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Look for more details on Page 12 For more information or a demo contact reports@strategic-directions.com or call 703.770.3080 x19

REPORT OVERVIEW



2019 SDI GLOBAL ASSESSMENT REPORT

THE LABORATORY ANALYTICAL & LIFE SCIENCE INSTRUMENTATION INDUSTRY

19-001 | FEBRUARY 2019

Strategic Directions International

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Overview

The main body of this report is organized into 12 separate sections. After the introduction is a section that provides the reader with a general technical overview of the technologies and a guide to the segmentations used within the report. The third section examines the instrument industry from a competitive standpoint. Top suppliers are ranked by sales and evaluated in terms of technology involvement and strategic focus. Acquisitions, divestitures, and alliances are also discussed. It also provides the reader with measures and indicators of growth and profit performance for the industry. The next section summarizes historical and projected market revenues for the entire industry by basic technology. This is immediately followed by treatment of the industry from a regional perspective in which both traditional and emerging markets are analyzed and quantified. Finally the detailed market data sections are presented organized into major technology sections, which include a summary presentation of the included technologies.

Objectives of the Global Assessment Report

- 1. Understand the overall size, growth and segmentation of the analytical and life science instrumentation industries.
- 2. Determine the relative market share of leading vendors in 81 different product categories
- 3. Project the growth of the market and each segment from 2018-2023.
- 4. Identify the contribution of consumables and services to the size of the market revenues.
- 5. Review technological and market developments impacting the growth of the market.



Table of Contents

| METHODOLOGIES | 4 |
|--|-----|
| REPORT CONTENTS | 5 |
| NEW: GLOBAL QUARTERLY DATASTREAM ADD-ON | 8 |
| SAMPLE DATA | .10 |
| WHY BUY OUR REPORTS | .11 |
| PRICING | .12 |
| ABOUT STRATEGIC DIRECTIONS INTERNATIONAL | .13 |



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Methodologies

BioInformatics' SDi division maintains a database spanning decades of the corporate financia performance of life science and analytical instrument companies that is updated continuously. Proprietary algorithms, adjusted by market knowledge and client feedback, allocate revenues across dozens of product categories to create reliable models of market size, share, segmentation and growth. SDi analysts also employ primary research that involves substantial interactions with knowledgeable sources, including end-users, individuals within regulatory agencies, marketing and technical personnel of participating vendors, and other informed observers. The bulk of the information contained in this edition was gathered specificall in preparation of **The 2019 Global Assessment Report** — **The Laboratory Analytical & Life Science Instrumentation Industry**, with an emphasis on primary sources. Secondary research was also conducted to provide background perspective, to derive and substantiate market estimates, and to supplement those insights gleaned from primary research activities.



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Report Contents

INTRODUCTION

- **Each Major section** (e.g., "Chromatography") includes:
- Market Overview
- Demand by Product
- Demand by Region
- Application Segmentation
- Competitive Situation

Each product chapter (e.g., **Analytical HPLC) consists** of the following sections:

- Technology Overview
- Key Market Dynamics
- Product Segments
- Unit Shipments
- Industry & Function
- Application Segmentation
- **Regional Demand**
- **Competitive Situation**
- Recent Developments

- Structure and Audience
- Methodology
- Analytical Technologies
- Scope
- Definition

MARKET OVERVIEW

- Lab Count
- Industry Participants
- Industry Index
- Economic Scenario
- Business News

OVERALL MARKET DEMAND

CHROMATOGRAPHY

- Market Overview
- Analytical HPLC
- Preparative HPLC
- Gas Chromatography
- Ion Chromatography

- Low Pressure Liquid Chromatography
- Clinical HPLC (HbA1c)
- Flash Chromatography
- Supercritical Fluid Chromatography
- Thin-Layer Chromatography (TLC)

MASS SPECTROMETRY

- Market Overview
- Quadrupole LC/MS
- GC/MS
- FT/MS & Ion Trap LC/MS
- Time-of-Flight LC/MS
- MALDI-TOF
- Magnetic Sector
- Portable & In-Field MS

ATOMIC SPECTROSCOPY

- Market Overview
- X-Ray Fluorescence (XRF) Spectroscopy
- X-Ray Diffraction (XRD) Spectroscop
- Atomic Absorption Spectroscopy (AAS)

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Report Contents

- Inductively-Coupled
 Plasma (ICP) & Glow
 Discharge Spectroscopy
- Inductively-Coupled
 Plasma MS (ICP-MS)
- Arc/Spark Optical
 Emission Spectroscopy
- Total Organic Carbon (TOC) & Other Sum Parameters
- Elemental Analyzers

MOLECULAR SPECTROSCOPY

- Market Overview
- Nuclear Magnetic Resonance (NMR)
 Spectroscopy
- UV/Vis Spectroscopy
- Infrared Spectroscopy
- Near-Infrared Spectroscopy
- Raman Spectroscopy
- Fluorescence & Luminescence

- Color Measurement
- Polarimetry & Refractometry
- Ellipsometry

LIFE SCIENCE INSTRUMENTATION

- Market Overview
 - Nucleic Acid Sample
 Prep and Cell Separation
- DNA Sequencing
- PCR
- Flow Cytometry
- Electrophoresis
- Microarrays
- In Vivo Animal Imaging
- Capillary Electrophoresis
- Automated Synthesizers
- High Content Analysis/ Cell Imaging Systems
- Electrophysiology
- Label-Free Detection
- Cell Counters

LAB AUTOMATION & SOFTWARE

- Market Overview
- Liquid Handling
- Microplate Readers
- Multiplex/HT ELISA
- Robotics
- LIMS, ELN, & SDMS
- Informatics

MATERIALS CHARACTERIZATION

- Market Overview
- Physical Testing
- Thermal Analyzers
- Particle Characterization
- Rheometry & Viscometry
- Calorimetry
- Petroleum Analyzers

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Report Contents

SURFACE SCIENCE

- Market Overview
- Optical Microscopy
- Electron Microscopy
- Confocal & Advanced Microscopy
- Scanning Probe Microscopy
- Surface Analyzers

GENERAL ANALYTICAL TECHNIQUES

- Market Overview
- Electrochemistry
- Lab Balances
- Radioactivity
- Dissolution Testing
- CFA & Discrete Analyzers

LAB EQUIPMENT

- Market Overview
- Lab Centrifuges
- Transfection
- Extraction Techniques
- Water Purificatio
- Bioreactors & Fermenters
- Gas Generators
- Laboratory Incubators
- Biological Safety Cabinets
- Fume Hoods
- Microwave-Assisted Chemistry
- Concentrators & Evaporators
- Lab Washers
- Shakers and Stirrers



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Global Datastream

As a complement to the Global Assessment Report, the **Global Datastream is an add on item** that provides you with the most up-to-date market data in **four quarterly installments**. Each installment will be released at the end of following quarter (**i.e., data for Q1 will be released at the end of Q2**) due to the timeframe in which financials for various companies are released. These comprehensive data updates will come in a form easily useable by your marketing, business development, product management teams, and company executives, and will ensure you always have the most up-to-date information on the analytical and life science instrumentation market. Also included in each update is how fluctuations in major global **currencies have a ected real growth** for each of the markets examined, which is not available in the Global Assessment Report.

Each installment contains the following sections:

- Definition
- Overall Market Overview
- Demand by Region
- Chromatography
- Mass Spectrometry
- Atomic Spectrometry
- Molecular Spectrometry
- Life Science
- Surface Science
- Materials Characterization
- Lab Automation & Equipment

Each section contains the following data for the previous two years for each market segment, region, and application sector :

- Quarterly growth (\$Mil)
- Quarterly percent growth
- Currency Effect
- Organic market growth
- Total growth (\$Mil)
- Estimated growth over the next 5 years (\$Mil)
- Market growth CAGR
- Text Analysis for each quarter



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Global Datastream

The following is a sample of the Quarterly Global Datastream Deliverable. For the sample file or a walkthrough of the Assessment Report and Datastream, please call **703.770.3080 x19** or email **reports@strategic-directions.com**.

| Q1 10.0% | ket Gro Q2 10.0 | owth 2016 Q3 | - 2017 Q4 | Curre Q1 | ncy Effec | | 2017 | Organic I | Market G | rowth 20 | 16 - 2017 | Total | (SMill) | Est. | SMID | Marke | Croudle | Contraction of the local division of the loc |
|-------------|-----------------------|-----------------|-------------------|-------------------------|-------------------|-------------------|-------------------|-----------------------------------|-------------------------|-------------------------|-------------------|----------------------------|-------------------------|---|---|--|--|--|
| 0 10.0% | 1000 | Q3 | 04 | 01 | | | | Organic Market Growth 2016 - 2017 | | | | Total (\$Mil) Est. (\$Mil) | | | | Market Growth CAGR | | |
| 10.0% | 10.0 | | | | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | 2016 | 2017 | 2018 | 2022 | '16 - '17 | 17 - 18 | '17 - '2 |
| | | % 10.0% | 10.0% | -1.0% | -2.0% | 1.0% | 2.0% | 11.0% | 12.0% | 9.0% | 8.0% | 4,000 | 4,400 | 4,752 | 6,171 | 10.0% | 8.0% | 7.0% |
| | 10.0 | % 10.0% | 10.0% | 1.0% | -2.0% | -1.0% | -2.0% | 9.0% | 12.0% | 11.0% | 12.0% | 1,000 | 1,100 | 1,188 | 1,543 | 10.0% | 8.0% | 7.0% |
| 10.0% | 10.0 | % 10.0% | 10.0% | 0.5% | -2.0% | 1.0% | 2.0% | 9.5% | 12.0% | 9.0% | 8.0% | 2,000 | 2,200 | 2,376 | 3,086 | 10.0% | 8.0% | 7.0% |
| 10.0% | 10.0 | % 10.0% | 10.0% | -2.0% | -2.0% | -1.0% | -2.0% | 12.0% | 12.0% | 11.0% | 12.0% | 500 | 550 | 594 | 771 | 10.0% | 8.0% | 7.0% |
| 10.0% | 10.0 | % 10.0% | 10.0% | -1.0% | -2.0% | 1.0% | 2.0% | 11.0% | 12.0% | 9.0% | 8.0% | 500 | 550 | 594 | 771 | 10.0% | 8.0% | 7.0% |
| 19.5% | 19.5 | % 19.5% | 19.5% | 0.3% | -0.3% | 0.3% | 0.4% | 19.2% | 19.8% | 19.2% | 19.1% | 2,210 | 2,640 | 2,816 | 3,291 | 19.5% | 6.7% | 4.5% |
| 5.0% | 5.0% | 6 5.0% | 5.0% | -3.0% | -3.0% | 3.0% | 3.0% | 8.0% | 8.0% | 2.0% | 2.0% | 2,514 | 2,640 | 2,904 | 3,879 | 5.0% | 10.0% | 8.0% |
| 10.0% | 10.0 | % 10.0% | 10.0% | -5.0% | -3.0% | 0.0% | 0.0% | 15.0% | 13.0% | 10.0% | 10.0% | 800 | 880 | 924 | 1,293 | 10.0% | 5.0% | 8.0% |
| 5.0% | 5.09 | 6 5.0% | 5.0% | 1.0% | -1.0% | -7.0% | -3.0% | 4.0% | 6.0% | 12.0% | 8.0% | 838 | 880 | 968 | 1,293 | 5.0% | 10.0% | 8.0% |
| 10.0% | 10.0 | % 10.0% | 10.0% | 1.0% | 3.0% | 3.0% | 3.0% | 9.0% | 7.0% | 7.0% | 7.0% | 400 | 440 | 462 | 647 | 10.0% | 5.0% | 8.0% |
| 5.0% | 5.0% | 6 5.0% | 5.0% | 1.0% | 1.0% | 0.0% | 1.0% | 4.0% | 4.0% | 5.0% | 4.0% | 419 | 440 | 484 | 647 | 5.0% | 10.0% | 8.0% |
| 10.0% | 10.0 | % 10.0% | 10.0% | 1.0% | 1.0% | 1.0% | 1.0% | 9.0% | 9.0% | 9.0% | 9.0% | 400 | 440 | 462 | 647 | 10.0% | 5.0% | 8.0% |
| 5.0% | 5.0% | % 5.0% | 5.0% | -1.0% | -1.0% | -1.0% | -1.0% | 6.0% | 6.0% | 6.0% | 6.0% | 419 | 440 | 484 | 647 | 5.0% | 10.0% | 8.0% |
| 9.5% | 9.5% | 6 9.5% | 9.5% | | | | | | | | | 2,009 | 2,200 | 2,394 | 4,120 | 9.5% | 8.8% | 13.4% |
| 5.0% | 5.0% | 6 5.0% | 5.0% | | | | | | | | | 2,095 | 2,200 | 2,266 | 2,312 | 5.0% | 3.0% | 1.0% |
| 10.0% | 10.0 | % 10.0% | 10.0% | | | | | | | | | 400 | 400 | 420 | 644 | 0.0% | 5.0% | 10.0% |
| 10.0% | 10.0 | % 10.0% | 10.0% | | | | | | | | | 800 | 880 | 968 | 1,123 | 10.0% | 10.0% | 5.0% |
| 20.0% | 20.0 | % 20.0% | 20.0% | - | | | | | | | | 400 | 480 | 552 | 773 | 20.0% | 15.0% | 10.0% |
| 15.0% | 15.0 | % 15.0% | 15.0% | | | | | | | | | 2,296 | 2,640 | 2,904 | 3,369 | 15.0% | 10.0% | 5.0% |
| 0 10.0% | 10.0 | % 10.0% | 10.0% | | | | | - | | | | 8,000 | 8,800 | 9,504 | 12,342 | 10.0% | 8.0% | 7.0% |
|) | 10.0% | 10.0% 10.0 | 10.0% 10.0% 10.0% | 10.0% 10.0% 10.0% 10.0% | 10.0% 10.0% 10.0% | 10.0% 10.0% 10.0% | 10.0% 10.0% 10.0% | 10.0% 10.0% 10.0% | 10.0% 10.0% 10.0% 10.0% | 10.0% 10.0% 10.0% 10.0% | 10.0% 10.0% 10.0% | 10.0% 10.0% 10.0% | 10.0% 10.0% 10.0% 8,000 | 10.0% 10.0% 10.0% 8,000 8,800 | 10.0% 10.0% 10.0% 8,000 8,800 9,504 | 10.0% 10.0% 10.0% 10.0% 10.0% 12,342 | 10.0% 10.0% 10.0% 10.0% 10.0% 12,342 10.0% | 10.0% 10.0% 10.0% 10.0% 10.0% 8,000 8,800 9,504 12,342 10.0% 8.0% |



Sample Data

Alpha/Beta

Counters

31%

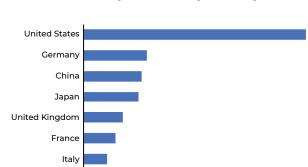
Radioactivity Demand by Technique, 2018

Other Methods 2% Development. 4% Multichannel Analyzers 13% Basic R&D Applied R&D 34% \$192M Liquid QA/QC Scintillation 18% 56% Analytical Service

Radioactivity Demand by Function, 2018

Each product chapter, in this example Radioactivity, consists of the following sections:

- Technology Overview
- Key Market Dynamics
- Product Segments
- Unit Shipments
- Industry & Function
- Application Segmentation
- Regional Demand
- Competitive Situation
- Recent Developments



Radioactivity Demand by Country, 2018

Canada



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SDi About Strategic Directions International

Strategic Directions International (SDi) is the leading business intelligence firm in the highly specialized field of analytical and life science instruments. Its client list includes virtually every major analytical instrumentation company in the United States, Europe, and Japan. Founded in 1981, the Los Angeles-based company has published hundreds of market reports and provided proprietary consulting services for a multitude of clients.

The library of market knowledge and data that SDi has cultivated over the years has been researched by senior consultants and a team of expert scientific market researchers who actively update and cross-check information through both primary and secondary sources.

Each year we also develop publications that focus on the market for a particular technology segment, geographical region, industry, or application. These reports rely heavily on secondary sources and provide the reader with valuable market figures and representations, including segmented market demand, unit sales, five-year growth forecast, competitive situation, and other relevant insights or summaries. Many of these reports also include a section devoted to end user perspectives, based on results from a survey of scientists and researchers whose work reflects the focus of the publication.

SDi often works in close association with BioInformatics Inc., the leading research and advisory company serving life science markets. This Arlington, Virginia-based firm leverages the world's largest panel of scientific and clinical customers, The Science Advisory Board, for both quantitative survey research and indepth thought leader interviews. SDi and BioInformatics are both part of Science and Medicine Group, an expanding collection of companies focused on research and advisory services that span the laboratory, scientific, and medical space.

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