging (MRI)		- Colorectal cancer	
- IP specialization degree		- Optical coherence tomography (OCT)		- Liver cancer	
- IP blocking potential of patent applicants		- Positron emission tomography (PET)		- Lung cancer	
- IP leadership of patent applicants		- Photoacoustic imaging		- Prostate cancer	
- Summary of applicant's patent portfolios		- Speech analysis		- Skin cancer	
- Recent collaborations		- Ultrasound imaging			
		- X-rays			
				<b>CONCLUSION</b>	<b>171</b>
				<b>KNOWMADE PRESENTATION</b>	<b>181</b>

**AUTHORS****Olivier THOMAS**

Olivier works at Knowmade in the field of Biotechnology and Life Sciences. He holds a MSc in Molecular and Cellular Biology from the UPMC in Paris, France. He also holds the Industrial Property International Studies Diploma in Patents and Trademarks from the CEIPI in Strasbourg, France.

Contact: [olivier.thomas@knowmade.fr](mailto:olivier.thomas@knowmade.fr)

**Dr. Brice SAGOT**

CTO and co-founder of Knowmade, Brice leads the Biotechnology and Life Sciences department. He holds a PhD in Molecular Biology from the University of Nice Sophia-Antipolis, France.

Contact: [brice.sagot@knowmade.fr](mailto:brice.sagot@knowmade.fr)

**ABOUT KNOWMADE**

Specialized in the analysis of patents and scientific information, Knowmade provides technology intelligence and IP strategy consulting services. The company supports the business development of R&D organizations, industrial companies, and investors by offering them a deep understanding of their IP environment and technology trends. Knowmade operates in the following industrial sectors: compound semiconductors, power electronics, RF devices and technologies, solid-state lighting and display, photonics, memory, MEMS and sensors, semiconductor manufacturing and advanced packaging, battery and energy management, biotechnology, pharmaceuticals, medical devices, medical imaging, and agri-food. Knowmade's experts provide prior art search, patent landscape analysis, scientific literature analysis, patent valuation, IP due diligence, and freedom-to-operate analysis. The company also delivers litigation/licensing support, technology scouting, and IP/technology observation. Knowmade's analysts combine their technical and patent expertise with powerful analytics tools and proprietary methodologies, delivering invaluable patent analyses and scientific reviews.

# ORDER FORM

## Artificial intelligence in medical diagnostics

Patent Landscape Analysis – August 2019

Ref.: KM19005

### SHIP TO

Name (Mr/Ms/Dr/Pr):

Job Title:

Company:

Address:

City:

State:

Postcode/Zip:

Country:

VAT ID Number for EU members:

Tel:

Email:

Date:

### PAYMENT METHODS

Order online: [Click here](#)

#### Check

To pay your invoice using a check, please mail your check to the following address:

KnowMade S.A.R.L.  
2405 route des Dolines, BP 65  
06902 Valbonne Sophia Antipolis  
FRANCE

#### Money Transfer

To pay your invoice using a bank money wire transfer, please contact your bank to complete the process. Here is the information you will need to submit the payment:

Payee: KnowMade S.A.R.L.  
Bank: Banque Populaire Méditerranée, CAP 3000 Quartier du lac, 06700 St Laurent du Var  
IBAN: FR76 1460 7003 6360 6214 5695 139  
BIC/SWIFT: CCBPFRPPMAR

#### Paypal

To pay your invoice via PayPal, you must first register at [www.paypal.com](http://www.paypal.com). You can then send money to KnowMade S.A.R.L. by entering our email address ([contact@knowmade.fr](mailto:contact@knowmade.fr)) as the recipient, and entering the invoice amount.

#### RETURN ORDER BY:

**Email:** [contact@knowmade.fr](mailto:contact@knowmade.fr)

**Mail:** KnowMade S.A.R.L. 2405 route des Dolines, 06902 Valbonne Sophia Antipolis, FRANCE

### PRODUCT ORDER

- ☐ €6,490 – Corporate license  
☐ €5,990 – Single-user license\*

For the price in dollars, please use the current day's exchange rate. French customers, please add 20% for VAT.

Upon payment reception, all reports are delivered electronically in pdf format

*\*Single-user license means only one person at the company can use the report. Please be aware that the report is watermarked on each page, with the name of the recipient and the organization (the name mentioned on the PO). This watermark also reaffirms that report sharing is not allowed.*

*I hereby accept Knowmade's Terms and Conditions of Sale*  
**Signature:**



# TERMS AND CONDITIONS OF SALES

## 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 Knowmade’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.

“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, 2 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. Subsidiaries are not included.

“Products”: Reports are established in PowerPoint and delivered on a PDF format and the database may include Excel files.

“Seller”: Based in Sophia Antipolis (France headquarters), Knowmade is a technology intelligence company specialized in the research and analysis of scientific and technical information. We provide patent landscapes and scientific state of the art with high added value to businesses and research laboratories. Our intelligence digests play a key role to define your innovation and development strategy.

## 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-equivocal 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 Knowmade’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 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 Some 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. 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 Payments due by the Buyer shall be sent by cheque payable to Knowmade, PayPal, or by electronic transfer to the following account:

Banque Populaire Méditerranée, CAP 3000 Quartier du lac, 06700 St Laurent du Var

BIC or SWIFT code: CCBPFRPPMAR

IBAN: : FR76 1460 7003 6360 6214 5695 139

To ensure payment, 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.

3.3 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.

3.4 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 intellectual property

6.1 All intellectual property rights attached to the Products are and remain the property of the Seller 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.

## 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 Grasse, 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.