When I wrote this column, the coronavirus that causes COVID-19 had spread around the world and everybody was somehow affected, either personally or with their job. It is a very serious situation nobody has experienced before. It is almost impossible to make predictions as the facts are changing all the time. Nevertheless, in China and South Korea, there are some signs of moving slowly back to a time before the corona crisis. In Europe, each country has been dealing differently with the situation, but it is clear that governments will have to inject money into their industries. And infrastructure projects will be an essential part of sustainable development of economies, and therefore, will have a high priority. By the time this magazine issue reaches you, we hope that brilliant scientists will be well advanced in their development of a treatment and a vaccine against the virus. Meanwhile, we will continue with our activities within DFI and DFI Europe. Here is a summary of our activities of the last few months:

**Board Meetings**

DFI Europe’s board gathers twice a year via telemeeting and twice a year physically. The latter always take place at the company of one of the board members. For example, in 2019 we met at Van’t Hek in Amsterdam and at the Belgian Building Research Institute in Brussels. The first meeting of 2020 took place at Junttan in Kuopio (Finland). In addition to a very fruitful meeting, during which many actions were started, advanced or completed (see below), there was also time for a visit to the Junttan factory and networking. The snow scooter trip was especially appreciated. Thanks to Ate Konkka, Pasi Poranen and Anders Brotherus of Junttan for their first-class organizational skills and the warm welcome! As part of this meeting, Sikko Doornbos introduced the new managing director of Terracon. In July 2019, Benjamin Bekhof succeeded Doornbos as managing director of Terracon Funderingstechniek and Terracon Molhoek Beheer, as well as director of their daughter companies, Terracon Spezialtiefbau and Terracon International.

**BIM/Digitalisation Committee**

The DFI Europe BIM/Digitalisation Committee (chaired by Jason Boddy of Arup) has recently grown to around 15 members from 11 countries. A practical guidance document for digitalisation in ground engineering will be published soon. In collaboration with the Federation of Piling Specialists (FPS) and the Association of Geotechnical and Geoenvironmental Specialists (AGS), both in the U.K., the committee is also working on an open standard for pile construction data, which will be presented in September at the Piling 2020 Conference in Durham in the U.K.

**Sustainability Working Group**

Sustainability is a topic that concerns us all, which is why DFI Europe launched an initiative last year to look to what our companies are doing in this area. Possible domains to consider include design, reuse of materials, use of alternative materials, equipment development, trade in installation techniques and optimization of logistics. A starting point will be a survey about national strategies and regulations that should become available by this summer.

**Upcoming Events**

After the successful Pile Integrity Testing Seminar in September 2019, DFI Europe is organizing a seminar on pile load testing in collaboration with the Royal Institute of Engineers (KIVI). The seminar has been postponed until fall 2021 due to COVID-19, and will provide an overview of different load tests and instrumentation, rules for testing and interpretation, and several case studies. Information about the seminar in the Netherlands will follow soon. And of course, preparation is in full swing for the next DFI/EFFC International Conference, which will take place at the Free University of Berlin in May 2022.
Written by Egbert van de Wal, manager of the engineering department at the Port of Rotterdam, the Netherlands, and corresponding member of the DFI Europe Board of Trustees.

The Port of Rotterdam is the biggest, most advanced port in Europe. At present, port management is investing heavily in infrastructure, digitalization and the energy transition. But to stay relevant, you have to stay ahead. Even in these troubling days, the port remains open for business, and we are looking ahead to investing in the future of our port and the operations of our tenants.

In this day and age there are so many new techniques and engineering insights like finite element models, probabilistic design, solutions to slow down degradation, digital modeling, and last but not least, embedded sensor techniques. These approaches give us an infinite amount of additional information about actual loads, actual strengths, deformations and soil behavior. And they give us the advantage of being able to safely enhance the capabilities of our infrastructure and to ensure maximum business potential for our tenants.

Most of the infrastructure, especially the Maritime Port Infrastructure, is in need of a solid foundation. The Port of Rotterdam invests more than €80 million annually on deep foundations. Changes to pile design standards in the Netherlands (as of January 1, 2017) have resulted in the installation of larger piles, and in increases in both construction time and associated installation risks. In addition, environmental revisions to the new code require reduced use of nonrenewable resources, and reduced noise and vibrations. An estimate of the combined effect of these changes is an increase in construction costs of 10-20 percent for all deep foundations projects in the Netherlands.

The change in design standards arose due to gaps in the knowledge surrounding some key aspects of deep foundation behavior, which include gaps regarding soil fatigue effects during cyclic pile installation and loading, soil ageing around piles, the effects of natural soil stratification, and of the use of potentially conservative limiting soil strength values in the national NEN design code.

At present, the port is working together with TU Delft, Fugro, Deltares and Rijkswaterstaat on a project that will develop a holistic solution with field testing, lab and numerical modelling in conjunction with advanced statistical approaches to provide accurate calculation procedures for determining the axial capacity of a pile. The end goal is to come up with a new approach for calculating pile foundations that is more in line with the real behavior of axial-loaded piles.

A major milestone was the full-scale pile test on prefab concrete piles, screw injection piles and vibro piles at Maasvlakte 2 from December 3, 2019, through late January. The tested piles have a length of 33 m to 37 m (108 ft to 121 ft) and were tested to failure with a load of about 21,000 kN (472 kip). The preliminary results of the full-scale field test prove that the actual bearing capacity gives higher values than required by the national code. The final results are still under review and continue to be discussed by the Geotechnical Committee of the Royal Netherlands Standardization Institute (NEN).