

POWER SiC 2019: MATERIALS, DEVICES, AND APPLICATIONS

Market & Technology Report - July 2019

Automotive market growth is reshaping the SiC market's dynamics and ecosystem.

WHAT'S NEW

- Updated market size for:
 - > Discrete diodes, diodes in hybrid modules, discrete transistors, and full SiC modules
 - > Diode and transistor bare-die market
- Revised voltage analyses of SiC power devices: 650V, 1200V, 1700V, and 1700V+
- Current SiC wafer and SiC epiwafer market
- Updated player status, with a focus on China
- Discussion of recent M&A events, key players' competitive advantages, and the market's dynamics

KEY FEATURES

- A deep understanding of SiC's penetration in different applications, including xEV, xEV charging infrastructure, PFC/power supply, PV, UPS, motor drives, wind, and rail
- Review of state-of-the-art SiC-based devices, modules, and power stacks, with product charts for each
- Description of SiC power's industrial landscape (from materials to systems)
- SiC power device market-value projections to 2024, including bare die market with transistor/diode split, device market split by application, and device market with discrete/module split
- Deep analysis of the SiC power market's dynamics
- SiC power device voltage analysis
- Market value and volume projections for the SiC wafer and epiwafer markets, through 2024
- SiC power industry roadmap

DRIVEN BY THE EV MARKET, THE SiC POWER DEVICE MARKET IS PROSPERING

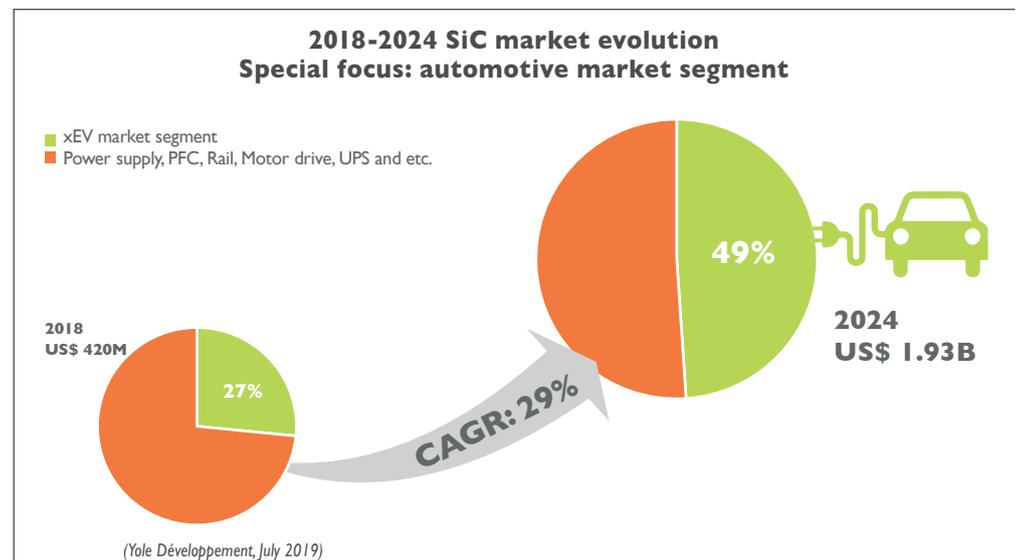
The 2018 - 2019 SiC power device market is notable for Tesla's adoption of SiC in its main inverter. The discussion concerning whether other automotive players will also adopt (or not) is THE topic of the year. Recently, the automotive industry has committed more than \$300B investment towards xEV development, causing the xEV market to explode. This is in stark contrast to the traditional combustion engine car market, which is suffering through a slowdown. The xEV market is the primary market driver for Si power devices, and it is the source of excitement for SiC - which is not surprising at all.

Ranging from conservative to optimistic, industrial players offer very different forecasts in terms of market value for SiC in the xEV market. These forecasts range from several hundred million dollars to \$3B in 2025, the latter estimated by STMicroelectronics. Everyone agrees that EV is the market of highest potential,

but perceptions differ regarding how it will grow and how SiC will penetrate into the automotive market. These perceptions are based on the data that each player has collected and the arguments that derive from their interpretation of the data.

Based on our discussions with different players, Yole sees a prospering SiC power device market. In fact, we expect the SiC power semiconductor market's value to approach \$2B by 2024, with a compound annual growth rate (CAGR) of 29% for 2018 - 2024. The automotive market is undoubtedly the foremost driver, and as such will hold around 50% of total device market share in 2024.

This report provides an overview of various SiC power device markets, including electric and hybrid electric vehicles (EV/HEV), charging infrastructure, PV, power supply, rail, motor drives, uninterruptible power supplies (UPS), and wind, along with Yole Développement's analysis and insights regarding SiC adoption.



AUTOMOTIVE MARKET GROWTH IS RESHAPING THE SiC MARKET'S DYNAMICS AND ECOSYSTEM

In the Si world, power modules are typically used for high power-rating applications (i.e. EV main inverter and rail), while discrete modules are employed for lower power-rating applications. As indicated in the illustration below, some players (i.e. Infineon) participate in both the

discrete and module sides, while other players (i.e. Danfoss and Semikron) are pure module packagers. There are also discrete packagers, among them several different OSATs.

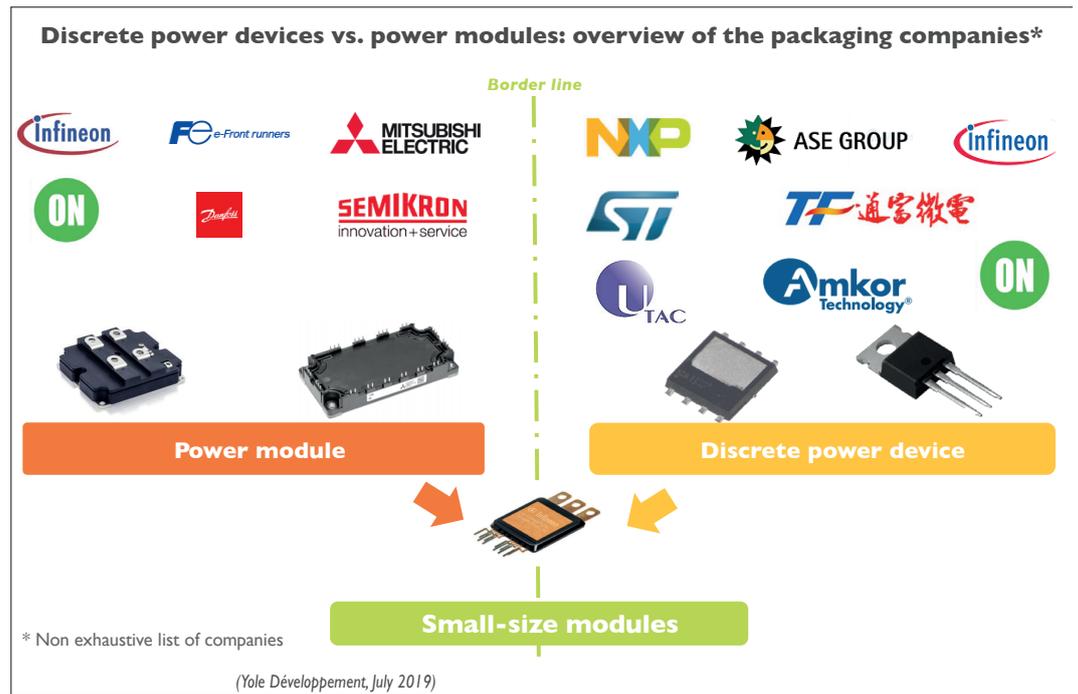
Just like in Si IGBT, for SiC we expect the module to play a key role. But what form will a full SiC

module take? Even though some manufacturers use standard silicon packaging, most players have developed their own module for SiC. For example, the SiC device used by Tesla: it is either a very small module or an advanced discrete, depending on your interlocutor.

From our understanding, Tesla has succeeded in structuring its SiC supply chain with its own module-design intellectual property, which was co-developed with STMicroelectronics and Boschman - with STMicroelectronics manufacturing the devices. As volume increases, we believe there will be a second packaging source, likely an OSAT in Asia that in the past was more of a discrete

player. Indeed, the automotive market is not only driving the SiC power device market, it is also refashioning the market's dynamics and ecosystem. The influence is profound.

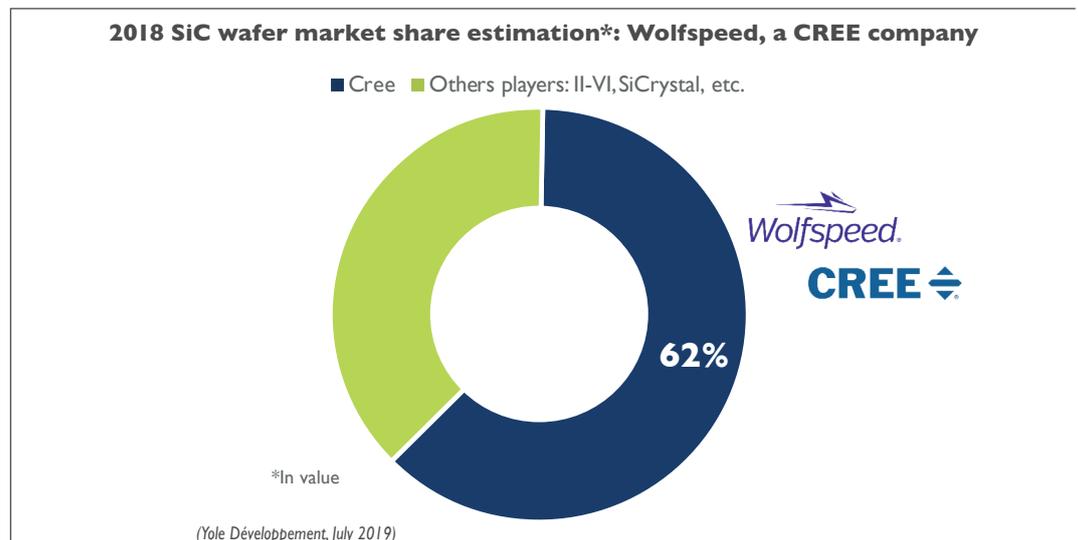
This report provides an overview of SiC device technology, including descriptions of discrete and module development, along with the status of commercial products and their reliability. We also furnish a comprehensive summary of the SiC power industry, covering the entire value chain: from material to epitaxy to module. Moreover, this report outlines Yole Développement's understanding of the market's current dynamics and future evolution.



WILL THE WAFER SHORT-SUPPLY CONTINUE?

In the last two or three years, the transition from 4" to 6" wafers, coupled with increasing wafer demand, led to a wafer short-supply. This was one of the most frequently discussed topics in the SiC power industry, and was a substantial bottleneck as of 2018.

Faced with increasing demand, wafer players are investing heavily. Already the SiC wafer market leader, Cree is further strengthening its leadership. The company has announced \$450M for materials expansion and the development of a materials megafactory, as well as build-out of a



second crystal-growth factory. These steps will result in a 30x increase in SiC wafer fabrication in fiscal year 2024, compared to Q1 of fiscal year 2017. With different long-term wafer supply agreements in place, Cree has secured important revenue that its materials business can use in the coming years. But Cree is not the only player investing - other companies like II-VI and Tankeblue are following suit, and some new players are very active, especially GTAT.

In our opinion, the wafer suppliers' efforts have paid off, and supply is in much better shape for 2019.

At the epiwafer level, the situation is also evolving quickly. For example, we have seen Showa Denko expand its capacity in 2015, 2016, and 2018, as technology matures and outsourcing ratio increases.

We invite you to explore our analysis of the wafer supply situation, as well as our forecasts for the wafer and epiwafer markets and the impact of different investments.



AUTHORS

Hong Lin, PhD, is a Principal Analyst, Compound Semiconductors at Yole Développement (Yole). Since 2013, Hong has been involved in analyzing the compound semiconductor market with dedicated technical, strategic, market and financial analyses. Hong interacts on a daily basis with leading SiC companies, from wafer suppliers to device manufacturers, as well as equipment suppliers and end users, to understand the added value of this technology, its ability to penetrate the markets and its adoption by the end-users. Prior to Yole, she worked as an R&D Engineer at Newstep Technologies. Dr Hong Lin holds a PhD in physics and chemistry of materials from the University of Pierre & Marie Curie (Paris VI, France).

REPORT OBJECTIVES

- Provide a clear understanding of the SiC power industry, covering markets from wafer to discrete and module-level, with valuations in units and \$M
- Analyze the SiC power industry's market drivers and bottlenecks by studying SiC's adoption in different end-applications and supply chains
- Summarize of the status of SiC power device technology
- Describe the industry's landscape and market dynamics

COMPANIES MONITORED IN THE PRODUCT

Alstom, Ascatron, Aymont, Bombardier, Basic Semiconductor, Brückwell Technology, Caly Technology, Clas-SiC Wafer Fab, CREE, CRRC, Danfoss, Delphi, DENSO, Dow Corning, Epiworld, Episil, Fraunhofer IISB, Fuji Electric, GE, GeneSiC, Global Power Device, Global Power Technology, Hestia Power, Hitachi, IBS, II-VI, Infineon, MicroSemi, Mitsubishi Electric, Norstel, Northrop Grumman, NXP, ON Semiconductor, Panasonic, Philips, Powerex, Raytheon, RENESAS, ROHM, Sanrex, Schneider Electric, Semikron, Shindengen, SICC, Siemens, SMA, STMicroelectronics, Toshiba, Toyota, United Silicon Carbide, WeEn, Wolfspeed, X-Fab, Yaskawa, and more.



As a Technology & Market Analyst, Compound Semiconductors, **Ezgi Dogmus**, is daily contributing to the development of these activities with a dedicated collection of market & technology reports as well as custom consulting projects. Prior Yole, Ezgi was deeply involved in the development of GaN-based solutions at IEMN (Lille, France). Ezgi also participated in numerous international conferences and has authored or co-authored more than 12 papers. Upon graduating from University of Augsburg (Germany) and Grenoble Institute of Technology (France), Ezgi received her PhD in Microelectronics at IEMN (France).

TABLE OF CONTENTS (complete content on [i-Micronews.com](http://i-micronews.com))

Introduction	2	> Motor drive market	
Executive summary	9	> Power converters for wind turbines	
Context	41	> Other SiC applications	
Market forecast	47	Market share and supply chain	143
Market trends	61	Technology trends	176
> Electrified vehicle market		> SiC power devices	
> Electrified charging Infrastructure		> Packaging	
> Photovoltaic inverters		> SiC device - Reliability status	
> PFC and power supply		> SiC power device - Commercial status	
> Rail traction market		> SiC wafer and epiwafer	
> Uninterruptible power supplies		Outlook and conclusions	232



Ana Villamor, PhD serves as a Technology & Market Analyst, Power Electronics & Compound Semiconductors at Yole Développement (Yole). She is involved in many custom studies and reports focused on emerging power electronics technologies including device technology and reliability analysis. Previously Ana was involved in a high-added value collaboration related to SJ Power MOSFETs, within the CNM research center for the leading power electronic company ON Semiconductor. She holds an Electronics Engineering degree completed by a Master in micro and nano electronics, both from Universitat Autònoma de Barcelona (SP).

RELATED REPORTS

Benefit from our Bundle & Annual Subscription offers and access our analyses at the best available price and with great advantages



- Status of the Inverter Industry
- Discrete Power Device Packaging: Materials Market and Technology Trends 2019
- Power Electronics for EV/HEV 2018
- Power SiC: MOSFETs, SBDs and Modules 2019 – Patent Landscape Analysis
- SiC MOSFET Comparison 2019

Find all our reports on www.i-micronews.com

ORDER FORM

Power SiC 2019: Materials, Devices, and Applications

BILL 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

BY CREDIT CARD

Visa Mastercard Amex

Name of the Card Holder:

Credit Card Number:

□□□□ □□□□ □□□□ □□□□ □□□□

Card Verification

Value (3 digits except AMEX: 4 digits):

□□□□

Expiration date:

□□ / □□

BY BANK TRANSFER

BANK INFO: HSBC, 1 place de la Bourse,
F-69002 Lyon, France,
Bank code: 30056, Branch code: 00170
Account No: 0170 200 1565 87,
SWIFT or BIC code: CCFRFRPP,
IBAN: FR76 3005 6001 7001 7020 0156 587

RETURN ORDER BY

• MAIL: YOLE DÉVELOPPEMENT, Le Quartz,
75 Cours Emile Zola, 69100 Villeurbanne/Lyon - France

SALES CONTACTS

- Western US & Canada - Steve Laferriere:
+ 1 310 600-8267 – laferriere@yole.fr
- Eastern US & Canada - Chris Youman:
+1 919 607 9839 – chris.youman@yole.fr
- Europe & RoW - Lizzie Levenez:
+ 49 15 123 544 182 – levenez@yole.fr
- Japan & Rest of Asia - Takashi Onozawa:
+81-80-4371-4887 – onozawa@yole.fr
- Greater China - Mavis Wang:
+886 979 336 809 – wang@yole.fr
- Korea - Peter OK:
+82 10 4089 0233 – peter.ok@yole.fr
- Specific inquiries: +33 472 830 180 – info@yole.fr

⁽¹⁾ Our Terms and Conditions of Sale are available at
www.yole.fr/Terms_and_Conditions_of_Sale.aspx
The present document is valid 24 months after its publishing date:
July 18, 2019

PRODUCT ORDER - Ref YDI9032

Please enter my order for above named report:

- One user license*: Euro 5,990
 Multi user license: Euro 6,490

- The report will be ready for delivery from July 25, 2019
- For price in dollars, please use the day's exchange rate. All reports are delivered electronically at payment reception. For French customers, add 20% for VAT

I hereby accept Yole Développement's Terms and Conditions of Sale⁽¹⁾

Signature:

*One user license means only one person at the company can use the report.

SHIPPING CONTACT

First Name:

Email:

Last Name:

Phone:

ABOUT YOLE DEVELOPPEMENT

Founded in 1998, Yole Développement has grown to become a group of companies providing marketing, technology and strategy consulting, media and corporate finance services, reverse engineering and reverse costing services and well as IP and patent analysis. With a strong focus on emerging applications using silicon and/or micro manufacturing, the Yole group of companies has expanded to include more than 80 collaborators worldwide covering MEMS and Image Sensors, Compound Semiconductors, RF Electronics, Solid-State Lighting, Displays, Software, Optoelectronics, Microfluidics & Medical, Advanced Packaging, Manufacturing, Nanomaterials, Power Electronics and Batteries & Energy Management.

The "More than Moore" market research, technology and strategy consulting company Yole Développement, along with its partners System Plus Consulting, PISEO and KnowMade, support industrial companies, investors and R&D organizations worldwide to help them understand markets and follow technology trends to grow their business.

CONSULTING AND ANALYSIS

- Market data & research, marketing analysis
 - Technology analysis
 - Strategy consulting
 - Reverse engineering & costing
 - Patent analysis
 - Design and characterization of innovative optical systems
 - Financial services (due diligence, M&A with our partner)
- More information on www.yole.fr

MEDIA & EVENTS

- i-Micronews.com website & related e-newsletter
 - Communication & webcast services
 - Events: TechDays, forums...
- More information on www.i-Micronews.com

REPORTS

- Market & technology reports
- Patent investigation and patent infringement risk analysis
- Structure, process and cost analysis
- Cost simulation tool

More information on www.i-micronews.com/reports

CONTACTS

For more information about :

- Consulting & Financial Services: Jean-Christophe Eloy (eloy@yole.fr)
- Reports: David Jourdan (jourdan@yole.fr) Yole Group of Companies
- Press Relations: Sandrine Leroy (leroy@yole.fr)

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 Yole Développement'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 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.

"Products": Depending on the purchase order, reports or monitors on MEMS, Imaging, SSL, Advanced Packaging, MedTech, Power Electronics and more, can be bought either on a unit basis or as a bundled offer (i.e. subscription for a period of 12 calendar months).

"Report": Reports are established in PowerPoint and delivered in a PDF format with an additional Excel file. 30 min of Q&A session with an analyst/author can be included for all purchased reports (except the ones bought in one user license). More time can be allocated on a fee basis.

"License": For the reports 3 different licenses are proposed. The buyer has to choose one license type:

- Single user license: one person at the company can use the report. Sharing is strictly forbidden.
- Multi-user license: the report can be accessed by an unlimited number of users within the company, but only in the country of the primary user. Subsidiaries and Joint-Ventures are excluded.
- Corporate license: the report can be used by an unlimited number of users within the company, but only in the country of the primary user. Subsidiaries are included, while Joint-Ventures are excluded.

"Monitor": Monitors are established and delivered in Excel. An additional PDF can also join it. Q&A with an Analyst is possible for each monitor with a maximum limit of 100h/year. Frequency of the release varies according to the monitor or service.

"Seller": Based in Villeurbanne (France, headquarters) Yole Développement provides marketing, technology and strategy consulting, media and corporate finance services, reverse engineering/costing services as well as IP and patent analysis. With more than 70 market analysts, Yole Développement works worldwide with the key industrial companies, R&D institutes and investors to help them understand the market and technology trends.

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 Yole Développement'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 a few days from the order for Products already released and paid; 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 The Seller shall by no means be responsible for any delay in respect of article 2.1 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 (except for France where VAT will be added). The prices are re-evaluated 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 Yole Développement, credit card or by electronic transfer to the following account:
HSBC, 1 place de la Bourse 69002 Lyon France
Bank code: 30056
Branch code: 00170
Account n°: 0170 200 1565 87
BIC or SWIFT code: CCFRFRPP
IBAN: FR76 3005 6001 7001 7020 0156 587
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.
- 3.3 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 labour 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 [3] 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 sale ability 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, labour 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 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 (only in the country of the primary user). 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 If the Buyer would like to use data coming from the Products for presentations, press announcements and any other projects, the Buyer needs to contact Yole Développement's Public Relations Director (info@yole.fr) to get an official authorization and verify data are up to date. In return the Seller will make sure to provide up-to-date data under a suitable public format.
- 6.4 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.
- 6.5 The Buyer shall define within its company a contact point for the needs of the contract. This person will be the recipient of each new report. This person shall also be responsible for respect of the copyrights and will guaranty that the Products are not disseminated out of the company. In the context of Bundle and Annual Subscriptions, the contact person shall decide who within the Buyer, shall be entitled to receive the protected link that will allow the Buyer to access the Products.
- 6.6 Please note that whether in Bundles or Annual Subscription, all unselected reports will be cancelled and lost after the 12 month validity period of the contract.
- 6.7 As a matter of fact the investor of a company, external consultants, the joint venture done with a third party, and so on 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 Lyon, 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.