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INSTRUMENT BUSINESS OUTLOOK



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Firms Target Smaller Emerging Markets

Economic growth in emerging markets in Eastern Europe and Southeast Asia is increasingly luring analytical instrument firms to establish a deeper presence in such markets. Companies are starting to sell directly in these markets to increase contact with a growing customer base. In doing so, they strengthen their applications development and marketing efforts.

Pharmaceutical testing systems manufacturer SOTAX is taking advantage of the growing Eastern European pharmaceutical market. The firm opened a subsidiary in Prague, Czech Republic, in April to serve both R&D and manufacturing applications. A SOTAX representative told *IBO* that the location was chosen because SOTAX wanted to be closer to its Czech

pharmaceutical customers and its Eastern European distributors. The subsidiary is SOTAX's fifth in Europe and first in Eastern Europe. In addition to the Czech Republic, the pharmaceuticals market is growing quickly in other Eastern European nations, namely Poland and Russia, according to the representative.

Other instrument firms have recently expanded in Eastern Europe as well. In 2012, FEI opened a facility in Brno, Czech Republic, for manufacturing, R&D and administration (see *IBO* 8/31/12). In Poland, this year, Anton Paar established a subsidiary in Warsaw (see *IBO* 3/15/13) and PerkinElmer opened a customer center in Krakow (see *IBO* 2/15/13).

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Strategic R&D Investments in 2012

In 2012, R&D spending in US dollars for 21 major publicly held analytical instrument and lab product companies (see table, page 6) increased 6.0% but maintained pace with sales, which grew 6.6%. Given the slower top-line growth compared with 2011 and concerns over research-related spending, R&D initiatives were focused on higher growth biopharmaceutical, clinical and applied markets.

IBO's annual survey of R&D expenditures is based on calendar year 2012 results, with the exception of Agilent Technologies (fiscal year ending October 31, 2012) and Oxford Instruments (fiscal year ending March 31). Financial results for European companies are calculated at 2012 constant exchange rates.

Seventeen of the 21 companies in the

table reported higher R&D spending in 2012, including 11 with double-digit increases. R&D investments for the largest firms, which had annual sales exceeding \$1.5 billion, grew 5.8%, and revenues grew 6.3%. In 2012, several of these companies shifted R&D resources to emerging markets to capitalize on demand and life science funding by governments in Asia.

Thermo Fisher Scientific, Agilent and Life Technologies, which recorded three of the top four largest R&D budgets in 2012 among companies in the table, expanded R&D infrastructure and headcount in Asia Pacific and other emerging markets to localize product applications and develop new technologies. In 2012, Agilent

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Core Labs Form Alliance

To address scientific, technological, organizational and funding challenges facing core labs in Europe, core facilities at six European research institutes announced in May the formation of the Core for Life alliance. Core laboratories support the research of an institute's scientists by providing testing services and access to advanced analytical instruments and other laboratory equipment.

Current alliance members consists of core labs located in five countries. One of the German members is the European Molecular Biology Laboratory, which is publicly funded by 20 nations and supports 85 independent groups at five locations. Also located in Germany is the Dresden-based Max Planck Institute of Molecular Cell Biology and Genetics, a nonprofit organization with 361 employees. Spain's Centre for Genomic Regulation (CGR) is an international research institute that supports international researchers and utilizes a novel organization model. Associated with the ETH Zurich and the University of Zurich, the Functional Genomics Center Zurich is a research and training facility that supports over 180 new projects each year. The Vienna Biocenter Campus, whose nonprofit Campus Science Support Facilities is an Alliance member, houses universities, research institutes and private companies. Belgium's nonprofit VLAAMS Instituut Voor Biotechnologie (VIB) supports 1,300 scientists and is a partner with four Flemish universities. The alliance was spearheaded by Geert Van Minnebruggen, Integration Manager and Head of Core Facilities at VIB, and Doris Meder, Head of Core Facilities at CGR.

Among the most pressing issues is a core lab's ability to stay up to date with technology changes. "As technologies become more expensive and short lived, the real challenge for each institute is to be able to renew its machines and to keep pace with new technologies," said Monica Morales, PhD, Acting Head of Core Facilities at the CGR. "To master this evolution, each life sciences institute has to decide on a few technological areas in which it will make continuous investments to be at the cutting edge. At the same time, the institute needs to guarantee access to other platforms that cannot be provided at an equal level of sophistication in-house," she said. As noted in the alliance's position paper, sequencers and super-resolution microscopy are among the techniques experiencing rapid technology improvements.

Core for Life aims to address the dilemma through resource sharing. Such a solution would enable different labs to specialize in different technologies, thus growing demand for each lab by pooling users and increasing user access to a wider range of technologies. The plan also addresses cost constraints. "A similar solution would come from joint investments in equipment. If a technology isn't worth it for a single institute investing, but you have five more institutes also interested, there is enough support to purchase the equipment via a joint financial commitment," said Dr. Morales.

As part of this effort, the alliance has formed six technology work groups: Bioinformatics & Scientific Computing; Genomics; Screening; Protein Technologies & Nanobodies;

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Sequencing

Company Announcements

- **Real Time Genomics** and **Omicia** entered into a commercial partnership in April to deliver genomic analysis and interpretation, respectively, in a single workflow for the clinical interpretation of childhood diseases. The integrated product will be launched later this year.
- **Life Technologies** partnered with **Ridom** in April to make SeqSphere+ whole-genome bacterial typing software available for Ion Personal Genome Machine users.
- **Life Technologies** and **Aridhia** are commercial partners in the **Stratified Medicine Scotland Innovation Centre**, an academia, industry and government collaboration.
- **Precision System Science (PSS)** announced in May that **Roche** terminated its agreement for PSS to develop and manufacture a fully automated emulsion PCR instrument for next generation sequencing (NGS). The company estimates only a minor effect on fiscal year results.
- In May, **Illumina** announced collaborations with **Beckman Coulter Life Sciences**, **Eppendorf**, **Hamilton Robotics**, **PerkinElmer** and **Tecan** to develop automated methods for TruSeq and Nextera Sample Preparation kits. The partners will develop, distribute and install the methods on customers' robots and provide technical support.
- **Pacific Biosciences** signed in May a comarketing partnership for **Sage Science's** BluePippin size selection platform.
- **Pacific Biosciences** appointed **Uniscience do Brasil** its exclusive Brazilian distributor.

Product Introductions

- **Appistry** released in March the first fully supported commercial version of the **Broad Institute's** Genome Analysis Toolkit. The firm is also making the source code to the software available to customers.
- **CLC bio** and **IBM** introduced in April a combined turnkey end-to-end NGS data analytics solution.
- In April, **Pacific Biosciences** launched the PacBio RS II sequencer, which can generate average read lengths of 5,000 base pairs, with the longest reads above 20,000 base pairs in length, and doubles the number of simultaneously observable sequencing reactions. New analysis software includes automated de novo assembly.
- In May, **Clontech Laboratories** introduced the SMARTer Universal Low Input RNA Kit for Sequencing for facilitating RNA-Seq from degraded total RNA samples.
- **Bioo Scientific** released the NEXTflex qRNA-Seq Kit for gene expression analysis by RNA-Seq using molecular indexing. It was developed with **Cellular Research**.
- In May, **Real Time Genomics** and **Knome** integrated their respective Variant platform and knoSYS 100 interpretation system.
- **Illumina** launched the BaseSpace cloud computing and storage platform, featuring an e-commerce system for purchase of Illumina and third-party bioinformatics applications.

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Light & Electron Microscopy and FACS (fluorescence activated cell sorting); and Proteomics & Metabolomics. According to Dr. Morales, these groups will "scout new technologies and best equipment, which can then be validated quickly using an enlarged pool of users. The work groups meet on a regular basis (probably twice a year) to discuss a variety of items such as implementation of new SOPs, game changing new technologies, mini-sabbaticals for staff members, thematic workshops and even operational models to handle capacity sharing." In addition, the groups' chairs will meet to discuss coordination among different fields.

The alliance is also made up of general working groups. "In addition, there are general work groups tackling issues like quality management, staff training, or how to track technology contributions in publications—a very important issue when we want to critically evaluate the performance of a core facility," explained Dr. Morales. Other general working groups are focused on low-input omics, image processing and one called the Directors' Round Table, which discusses core lab management models. The alliance's plans this year include a meeting addressing the integration of light and electron microscopy and an Annual Technology Forum.

Major goals of the alliance also include the creation of best practices and common standards for member labs, sharing of technology information and the formation of alliances for early technology access, training of core facility staff and lobbying for increased lab funding. "In order to fulfill our goals, we believe we need to work in a small circle of peers for effective and efficient decision-making," said Dr. Morales. Periodic meetings of core facilities directors will be held to focus on management issues and create best practice documents and guidelines. In addition, she explained, "We plan to publish guidelines and position papers on our website, to organize open symposia, and to provide specific consultations to other institutes and organizations." ➔

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X-Ray Technology and Superconducting Wire businesses performed well. Sales in the Austin Scientific business declined. IP adjusted operating profit jumped 26.1% to £17.4 million (\$27.6 million). The Service business grew 7.6% but was flat organically to account for 17% of sales. Adjusted operating profit for the Service business rose 4.5% to £11.5 million (\$18.3 million).

For the fiscal year ending March 31, **Shimadzu Analytical and Measuring Instruments (AMI)** sales improved 0.4% to ¥153.9 billion (\$1.85 billion = ¥83.07 = \$1) to represent 58% of company revenues. Japanese sales fell 3.6% to account for 51% of AMI sales. Sales to North America and South America grew 14.8% and 8.8% to make up 8% and 2%, respectively. Sales to China and Other Asian countries improved 4.6% and 9.2% to account for 18% and 10%, respectively. Sales to the Middle East, Oceania and Africa rose 13.7% to represent 3%. For fiscal 2014, AMI revenue is estimated to grow 13.7% to ¥175.0 billion (1,945 million = ¥90.00 = \$1). Operating income is expected to jump 54.3% to ¥19.5 billion (\$217 million). ➔

Liquid Chromatography

Company Announcements

- **Diba** named **Kinesis** the exclusive distributor of its **OmniSep** columns.
- In April, **ASI** and **Chromatan** announced an exclusive agreement to combine development, sales, marketing and manufacturing efforts to bring **Continuous Countercurrent Tangential Chromatography**, a continuous single-use and column-free purification technology, to market.
- **Shimadzu** announced in April that **Waters Empower** chromatography data system (CDS) can now be used to control its **SPD-M30A** photodiode array detector in **Nexera X2** series systems, thus enabling control of a wider range of Shimadzu LC products.
- In May, **Agilent** and **Shimadzu** announced they will exchange **RapidControl.NET** instrument drivers, enabling Agilent's **OpenLAB CDS** and Shimadzu's **LabSolutions** to control both manufacturers' instruments.

Product Introductions

- **Diba** introduced **OmniSep** columns for low pressure chromatography. They contain agarose- and dextran-based media packed in **Benchmark** glass columns.
- **Waters** introduced the **Prep 150 LC System**, a fit-for-purpose preparative chromatography system for medicinal chemistry and natural product extraction.
- **AB SCIEX** released a 21CFR Part 11 module for software control of **Eksigent** LC systems and an **IQ/OQ/PQ** service for regulated bioanalysis.
- **Phenomenex** launched **Kinetex Core-Shell 5 µm** media packed in 21.2 mm ID **Axia** hardware for preparative HPLC and supercritical fluid chromatography in lab-scale purification.
- In June, **Phenomenex** released the **Kinetex C8 5-µm** core-shell HPLC column for small-scale preparative purification.
- **Waters** introduced in April the **VICAM Myco6in1+ LC/MS/MS** immunoaffinity column, which simultaneously screens for seven major mycotoxin families, isolating at least 14 chemically distinct mycotoxins.
- **BÜCHI** introduced the new **Sepacore Easy Purification Systems** for preparative chromatography: the **Easy Synthesis** system, featuring a 250 mL/minute, 10 bar pumping system, and the **Easy Extract** system, a 50 bar gradient system for large sample loading of natural extracts.
- In May, **Agilent** launched the **AdvanceBio Peptide Mapping BioHPLC** and **ZORBAX RRHD 300-HILIC** columns, stating that the **ZORBAX RRHD 300-HILIC** columns are the only sub 2 µm, 300 Å HILIC columns available today.
- **Tosoh Bioscience** introduced in the Americas the **TOYOPEARL GigaCap Q-650S** anion exchange and **S-650S** cation exchange resins.
- In June, **Thermo Fisher Scientific** released the **Thermo Scientific MAbPac Protein A** column for monoclonal antibody titer analysis.