

## 3 Economic Report

### 3.1 Macroeconomic and Industry-Specific Conditions

#### General Economic Conditions

##### Global economy

Since the beginning of 2022, the global economy has cooled off significantly and growth momentum has slowed considerably, compared to 2021. In addition to the sharp rise in worldwide central bank rates due to inflation, this development can be attributed to two main crises. To a lesser extent, to the ongoing Covid-19 pandemic and, more specifically, to the Russian war of aggression against Ukraine.

The Covid-19 pandemic and, in particular, the varied and sometimes very restrictive handling of the pandemic by individual governments led to regional production outages, most noticeably in spring 2022, which put a strain on international supply chains and, collectively, led to a dampening of the economy. In addition, the Russian war of aggression had an impact on global economic development that led to major economic uncertainties – in particular, in Europe and Germany. The sanctions imposed on Russia, combined with the restriction and/or suspension of promised energy and raw material supplies, led to a significant increase in the price of energy and raw materials and a sharp rise in inflation overall. As a result of high inflation rates, many central banks raised their base rates. These mechanisms led to buying resistance and a plunge in capital expenditure on the part of both private households and companies alike, thereby damping down demand. This is also a result of the slight easing of supply bottlenecks in some affected industries.

Based on its Annual Report 22/23 published on November 9, 2022, the German Council of Economic Experts expected global gross domestic product (GDP) to climb by 2.8% in 2022 and thus develop significantly less dynamically than forecast in the Annual Report 21/22. In November 2021, the German Council of Economic Experts announced an increase of 4.4% for 2022. The International Monetary Fund (IMF) forecast growth of 3.4% for 2022 in its World Economic Outlook Update published on January 31, 2023. In January 2022, the IMF also assumed an increase of 4.4% in 2022 in its World Economic Outlook Update.

The German Council of Economic Experts (Annual Report 22/23) and the IMF (World Economic Outlook) also assume that growth momentum will decline in almost all major economies in 2022. This trend is expected to apply to both the emerging markets and the advanced economies.

##### Eurozone

The economic outlook for the Eurozone deteriorated significantly over the course of the year. In the first half of 2022, the economic growth trend was still pointing upwards in many Member States. However, in the summer the economic outlook then turned considerably gloomier. The previously described effects of the Russian war of aggression on Ukraine, the loss of purchasing power as a result of the sharp rise in inflation rates and the significantly higher base rates as a countermeasure had a severe impact on Eurozone countries. In this context, rising energy prices, caused by the grave reduction in Russia's promised supply volumes, play a significant role. The consequences of the ongoing Covid-19 pandemic also had an impact on the Eurozone economy. Following the lifting of social restrictions in many European countries, there were catch-up effects in private consumption in some sectors, such as tourism. Meanwhile, manufacturing, in particular, continued to struggle with supply bottlenecks and disrupted supply chains. However, these areas eased during the second half of the year.

The labor market in the Eurozone continues to be robust. At 6.1%, the seasonally-adjusted January 2023 unemployment rate in the Eurozone was slightly below that of the previous month at 6.3%. It was also significantly below the Covid-19 pre-crisis level of 7.4% in February 2020. The figures for each member state vary greatly, from 3.0% in Malta to 13.0% in Spain. The sharply increasing and long-term shortage of skilled labor in some sectors, including the software industry, is becoming increasingly important and may have a restrictive effect on growth in some sectors of the economy.

Overall, in its Annual Report 22/23, published on November 9, 2022, the German Council of Economic Experts assumed economic growth of 3.3% for 2022. In its World Economic Outlook Update published on January 31, 2023, the IMF forecast growth of 3.5% for 2022. For Germany, the German Council of Economic Experts promised growth of 1.8% for 2022; and in January 2023, the IMF forecast growth of 1.9%.

##### USA

Following the economic recovery in 2021, the US economy cooled off again in the first half of 2022. The considerable reduction of inventories and low capital investments by companies had a particularly negative impact on economic output. On the other hand, exports and services had a supportive effect on economic growth, specifically in the second quarter of 2022. The US economy was additionally characterized by high inflation and corresponding monetary policy reactions in 2022.

Overall, in its Annual Report 22/23, the German Council of Economic Experts assumed economic growth of 1.9% for 2022. In its World Economic Outlook Update published on January 31, 2023, the IMF forecast growth of 2.0% for the same period.

### Asia

Within Asia, Japan is currently the Nemetschek Group's strongest regional single market in terms of revenues. Here, the effects of the Covid-19 pandemic were still being felt more strongly in 2022 than in many other advanced economies. In 2022, the containment measures put in place to counteract the two waves of rising coronavirus infections had a negative impact on economic output. Japan is also affected by relatively strong consumer price inflation. In August 2022, according to the German Council of Economic Experts, it reached its highest level in 30 years, with an increase of 3.0% compared to the same month of the previous year. The weak global economy is also burdening Japan's export-oriented economy and is expected to slow the recovery.

Overall, the German Council of Economic Experts expected the Asia region's gross domestic product to grow by 3.4% in 2022, and Japan's gross domestic product to grow by 1.5%. The IMF anticipated growth of 1.4% for Japan in 2022.

### Emerging Markets

In its Annual Report 22/23, the German Council of Economic Experts assumes economic growth of 3.3% in the group of emerging markets for 2022. The IMF forecasts growth of 3.9% in its World Economic Outlook Update for 2022.

Growth among the group of developing economies shows regional differences. The IMF expects the group of Asian emerging markets to grow by 4.3% in 2022. Growth stood at 7.4% in 2021. The decline is also due, among other things, to the ongoing Covid-19 pandemic, the real-estate crisis in China and the slowdown in export growth as a result of the global economic trend. According to the IMF, the group of European emerging markets is expected to grow by only 0.7% in 2022. This development is strongly influenced by the decline in Russian economic output, which, according to the IMF, is expected to shrink by 2.2% in 2022. According to the IMF, Latin American emerging markets are expected to grow by 3.9% in 2022. Here, the high prices of raw materials are currently having a stabilizing effect. Due to high export prices for regional oil exporters, economic output in the Middle East and Central Asia is expected to increase by 5.3%. In the African developing countries, the IMF expects economic growth of 3.8% for 2022.

Sources: German Council of Economic Experts, Annual Report 22/23 dated November 9, 2022 and the International Monetary Fund's World Economic Outlook Update, dated January 31, 2023.

## Development of the Construction Industry

### Europe

With around 50% of revenue, the European construction industry continues to be the most important sales market for the Nemetschek Group. After the construction industry recorded record growth in investment in 2021 (+6%, inflation-adjusted), driven by catch-up effects caused by the global Covid-19 pandemic and historically low interest rates, inflation-adjusted growth in 2022 was halved to 3%, according to current estimates (as of November 2022). The causes of this development were, in particular, the sharp rise in interest rates due to high inflation and the effects of Russia's war of aggression against Ukraine.

When we look at the causes of inflation-adjusted growth, it is clear that the slowdown will continue across all market segments, i.e. residential construction (+4.6% vs. 7.6% in 2021), commercial construction (3.4% vs. 1.9% in 2021) and civil engineering (+5.8% vs. 0.6% in 2021). In terms of building construction as a whole, the renovation market (+4.5%) is currently more resilient than the new construction market (+2.6%).

Development among the individual European markets differed considerably in 2022. Italy (+12.1%), Ireland (+9.0%) and Belgium (+4.5%) recorded the strongest growth in 2022. In contrast, Portugal (-2.5%), Switzerland (-1.8%) and the German market, which is important for the Nemetschek Group (-0.5%), recorded the weakest development.

Due to the ongoing problems of the war in Ukraine, rising interest rates and the dampened economic outlook, only stable development is expected for 2023 (+0.2%).

### North America

The US market is one of the most important sales markets for the Nemetschek Group. The construction industry in the **US** was significantly more resilient than the European construction market and was able to continue its growth momentum in 2022 (as of October 2022), with an increase of 8%, compared with the same increase (8%) in 2021. The residential sector was a key driver (+13%), particularly apartment buildings (+25%) and renovations (+14%). Compared with the previous year (-6%), growth accelerated at +3% in the non-residential building sector. However, the various areas of this market segment developed very differently. While the construction of production facilities (+18%) and commercial construction (+11%) increased sharply, construction of lodgings declined by -7%. The USD 550 billion infrastructure package adopted in November 2021 is still expected to boost infrastructure construction in the US in the coming years.

While the construction industry in **Canada** continued to record very strong growth of 16% in 2021, development weakened to

+4%, according to preliminary estimates. Residential construction was the main reason for a slowdown in growth, at only +2% compared to 28% in the previous year. Within residential construction, both houses (-2%) and apartments (-4%) recorded declining developments while renovations rose by +7%.

### Asia/Pacific

Development of the different construction industries in the Asia/Pacific region varied greatly. While, according to recent estimates, the markets in Singapore (+13%) and China (+8%) recorded strong growth, the construction sectors in Japan (+0.3%) and Australia (+0.2%) grew only marginally.

Sources: 94th EUROCONSTRUCT Summary Report, Winter 2022 (November 2022); 2022 North American Engineering and Construction Outlook, Fourth Quarter Edition (September 2022), Building, Real Estate, Construction and Housing, Department of Statistics Singapore, Construction Work Done, Australia (Preliminary), Australian Bureau of Statistics.

### Development of the Media and Entertainment Industry

In contrast to the construction industry, the end markets of the Media segment showed higher and more resilient growth momentum in 2022. This was also reflected in the segment's growth, which is significantly above the Group average.

One reason for the greater resilience of this business area is the broad base of different sub-markets and customer groups that the Group brand Maxon addresses with its innovative solution portfolio. For example, Maxon's professional solutions for the production of 2D and 3D digital content are used for the creation and rendering of visual effects in movies, TV shows and commercials, as well as for applications in the gaming industry and in the fields of medical illustration, virtual reality (VR), augmented reality (AR) and architectural and industrial design.

The majority of these markets benefit from strong structural growth drivers. This allows them to continue to grow, strongly in some cases, even in the event of a weakening of the global economy, as seen in the second half of 2022. For example, revenues from the virtual reality market rose by 36.6% to approx. USD 2.6 billion in 2022. An average annual growth rate of 24.1% is also expected for the years up to 2026. The broader 3D animation market, which stood at USD 18.4 billion in 2021, is expected to increase further to USD 40.0 billion by 2028, an average annual growth rate of almost 12%.

Sources: Research & Markets: Global 3D Animation Market (June 2021), PwC Global AR and VR market (2022).

## 3.2 Business Performance in 2022 and Key Events Influencing the Company's Business Performance

### General Statement on the Economic Position of the Group

2022 was characterized by geopolitical crises, high inflation, rising interest rates and the resulting macroeconomic challenges. The consequences of the Russian war of aggression on Ukraine and the ongoing Covid-19 pandemic had an impact on global economic development, most notably in the second half of 2022. Nevertheless, the Nemetschek Group was able to develop well in this very demanding environment.

Revenue generated in the 2022 financial year increased by 17.7% (adjusted for foreign currencies: 12.1%) to EUR 801.8 million (previous year: EUR 681.5 million). In the previous year, revenue growth was 14.2% (adjusted for foreign currencies: 15.6%). EBITDA increased to EUR 257.0 million (previous year: EUR 222.0 million), so that the EBITDA margin remained high at 32.0% (previous year: 32.6%).

In 2022, the Nemetschek Group implemented an Annual Recurring Revenue (ARR) indicator in order to present the future growth momentum and success of the ongoing business transitions to subscription-based and SaaS models, and thus also all the recurring revenues, more transparently. ARR increased to €581.7 million (previous year: €456.5 million). ARR growth stood at 27.4% (currency-adjusted: 22.0%) – significantly above the revenue growth for the Group as a whole (currency-adjusted: 12.1%). This represents a strong indication for continued high growth potential over the next 12 months.

The revenue growth in the 2022 financial year was almost exclusively based on organic growth. The acquisition-related revenue stream due to the takeover of the business operations of Pixologic Inc. and its consolidation as at January 1, 2022 was not significant in the 2022 financial year.

The M&A activities implemented in the 2022 financial year [<< Acquisitions/Divestments >>](#) had only a very small impact on the growth momentum of the Group.

The Group's goals for currency-adjusted sales growth and EBITDA margin, communicated in March 2022, which included the Covid-19 uncertainties and the start of the switch to the subscription and SaaS models of the subsidiary Bluebeam, could be fully achieved despite the slowdown of the macro-economic framework in the second half of the year. As a result, the Nemetschek Group continued on its profitable growth path despite the challenging environment [<< 4 Comparison of Actual and Forecast Business Performance of the Nemetschek Group >>](#).