M@DE IN DIESSE

Nr. 14, April 2018

DIESSE IS AN ISO CERTIFIED COMPANY: UNI EN ISO 9001:2008 - UNI CEI EN ISO 13485:2012 - ISO 13485:2003, DIRECTIVE 98/79 CE

DIESSE'S FINANCIALS 2017

Stefano Marchese

Chief Executive Officer

The Consolidated Financial Statements of DIESSE as of Dec. 31st, 2017 shows a **net profit of € 1,2 million**, compared to € 658k. of 2016 (+82%).

At a consolidated level, **revenues** were **€ 21,5 m.** (+5,4%) and, while the rise of export sales was of about 2%, in an Italian in vitro diagnostic market which increased in 2017 by 0,4%, DIESSE's sales in domestic market rose by **13%**.

EBITDA amounts to **€ 4,6 m.**, compared to € 3,5 m. of 2016, with an increase by **31%**; the **net financial position decreased to € 14,1 m.**, compared to € 14,8 m. of 2016.

At the end of 2017, DIESSE was selling its own products in **104 countries**; since in 2016 the countries were 94, in 2017 DIESSE increased its business in **10 new countries**. DIESSE is present in all **5 continents**, through **no. 148 distributors** and with an established instrumental basis of more than 14k. units, of which **2.380 Chorus instruments.**

As regards R&D, during 2017 and in the early months of 2018, it was finalized the development of **three new instruments**: VESMATIC CUBE 30 Touch, Auto-Sampler for Chorus (and obviously a new version of Chorus equipped with Auto-Sampler) and Auto-DAT, as well as **no. 20 new diagnostic kits**. It is under development a new version of Mini-Cube for veterinary purposes (PET) and a new version of Chorus for the implementation of food raw materials tests.

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EUROPEAN GENERAL DATA PROTECTION REGULATION (GDPR)

Diesse Quality Unit

The European General Data Protection Regulation (GDPR), will come into force on **May 25, 2018**.

Companies covered by the GDPR will be more accountable for their handling of people's personal information.This can include having data protection policies, data protection impact assessments and having relevant documents on how data is processed.

Diesse is working on its upgrading plan to be in compliance with this new Regulation.

Main activities

1. Process mapping and Risk analysis, evaluation and mitigation related to all the items on data protection
2. Record of data processing activities issued to identify the nature of the data, the type of treatments, access (internal and external)
3. Organization chart on data protection, defining function responsibilities and hierarchical position related to the data processing
4. Quality Management System Procedures update to GDPR

DIESSE'S CHECK-UP

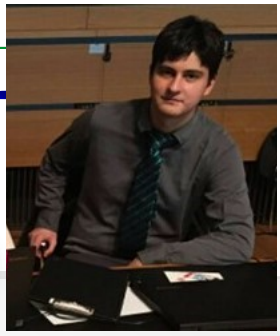
Catia Perazzolo, Finance Department

Every three months, DIESSE makes a check-up in order to see if it is financially and economically healthy. Here are the results of its last check-up, referred to the period Jan. 1 – Dec. 31, 2017 compared to Jan. 1 – Dec. 31, 2016:

Consolidated figures (€ k.)	2017	2016	2017/2016
Value of production	€ 22.530	€ 21.709	104%
EBITDA	€ 4.592	€ 3.527	130%
EBIT	€ 2.720	€ 1.539	177%
Profit from ordinary activity before tax	€ 2.100	€ 926	227%
Net financial position at the end of the period	€ 14.108	€ 14.639	96%

Nr. 14, April 2018

A COFFEE WITH



Welcome to the ninth issue of the section expressly created to give voice to our Distributors. Just a few questions and answers, as if we were having coffee together!

We are glad to introduce Mr. LEVAN BRELIDZE from ABL DIAGNOSTICS, our Exclusive Distributor in GEORGIA

MR. LEVAN BRELIDZE

What do you like most in working with Diesse?
We particularly enjoy the quality promise that "Made in Italy" tag represents on Diesse products. **The reliability of Diesse analyzers and reagents has been a well-known fact worldwide for years**. This reputation was easily reinforced locally in Georgia as soon as our early adopters got their firsthand experience with the brand. It has been going from strength to strength ever since.
Another aspect **we cherish is our relationship with Diesse**. It's based on mutual respect, trust, equality and openness. Our voice as a distributor is always heard, our needs are always understood and answered. Diesse can rightfully pride itself on such win-win approach and when our end-user is factored in this chemistry, a strong triple bond emerges.

Which new products would you like to have on your market?
Based on our country, we would like to see more hormone tests on Chorus system. We know that new parameters from this nosology are under development at the moment. The wide test menu of Chorus analyzers would be even more welcome on the Georgian market with this addition.
We would also recommend using Diesse's expertise in AUTO-DAT as a basis to develop a visualization system for WBC count. Automatization in this part of hematological research would enhance the precision and standardization of results, while decreasing the time and number of errors associated with manual work.

Which will be the next appointments (exhibitions, congresses..) where you will promote Diesse products?
Tbilisi Health Forum is an annual exhibition held in our nation's capital in October. It attracts participants from the whole Caucasus region as well as from Eastern Europe, Turkey and Middle East. We plan to take part in this year's edition and showcase Diesse. It is a good opportunity to spark interest in new products and developments, which Diesse has in abundance this year.

4. Which are the factors which lead your company to gain its position in the market?
Georgian market is very competitive – nearly all the major brands in medical diagnostics can be found on the field. One has to have an edge, a core competency that becomes an advantage and differentiates the company from the rest. ABL Diagnostics Georgia offers customers the full solution for their needs: we do not merely provide equipment and consumables, but grant our end-users a package including installation, training, warranty and technical support. Our after-sales service is exceptional in terms of expertise and skills of our sales and product managers. Diesse's support with trainings and your sales manager visits help us maintain the quality and integrity of our bundle.

5. Your country: how would you describe it to someone who never visited?
It's truly remarkable how many discoveries lie ahead for this person in such a small country: 3000 years of history, culture, architecture, music, cuisine; one of the world's 14 unique alphabets (in fact, we have 3 of them), the birthplace of wine-making with endemic grape varieties; ancient Christian churches and monasteries. With the Black Sea to the west and the Greater Caucasus Mountains to the North, Georgia has a lot to offer on any season of the year.
They say Georgians are famous for hospitality, but don't take other's word for it – come and see for yourselves!

AUTO-DAT: STANDARDIZATION OF THE INTERPRETATION OF DIRECT AGGLUTINATION TESTS THROUGH IMAGE ANALYSIS SOFTWARE IN MICROPLATE FORMAT.

Mario Tognini, Marketing and Business Development Manager

Agglutination is the visible expression of the aggregation of antigens and antibodies through the formation of a latex in which the antibody and antigen molecules alternate with each other. Agglutination tests are simple to perform and have a wide range of applications in both infectious and non-infectious diseases:

- Enteric fever / typhoid: bacterial agglutination
- Syphilis: RPR and TPHA
- Rheumatology: ASO, RF, CRP with latex
- Mononucleosis etc. etc.

These tests are performed manually, are time consuming and the interpretation of the results is made by the naked eye, and for this reason are prone to subjectivity. The format of this kind of tests can be in slide, microplate or tube and in most cases serial double dilutions of the samples are needed to obtain the titre (highest dilution in which agglutination is still visible) to have a semiquantitative result, that can be helpful for the clinical interpretation of the test. Further to this, some tests, such as bacterial agglutination tests require long incubation times, normally overnight, hence results are obtained in 24 hours. Since agglutinated materials are stable for a limited period, and because of the visual reading, these tests cannot be traced and therefore risk of misreading or of clerical mistakes are high. All the drawbacks of manual direct agglutination tests are solved by our new Auto-DAT system! The procedure is simplified compared to the manual method:

1. the image analysis software elaborates the result interpreting the pattern of agglutination in a single microplate well, therefore there is no need of doubling dilutions of the samples.
2. The incubation time is drastically reduced: in around 15 minutes the results are obtained, instead of an overnight incubation.
3. The reading and the interpretation of the results is objective .

QUANTITATIVE RESULT IN A SINGLE MICROPLATE WELL THANKS TO IMAGE ANALYSIS SOFTWARE.

- **STOP TO TEDIOUS DOUBLE DILUTION OF SAMPLES**
- **STOP LONG «OVERNIGHT» INCUBATIONS**
- **STOP TO VISUAL INTERPRETATION OF RESULTS**

The first kits available in Auto-DAT format:

- Bacterial agglutination: Widal-Wright (WW-DAT) and Weil-Felix (WF-DAT)
- Syphilis: Rapid Plasma Reagin (RPR Carbon)

SEROLOGICAL DIAGNOSIS OF INFECTIOUS DISEASES

Dario Soldateschi, Chief of R&D Reagents & Biotechnology

The history of the diagnosis of infectious diseases date back well before Louis Pasteur and Robert Koch demonstrated the "germ theory" was correct. Even if the causes were imaginary and disputed, there was agreement that some diseases could be transmitted. Hippocrates (460 - 370 BCE), made important epidemiologic observations on several infectious diseases. After him Celsus (25 BCE - 50), Galenus (129 – 200) and Avicenna (980 – 1037) made important observation on several infectious diseases as well. But it was necessary to wait until the 19th century and the revolutionary work of Pasteur and Koch to have wide acceptance of the theory that infectious diseases were caused by "germs".

In present times, **diagnosis of infectious diseases is based on an integration of clinical observation, epidemiological data and laboratory tests.** These assumes a leading role, as they are able to produce objective data in support of clinical diagnosis.
Laboratory diagnosis of infectious disease has two main branch: **direct diagnosis and indirect diagnosis**.

Direct diagnosis is based on the demonstration of the presence of the microorganism or some of its components (antigens or nucleic acids), in biological samples obtained from the patient. The sample is (are) chosen basing on the suspected disease, where the causative microorganism is supposed to be present. Common samples are, for example, blood, cerebrospinal fluid, tissue homogenates, bronchoalveolar lavage, etc.
Isolation in culture is performed in culture media for most bacteria, molds and fungi, and in tissue culture for viruses and some bacteria (e.g. chlamydia) and parasites (e.g. *Toxoplasma gondii*). Advantages of this technique is the highly supporting evidence that the finding of the causative agent can confer to the diagnosis. Important drawbacks are the time required, that can be of several days or weeks; the sensitivity, that can be low; the non-cultivability of several microorganisms, the necessity of well-equipped laboratory and skilled personal and last, but not least, the risk of the procedure, that implicate the manipulation of live pathogenic microorganisms, often requiring **BSL 3 or BSL 4 facilities.**
Demonstration of pathogen components can be accomplished by ELISA, with specific antibodies or by **Nucleic Acid Tests (NAT).** ELISA is a simple and rapid method, easy to automatize and well suited for Point Of Care (POC) development, but can suffers of low sensitivity. On the contrary NAT, which comprise several methods, the most famous and most used of which is the Polymerase Chain Reaction (PCR), exhibits high sensitivity and specificity, but require well trained technicians and dedicated facilities that may not be available in smaller laboratories.
A common drawback of all these methods resides in the transitory presence of the pathogen in the host biological sample. For instance, PCR is not recommended in West Nile Virus diagnosis, owing to the low-level, transient viremia during the incubation period, whilst detection of Zika virus by PCR is recommended only in the first 5 days after symptoms onset. Indirect diagnosis, on the other side, is based on the detection in serum or other biological fluids, of specific antibodies directed toward pathogen components (antigens). Criteria for diagnosis are seroconversion or ≥ 4-fold antibody titre increase between two serum samples collected at the beginning of symptoms and after 2-3 weeks. Alternatively, the presence of antibodies of the IgM or IgA class, which are produced early in the course of infection, is highly suspicious of acute infection, even if both these class of antibodies have been reported to sometime persist for several months (for example in rubella, *Toxoplasma* and *Borrelia* infection and in many other cases). In case of doubt, avidity measurement may aid in diagnosis, as it increases with time during the course of infection, so allowing to know if the antibodies has been recently produced or not. Specific antibodies can be demonstrated by several laboratory techniques, **like agglutination, hemagglutination inhibition (HAI), infectivity neutralization, complement fixation test (CFT), indirect immunofluorescence (IIF), Western Blot (WB), ELISA and lateral flow chromatography (LFC).** Each of these tests has advantages and drawbacks, consequently the choice of the methods must be based on a series of consideration like the setting where they are to be used, sensitivity and specificity required, number of sample to evaluate, necessity to distinguish antibody class and costs. For instance, ELISA test is sensitive, specific, able to detect antibody class and ease to automatize, but false positive results cannot be distinguished from true positives, which instead can be easily detected by IIF, but this test cannot be automatized, is labour demanding and require skilled technicians. Infectivity neutralization is very sensitive and specific, but it takes several days to be completed, requires skilled personal and BSL 2 or superior level laboratories and is highly labour demanding, so few samples at a time can be processed. Consequently, some of these methods are used in specialized laboratories to accomplish particular tasks.

In conclusion, serological methods offer a flexible and simple solution to make diagnosis efficiently in many cases. Moreover, in several cases, when PCR show low sensitivity (like, for instance, in the diagnosis of *Borrelia* infection) serology is the preferable methods of diagnosis. Nowadays a general consensus has been reached on which test to use for the diagnosis of most of the infectious disease. **ELISA test are used in most situation, owing to their simplicity, especially when used in conjunction with instrument that process automatically the samples, their sensitivity and specificity and their capacity to detect different antibody classes and avidity**. In particular situation, when ELISA test are not available, CFT can be used to detect antibodies in the acute phase, whilst IIF and WB are very valuable as confirmatory tests like, for instance, in HIV and *Borrelia* infection.

EVENTS

AFRICA HEALTH

See you in **Johannesburg!**

We will be glad to welcome you to our stand
2 G 10 - Italia Pavilion
From 29 to 31 May 2018

MEDLAB MIDDLE EAST 2018

Heartfelt thanks to Distributors who came to meet us at our stand during Medlab exhibition in Dubai, and participated to our dinner at the Fairmont Hotel.

TRAINING IN GUATEMALA CITY 9/13 APRIL 2018

Words are not enough to express our thanks to LABYMED for hosting the specialist & technical service training dedicated to our Distributors located in Central and South America, and focused on Autosampler, Cube 30 Touch and Autodat.

¡Hasta pronto, amigos!

WELCOME!

We are proud to announce our

NEWLY ACQUIRED DISTRIBUTORS

FROM NIGERIA...TITAN TECHNOLOGIES NIGERIA LTD

FROM SOMALIA... GLOBAL HEALTHCARE DIAGNOSTICS

FROM TANZANIA... NTULI TANZANIA LIMITED

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