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Private Equity Challenge -
The leveraged buyout of Mensch und Maschine SE – Financial Modeling

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Abstract

This paper evaluates the leveraged buyout (LBO) of publicly traded software company Mensch und Maschine SE (M+M) and represents a complementary resource to the investment committee presentation. Both quantitative and qualitative analyses, such as the valuation of M+M, LBO modeling, and market competition analysis, were conducted using publicly available information, data from Bloomberg, and direct company information provided by M+M's CFO. Our analysis shows that the LBO of M+M, with a holding period of 5 years, could result in a MOIC of up to 4.4x, depending on the assumptions of the financial models and the success of value creation initiatives.

Keywords: Private Equity, leveraged buyout, investment committee presentation, Mensch und Maschine SE, industrial software

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SECTION A – Group work

1. Company Overview

Mensch und Maschine Software SE is an international software provider and distributor specializing in CAD/CAM/CAE and related IT solutions. With offices in 24 countries and products sold in over 80 countries worldwide, Mensch und Maschine provides a wide range of tools and services to a diverse customer base. This business model revolves around two main activities – product development and distribution. In terms of product development, Mensch und Maschine's portfolio includes more than 500 products and almost 2000 customized applications tailored to meet customer requirements. Mensch und Maschine maintains a strong R&D team to develop these software products, involving a broad portfolio of tailored software solutions. In addition, the company collaborates with universities, research institutions, and individuals worldwide, resulting in a higher rate of innovation and improved efficiency.

The second component of Mensch und Maschine's business model revolves around distribution. The company has a network of subsidiaries and distributors providing customers with product expertise, advice, training services, and sales support. These distributors include specialized resellers and system integrators, whose assistance is required for customers to make the most out of the company's products. Furthermore, Mensch und Maschine's products are sold in over 80 countries through a solid global presence and sales infrastructure. By combining these two activities, Mensch und Maschine has become a worldwide leader in the software industry.

2. Business Model

Mensch und Maschine SE generates revenues through its two segments: Software and VAR (value-added reselling), where VAR contributes around 2/3 to overall revenue but only 1/3 to overall gross

profit, while software generates 1/3 of total revenues and contributes 2/3 to total gross profit, respectively.

Through its VAR business, M+M on the one hand resells third-party software of worldwide industry-leading software producers like Autodesk or Nemetschek. M+M either resells directly to its clients and generates licensing income, or includes its self-developed add-ons for third-party software, resulting in licensing income plus income on add-on sales. On the other hand, M+M offers implementation services, including (1) software-related training for end-users at the client's site, (2) IT consulting projects, and (3) support for third-party software. They generate revenue by three different streams, being (1)direct licensing revenues from selling third-party software (M+M is the largest European reseller for Autodesk software), (2) additional add-on or adoption revenue (generated when M+M sells self-developed software on top of third-party software), and (3) service revenues from IT projects, training, and support (M+M often provides integration training after selling third-party software to clients).

With its own software business, M+M develops software along the whole value chain of product design, starting with CAD software, where digital drawings or illustrations of a new product (incl. buildings and constructions) can be made. Once this stage is finished, CAE software will be used for digital optimization and scenario analysis of the designed product. CAM software successfully translates a digitally designed product into processable code for a 3D printer. Afterward, BIM software can be used to create a digital product version that integrates multiple data for real-time collaboration. In addition, M+M also develops software for gardening and landscaping purposes. Revenue is generated in three different ways, (1) expanding the current customer base by selling new products (highly likely due to modular product portfolio, cross-selling potential, and code consistency), (2) growing the customer base by acquiring new customers (very likely as products

are technology leading and with great customer sense), and lastly (3) service- and maintenance contracts (recurring revenue through long term contracts with existing clients).

3. Financials

3.1. Top-line development

Just like the general business model of M+M, the financial profile is also divided into two segments. In 2021, M+M generated a total turnover of EUR 266.2m. This has been growing at a CAGR of 8.8% since 2016. In 2021, 68% of the total turnover was generated by VAR business and 32% by software. Since 2016, the share of own software has increased by 4%. The revenue share of German sales has decreased slightly by two percentage points from 2016 to 2021. With more than 50% of sales being made internationally, M+M decreases single-market dependency and improves business resilience. However, with more than 40% of sales being domestic, the company still has massive potential for geographic expansion to capture more market share in foreign countries. The stagnating top-line development from 2020 on can be explained by the covid recession coupled with overall economic turmoil.

3.2. Bottom-line development

Total EBITDA margin was 16.6% in 2021 for total M+M, 31.0% for own software segment, and 10.1% for VAR business. Total EBITDA grew with an overall CAGR of 23.0% from 2016 until 2021, clearly exceeding revenue growth due to effective cost management and a shift towards the margin-stronger software segment. The software segment poses a stronger margin profile as products are R&D heavier and more customer-oriented, enabling M+M to capture a stronger premium. The shift to more software sales is part of the equation of how M+M was able to reach such high EBITDA growth.

3.3. Cash flow development

In line with the high revenue and EBITDA growth rates, FCF grew at a CAGR of 18.6% from 2015 – 2021, posing EBITDA cash conversion rates of around 60%. High cash generation is also enabled through low CAPEX requirements, as the highest capital spend comes from R&D activities, of which most are directly expensed in the P&L. Thus, ordinary CAPEX amount to less than 2% of sales to around 5m, posing an attractive financial profile from a cash generation perspective. Working capital has constantly been decreasing, while trade working capital remained constant. This can be reasoned by the mix of the software business model (deferred revenue & negative working capital) with the VAR business (more retail-character, positive WC). The resulting constant trade working capital rates are beneficial since future growth is not hampered by negative working capital cash flow effects – all while offering sufficient liquidity seen in a quick ratio >1.0. M+M offers a short cash conversion cycle, driven by high payment targets with their suppliers. After efficiently improving collection from 2015-2017, the cash conversion cycle increased slightly to 13 days, which is more than sufficient due to the negative working capital funding short-term business operations. In line with the liquidity analysis, the short CCC allows M+M to grow rapidly without cash flows being dragged by negative working capital effects.

4. Market

4.1. Market segmentation

M+M operates mainly in the product lifecycle-related segment of the industrial software market, dominated by major players like Siemens, Autodesk, Hexagon, Dassault Systems, Bentley Systems, PTC, and Nemetschek. The product lifecycle-related segment includes solutions and tools that address parts of or the entire product life cycle (e.g., product design, product simulation, or

production), like computer-aided technologies such as CAD, CAE, CAM, and BIM. With its entities and the two segments software and VAR, M+M addresses the global, fast-growing (10.1% CAGR) market for product lifecycle-related industrial software, which is expected to exceed EUR 119.0bn and includes the VAR sub-segment of an estimated EUR 16.9bn in 2028.

4.2. Competitive positioning of both segments, software, and VAR

The competitive positioning of both segments, Software and VAR business, was analyzed as part of the market overview. The Software business was further divided into the three most essential entities: Open Mind Technologies, SOFiSTiK, and DATAflor. The analysis was then divided into a rating of the assessment of market positioning and the assessed threat, on a scale of 1 to 5, with one representing an external threat and five an extreme threat. The assessments were then made qualitatively, considering the product portfolios offered and the brand perception. Brand awareness was assessed qualitatively, mainly based on the company's size and market data processing, such as estimates from market research institutes specialized in industrial software, such as CIMdata, a leading research company focused exclusively on digital transformation in the product lifecycle-related software industry. The estimated threat has resulted from comparing the product portfolio of competitors and the respective entity. If a product is “very similar”, two points are awarded, while if a product is “similar”, one point is awarded. If the competitor does not offer the product, zero points are awarded. Through the qualitative assessment and transition to the quantitative assessment, five main competitors were identified for each segment, software, and VAR. All entities offer technologically leading products, such as the CAM software hyperMILL, or leading in their niche markets, such as DATAflor with a complete solution for Gardening and Landscaping, and Sofistik, which is the market leader specifically for bridge constructions. Considering the above, the Software Business was given a Market positioning of 5 out of 5. This leadership, combined with software partnerships with the three leading industrial software providers

"Hexagon", "Dassault Systemes" as well as "Autodesk", resulted in an overall threat score of 3 out of 5 for competitors in the software segment. This procedure was subsequently applied to the VAR business. Few prominent players with similar revenue and profitability profile, as well as significant overlap in the training and certification product offers, resulted in an estimated overall threat score of 3.5 out of 5.

4.3. Technology spending and economic downturn analysis

As a provider of software solutions, pure Business-to-Business (B2B), the Customers of M+M are expected to spend a mix of their IT department budget and R&D budget for solutions of M+M, depending on the purchased solution. For this reason, and in recognition of current economic challenges such as record inflation and supply chain problems, the first step was to analyze technology spending on software in the past, especially during economic downturns. Since M+M focuses its business on the European market, the technology spending in Europe was mainly observed. The analysis of Bloomberg data on European technology spending between 2001 and 2021 revealed that even during the two global economic crises, the global financial crisis (2007-2009) and the Covid-19 recession (2020-2021), technology spending on software in Europe steadily increased year after year while economic growth declined. Specifically, European technology spending increased by 31.03% during the global financial crisis and 9.09% during the Covid-19 recession, while the European GDP declined by 0.5% and 6 % during the first and second economic crises, respectively.

Further analysis of the IT and R&D budgets indicate that even in a global economic downturn, R&D and IT department budgets are far less cyclical than CAPEX investments and are expected to grow or remain relatively stable during difficult economic times. Growing technology spending in Europe, even in economic downturns, combined with stable or growing IT and R&D budgets and offering software necessary for target customers' operations, indicate that the financial impacts

of a possible recession should not affect M+M significantly. The business model of M+M is less cyclical and very resilient to macroeconomic influences.

5. Investment Thesis and Value Creation

Mensch und Maschine has a solid operating business model, which is the basis for a strong status quo investment thesis. This investment thesis already makes M+M a very attractive target to perform an LBO transaction. To create additional value following the transaction, three main additional initiatives to further increase this project's success were identified.

5.1. Current Investment Thesis

The status quo investment thesis is based on the company's current state of the art, which means that M+M is an excellent target at the transaction time. Similar to the business model, the investment thesis structured the own software business and, secondly, the business as a value-added reseller. The software business is highly attractive due to the following four main aspects. Firstly, its high growth and profitability in the past, especially for the two subsidiaries (Open Mind Technologies and Sofistik), providing cutting-edge design software. Secondly, its strong growth across all own software segments with high resilience in economic downturns, as the strong growth continued even during the Covid-19 crisis. Thirdly, its ability to outperform the market in terms of growth is mainly driven by its super customer-centric and proprietary software solution. Fourth and lastly, strong market trends will accelerate growth in the future, mainly driven by the continuing trend of digitalization across all markets, triggering an increasing demand for digital software solutions.

These current investment theses translate into very sustainable and strong value drivers. M+M is present in a very diverse market portfolio, in which each market is projected to grow at a minimum rate of 6.5% over the upcoming years. This sustainable growth rate is coupled with M+M's

historical ability to outperform market growth constantly. Furthermore, M+M gained market leadership in various niche markets, giving them high bargaining power and the ability to capture higher growth rates than their competitors in traditional mass markets. Lastly, the M+Ms business model is highly scalable and a great platform for using operational leverage and economies of scale. Its product portfolio is very modular, and thus customer lifetime value can be increased easily.

5.2. Additional Value Driver

Having covered the status quo investment theses and value drivers incorporated in M+Ms current business model, the authors identified three value creation initiatives that will help to increase returns strongly. The three additional value drivers add cloud deployment to the current software deployment, which is currently on-premise only. Secondly, the authors advise using the already existing locations in Asia by Open Mind Technologies to expand Sofistik software to the Asian market, which is expected to grow at a very high rate. Thirdly, the authors see much potential in acquiring other software development companies active in high-growth niche markets like healthcare or fashion, starting a buy-and-build strategy.

The first thing to be explained is cloud deployment. Currently, M+M solely deploys its software via on-premise deployment, meaning the software is stored at the client's site. Global market trends indicate that the importance of on-premise deployment will decrease compared to cloud deployment. Currently, cloud deployment contributes roughly 30% to total software deployment. This figure will increase to 41% of total software deployment by 2027. This strong growth in cloud deployment solutions bears a large additional revenue potential, which M+M is leaving untapped in the current situation. To additionally capture clients that want to deploy via the cloud, M+M should add this way of deployment. Projecting the additional cash flows in a rather conservative manner, with a 10% increase in customer adoption per year, i.e., M+M can, for example, reach 10% of the additional revenue in year one after adding cloud deployment, 20% in year two, the

authors project additional revenues valuing at EUR 28.4m in 2027. When introducing cloud deployment at the client's site, M+M has to invest in cloud capacity. However, those additional costs can be forwarded to the client as he has fewer expenses for IT and supports functions. Thus, the same EBITDA margin as for the typical deployment will be applied.

The second additional value driver is the internationalization of Sofistik AG. According to its annual report for 2022, Mensch und Maschine generated around 8% of its revenues globally, specifically outside of Europe, most of which, according to management, is attributable to the Open Mind Technologies product hyperMILL and the manufacturing industry. Due to the already-started geographic expansion of Open Mind Technologies in non-European countries, an existing distribution partner network and offices are available across several important non-EU markets. This existing and further expansion is to ensure and further accelerate the high growth of Mensch und Maschine. For this purpose, an entity assessment of the software division was performed to find the entity with the best risk-opportunity profile in terms of internationalization. All core software entities, Open Mind Technologies, Sofistik, and Dataflor, were considered.

On the one hand, they are characterized by their market or technology leadership and, thus, achieve a high market perception. On the other hand, they are growing strongly and highly profitable. This combination ensures that the internationalization risk, which is always associated with investments, can be reduced to a maximum. Profitability per employee was also taken into account, as this allows potential advantages and disadvantages to be identified concerning the scalability and profitability of the business model in the software development-intensive sector. Due to the existing expansion of Open Mind Technologies and the strong focus of Dataflor on the German-speaking area, Sofistik turns out to be the entity with the most favorable internationalization potential. With its expertise in Building Information Modelling (BIM) and a focus on bridge and tunnel construction, the SOFiSTiK subsidiary is addressing global markets. After determining the entity for the

internationalization strategy, the most attractive markets with existing offices of Open Mind Technologies were analyzed. Global market data of the construction and design software market leaving the Asia-Pacific (APAC) area as the market with the highest expected CAGR of 9.5% until 2030 as the most attractive market, mainly driven by surging utilization of CAD software by the construction sector and focus on smart manufacturing. Also, regarding the promising global BIM markets that are expected to grow by 11.0%, the APAC area offers the highest expected growth rates of 12.3%, driven by increasing foreign direct investments, favoring government regulations, and increased investments in the construction and real estate sector. As a result, its internationalization strategy of Sofistik focuses on the (by far) most attractive market in Asia-Pacific. This is the only internationalization strategy planned for the European market since the market is already being developed and market shares are expanding.

Further analyses of the APAC area regarding existing office locations of Open Mind Technologies and SOFiSTiK's core construction sector market growth rates resulted in a top three list of most favorable countries for the expansion: India (6.2% CAGR), Malaysia (6,1% CAGR) and China (4.4% CAGR). With an existing office in Israel (Tel Aviv) west of the APAC area, the penetration of the APAC area from every geographical direction is secured to exploit full market potential. By extending the existing entities: "Open Mind Technologies Software Technologies China Co. Ltd." in Shanghai, "Open Mind Technologies CADCAM Technologies India Private Ltd" in Karnataka, and "MenschTech Solutions Sdn Bhd" in Bukit Mertajam Penang, the creation of M+M hubs will enable future cross-selling potential by reducing the initial investments necessary for the geographical expansion and therefore, reduced market entry barriers. The reduced wage and price level further delimits cost risks compared to the DACH area. As a result of the strategy, the internationalization of SOFiSTiK in the attractive markets of China, India, and Malaysia is expected to generate EUR 1.8m by 2027.

The last additional value initiative is the start of a buy-and-build strategy to diversify M+Ms revenue streams further. The authors have identified a total of thirteen potential add-on targets. Three are in priority bucket one, three in priority two, and the remaining seven are classified as priority 3. The priority logic indicates the strategic fit when acquiring one of those companies. For simplicity reasons, the authors focused on priority one targets and established a financial structure around them. The first add-on acquisition will occur in 2025, followed by 2026 and 2027. Assyst, which represents a design software development company focusing on the fashion industry, is selected as the first add-on acquisition due to being the least profitable one. With the early acquisition, the authors can integrate Assyst properly and generate value with synergies. The acquisition of Assyst will be made with 50% cash and a 50% draw-down of an acquisition facility provided by the banks. The target companies' previous shareholders are expected to reinvest at 20% to keep a high level of incentivization and to accept an earn-out at the EBITDA value the two years following the transaction. Assyst will help to diversify M+M´s revenue streams on a horizontal level by adding market share in a new niche market, the fashion industry.

The second acquisition is Inbo, a Dutch engineering bureau. Adding an internationally active engineering bureau helps to start an integration along the value chain for M+M ´s products and fosters the international visibility of M+M´s own engineering software. Once Inbo is fully integrated, it can plan its flagship projects with M+M software, which will attract other architectural clients. Inbo will be financed 50% by equity and 50% by debt.

The third and last acquisition is imes-icore, a design software company focusing on the dental sector. Imes-icore provides a great opportunity to gain a lot of market share in a high-growth market like the healthcare market and is a great fit for M+Ms current value proposition as it targets a niche market within the dental healthcare market. Imes-icore will be 100% funded by cash as it will be acquired in 2027, which is past the draw-down period of the acquisition facility. As imes-icore was

already a rather large company with already EUR 32.5m in revenues in 2020, it will boost the overall revenue and EBITDA figures, especially in the last period.

Overall, the three proposed add-ons are expected to contribute additional revenues of EUR 89.7m by 2027 with an overall EBITDA margin of 18%, resulting in an additional EBITDA of EUR 16.4m. Overall, M+M has to pay EUR 63.1m in cash for the companies and will draw down additional funds of EUR 10.5m with the acquisition facility to fund the acquisitions.

6. Valuation

6.1. Overview

To compute the current fair value of Mensch und Maschine, the authors have followed several approaches to value its business model, being intrinsic valuation with discounted cash flow, an adjusted present value method, and relative valuation with precedent transaction multiples and trading peer multiples. These four methods give us many valuations which can be used to sense-check each other and find the most appropriate valuation. The goal of using different valuation methods was to compute the fair EV/EBITDA entry multiple, which will be used to acquire the company. This was done by applying individual weights to each valuation method regarding its conciseness in valuing M+M. The sum of all weighted multiples is the result.

6.2. Discounted Cash Flow method (DCF)

To calculate the company value with the DCF method, the authors first had to calculate the appropriate cost of capital. This was done by applying the Capital Asset Pricing Model (CAPM) and the Weighted Average Cost of Capital (WACC).

Starting with the CAPM, the authors had to define the risk-free rate (rf), the asset beta (ß), and the market risk premium (MRP). For rf, the authors used the current yield of Germany's 10-year government bond, as the literature assumes this to be the safest rate for a company based and

focused on Germany. Furthermore, the 10-year bond is more liquid than the 20-year bond, which decreases liquidity risk. To calculate the asset beta, the authors gathered information on the current asset beta of trading peer, their capital structure, and corporate tax rate. The authors unlevered the beta for each company, according to its book- and market-value capital structure, and calculated the median for capital structure and unlevered beta. The authors then proceeded with the market value figures to incorporate the fair market value. The authors re-levered the median unlevered beta at the median debt-to-equity ratio and the German tax rate to develop the levered beta for M+M. To calculate the appropriate market risk premium, the authors gathered each competitor's WACC cost of equity from Bloomberg, applied the CAPM method, and calculated the resulting MRP for each peer. The authors applied the median value in the M+M CAPM equation. With this information, the authors calculated the appropriate cost of equity for M+M with the CAPM. The cost of debt was also calculated with Bloomberg data, which was available on the WACC cost of debt. The authors calculated the pre-tax cost of debt for each peer and took the median value for the M+Ms cost of debt. With all this information, the authors calculated the WACC by applying the median market capital structure and German corporate tax rate. The result was a WACC of 7.7%.

The authors calculated the cash flows for the projection period according to our assumptions in the "IC Case". The terminal value was calculated in three different ways. The first applies the Gordon Growth model with a 2% perpetual growth rate, and the second applies an exit EBITDA multiple based on the median precedent transaction and trading peer multiple. This resulted in three different enterprise company values: EUR 1,593.0m computed with Gordon Growth, EUR 1,413.5m with trading peer multiples, and EUR 892.1m with precedent transaction multiples.

6.3. Adjusted Present Value method (APV)

To calculate the company value with the APV method, the authors first had to calculate the appropriate cost of capital. As the APV assumes an unlevered firm to discount the cash flows, the authors used the CAPM with the same MRP and rf as in the DCF calculation but applied the median unlevered asset beta of the trading peers. The authors used the cost of debt to discount the tax shields, which the authors also used in the DCF calculation. For the business plan, the authors again used the assumptions made in the "IC Case" business plan for the projection period. The authors calculated the tax shield using the proposed cash interest payments from our LBO calculation and multiplied it by the company's effective tax rate.

The terminal value can be calculated with four different methods. This is clustered in two different Gordon Growth approaches, exit multiples based on precedent transactions and trading peers. The Gordon Growth approaches differ mainly in the applied cost of capital. In both cases, the perpetual growth rate is 2.0%. In the first scenario, the authors assume a trade sale to Autodesk, one of the largest companies in the sector. For the calculation, the authors used Autodesk's WACC, but with a dropdown, the simulation of a trade sale to other competitors is also possible. For the second scenario, the authors assumed an IPO of M+M and applied the market median WACC, assuming the cost of capital will be similar to the market's median in perpetuity. This ultimately results in four different enterprise values: EUR 796.3m applying the trade sale scenario, EUR 1,060.0m in the IPO scenario, EUR 1,350.2m applying trading peers exit multiple, and EUR 828.2m applying precedent transaction multiples.

6.4. Trading Peer Multiples

Data to calculate the trading peer multiples was extracted from Bloomberg, with peers selected on the already conducted market review and the existence of trading companies. Figures for EV/Revenue (FY21 & LTM), EV/EBITDA (FY21 & LTM), EV/EBIT, EV/FCF (FY21 & LTM),

and P/E (FY21 & LTM) were gathered, and significant outliers were cut out. Once the median across all peers was calculated, the authors proceeded with calculating the median between FY21 and LTM multiple to result in one single multiple. To make all multiples comparable, the authors calculated the implied EV and divided it by the FY21 EBITDA, resulting in all multiples being denominated as EV/EBITDA multiples.

The resulting median EV/EBITDA multiples were 46.2x for EV/Revenue, 19.9x in EV/EBITDA, 17.6x in EV/EBIT, 49.0x EV/FCF, and 16.7x P/E.

6.5. Precedent Transaction Multiples

The procedure to calculate precedent transaction multiples was like the trading peer multiples. Instead of Bloomberg, the authors used merger markets to gather information on precedent transactions. Once the data was gathered, the authors cut outliers. Multiple figures were gathered for EV/Revenue, EV/EBITDA, and EV/EBIT multiples. After computing the median across all multiples, the authors reformulated them so that all multiples were denominated in EV/EBITDA, resulting in 9.9x EV/Revenue, 10.4x EV/EBITDA, and 12.1x EV/EBIT.

6.6. Football field, final multiple

As only some of the calculated multiples should have the same weight in the final entry multiple for M+M, the authors applied different weights for the different methods. Precedent transactions have the highest weight, with 65%. Within precedent transactions, EV/EBITDA contributed 55%, EV/EBIT 35%, and EV/Revenue 10%. APV method had an overall contribution of 15% to the final multiple. Within APV, the two Gordon Growth scenarios have applied weight of 30% and exit multiples of 20% each. DCF had a final weight of 10%, with the same weight of 1/3 for all three calculation methods. Trading peer multiples were also contributing 10% to the total multiple, with 30% of the weight being contributed to EV/EBIT, 30% to P/E, 25% to EV/EBITDA, 10% to EV/Revenue, and 5% to EV/FCF. This resulted in a final EV/EBITDA multiple of 15.8x. The

weights were attributed based on an assessment of strategic fit for this transaction. As the targets acquired in the precedent transaction best fit M+M, the authors attributed the highest weight. This was followed by the APV method, which is more appropriate for an LBO transaction than the DCF. As all the trading peers are large corporations, they are different from M+M, resulting in the joint lowest weight.

7. Business Plan

The business plan is mainly split between the income statement and the balance sheet, which will be evaluated one by one in the following. First, the top-line growth is forecasted at the most granular level in the financial model. As the Software segment is split by product group (CAD, CAE, CAM, BIM & Gardening), the VAR segment is split by service type (AEC, MFG & AEC, MFG). The revenue growth rates for the software product groups equal public market CAGR estimates for each product market. For the bank case, a discount of 25% less revenue growth was applied, while for the management case, a premium of 20% was applied, in line with the overall conservative approach in creating the business plan. For the VAR business, the market growth rate of the Autodesk business was used as an orientation, as this business segment is heavily dependent on the underlying Autodesk sales. As this growth rate amounted to 11.5%, a discount down to 8.5% was applied as the 11.5% seemed excessively high, and the strategy of Mensch & Maschine intends to lower the relative share of the margin-weak VAR business compared to the margin-strong software business. One case regarding the customer adoption rate was assumed for cloud deployment revenues. For the acquired revenue, it was assumed that the largest acquisition in 2026 cannot be conducted in the pessimistic bank case. Thus, a large share of revenue compared to the IC case will not be realized, again, in line with an intended conservative forecast approach.

Regarding the margin profile, it was assumed that the main business (excluding our value creation initiatives) would undergo a slight EBITDA margin expansion from 14.9% in 2022 to 19.5% in 2027. This margin expansion is mainly expected to result from (i) economies of scale within COGS, which translates into an increase in gross profit margin of 0.5% by 2027, as well as (ii) economies of scale within personnel costs, which do grow at 2.5% while revenue outgrows them through growing at around 8%. Regarding the value creation initiatives, it is assumed that the cloud deployment revenue generates the same EBITDA margin as the software segment, while revenue from internationalization breaks even in year two, and its EBITDA margin increases to 21% by 2027, which is slightly higher than the overall business due to the assumptions that (i) a higher share of margin-strong software segment will be sold in newly entered regions and (ii) costs of labor are significantly lower in the Asian regions. The Add-On EBITDA margins are slightly lower than the overall business by 2027 under the assumption that some one-off OPEX will occur in the first years, especially since the add-ons are acquired in the later years of the holding period.

In the balance sheet, most positions are based on historical values.

8. Leveraged Buyout (LBO)

8.1. Sources

Total sources consist of EUR 265.8m debt and EUR 422.0m equity. Debt consists of senior debt (total of 6x structuring EBITDA) with TLA contributing EUR 88.6m (2x EBITDA), priced at an interest rate of 9.25% consisting of 4.69% LIBOR floor + 4.56% LIBOR spread. TLB amounting to EUR 177.2m (4x EBITDA), priced at an interest rate of 9.50% consisting of 4.69% LIBOR floor + 4.81% LIBOR spread. Total equity commitments are split into the subordinated loan, provided by the sponsor and common stock (split contribution of sponsor and management), subordinated loans valued at EUR 388.2m (56.5% of total equity), at an interest rate of 9.70% consisting of

4.69% LIBOR floor + 5.06% LIBOR spread. EUR 33.8m is the total value of the common stock, split into EUR 29.5m contributed by the sponsor in exchange for 88.0% of the entire common stock, EUR 3.6m contributed by the company's management (10.0% of the entire common stock), and lastly, EUR 0.7m contributed by the fund management in exchange for 2% of common stock.

8.2. Uses

Total uses sum up to a value of EUR 687.8m consisting of the equity purchase price (EUR 659.0m), debt refinancing (EUR 8.7m), and transaction fees valued at 3% of total transaction entry value in total (EUR 20.0m). The equity purchase price is calculated through the usage of structuring FY22 EBITDA of EUR 44.2m and the appropriate EV/EBITDA multiple 15.8x, resulting in a total EV of EUR 700.9m. Afterward, net debt (EUR 5.8m) and minority interest (EUR 36.1m) were subtracted. Total fees are structured in three categories, (1) M&A and sponsor fees, (2) due diligence fees, and lastly (3) arrangement fees.

8.3. Covenants

Cash Cover is important in determining the company's ability to meet its financial obligations and avoid default and should always be at least greater than 1.0. As there is a significant headroom each year (lowest headroom of 25.7% in 2025), M+M can be considered financially healthy and can meet its financial obligations. At any time, M+M can pay the interest on its outstanding debt with a significant headroom of a minimum of 20.7% in 2023, represented by an Interest Cover that exceeds all covenants. With significant headroom, M+M should be able to invest in its business and therefore grow even during difficult economic times, as it can draw on its reserves to continue paying its debts and other obligations.

To demonstrate that M+M is in a strong financial position and able to manage its debt and ensure an appropriate leverage ratio effectively, net debt/EBITDA should be higher than the given

covenant. Again, the covenant is exceeded each year with significant headroom of at least 24.9%. All covenants are met or exceeded each year at any time with significant headroom, reaching from 21% up to 77%, and sufficient cash is available for debt service.

8.4. Debt repayment and cash interest

Between 2023 and 2027, 54.7m acquisition debt is expected to be repaid, representing around 23.6% of the total acquisition debt repayments. From 2023 to 2027, 106.3m cash interest is expected to be paid, which represents around 80.6% of the total cash interest. After debt repayments and interest payments, there is a substantial free cash flow available each year, which can be used for further growth and additional investments.

9. Return & Exit

9.1. Value creation bridge

As presented in the investment thesis, the value should be created especially through the growth of the main business and three additional value creation initiatives: cloud deployment, internationalization of SOFiSTiK, and acquiring three of the identified Add-on acquisitions. The growth of the main business and maintaining of the market/technology leadership by increasing revenue, EBTIDA margin improvement, and cash generation, are expected to account for 59.59% of value creation, making it the largest source of value creation and resulting in a total MOIC of 1.46x. Establishing cloud deployment, especially of own software, is expected to be highly profitable and generate additional EBITDA of EUR 10.2m by 2027, corresponding to 14.53% additional value creation, resulting in a MOIC of 0.36x. In addition, the Internationalization of SOFiSTiK AG in the attractive markets China, India, and Malaysia is expected to generate EUR 1.8m by 2027 and contribute 2.97% to total value creation (MOIC of 0.06x). Finally, the acquisition

of the target companies "Imes Icore", "Assyst", and "Inbo" and the related realization of synergies account for the majority (23.33%) of the total value creation alongside the organic growth of the main business, resulting in an additional EBITDA of add-on acquisitions of EUR 16.4m and a MOIC of 0.57x. Notably, an additional M&A pipeline with ten different potential and comparable targets is already prepared to ensure the success of the value-creation initiative. To summarize, the value creation of M+M is mainly driven by the growth of the main business and additional add-on acquisitions, resulting in an additional MOIC of 1.95x and accounting for over 97% of the total value created.

9.2. Exit waterfall

Exit EV is expected to be EUR 1,763.4m in 2027. For the correct calculation, the authors must first add the excess cash of EUR 57.8m to calculate the total exit proceeds. Afterward, TLB will be deducted at a value of EUR 177.2m. As TLA was already repaid during the holding period, it must not be deducted. The acquisition facility drawdown of EUR 5.3m must also be deducted accordingly. Afterward, the subordinated loan, granted by the sponsor, must be subtracted ad a value of EUR 618.1m, followed by the common shares of the fund's management at EUR 19.7m and companies management at EUR 98.6m. This results in a final value of EUR 866.4m of the sponsor's common shares.

The authors furthermore elaborated on the topic of implementing a dividend recap. A sensitivity was used to assess the amount and timing of the recap, which shows quickly that a recapitalization in year 3 boosts IRR the most. A re-leveraging to 5x EBITDA was used – while the initial leverage amounted to 6x, a full re-leverage might be seen as too aggressive in practice, which is why a more conservative approach of 5x was chosen. This results in a higher net debt amount in the equity

bridge at the exit and an IRR increase of 1.2%, while the MOIC decreases marginally due to higher interest expenses.

9.3. Exit options

In the Investment Committee paper, the authors considered four possible exit options: a sale to a strategic buyer, a sale to a financial buyer, i.e., another private equity firm, and an IPO. The fourth option is related to the largest shareholder and founder of M+Ms, Adi Drotleff, who could buy the company out of the Private equity firm. First, the authors analyzed in detail the investment rationale of the strategic buyers under study, such as Hexagon, Autodesk, PTC, Dassault Systemes, and Nemetschek, and their M&A history by looking at the four most recent M&A transactions and their industry focus, as well as the number of acquisitions by private equity firms. From this, the exit to the potential strategic buyer Hexagon and PTC is the most likely and therefore recommended for the following reasons. First, Hexagon has acquired several CAD, CAM, and CAE software vendors in 2021 and 2022 and intends to continue M&A activities as part of the Group's growth strategy outlined in the Annual Report. In addition, the estimated opportunities and exit value are also very high due to the strong synergies and perfect strategic fit.

On the other hand, PTC is strongly focused on the manufacturing industry and modular business solutions. In addition, the recent acquisitions in Germany could be a good signal for M+M's potential interest and sale to PTC. In summary, the strategic fit and potential synergies of M+M and PTC are very high.

In addition to potential strategic buyers, financial buyers also play a crucial role. The analysis of recent secondary buyout data from Bloomberg shows that transactions between private equity firms and industrial software companies have a high dynamic and are not unlikely. Multiple, active and

successfully investing Private Equity companies and Private Equity consortia increase competition and the possibility of a secondary buyout and should therefore increase the potential exit value. Due to the focus of PE funds on the highest return, the exit to financial buyers will likely result in a lower exit value and is considered less attractive in achieving the highest exit value and only conditionally recommended.

Another exit option could be an IPO on the German SDAX. What speaks in favor of an IPO is that the team is experienced in IPOs due to the existing listing of the M+M share at the Frankfurt (scale30) and Munich (m: access) stock exchanges. As a downside, Private equity firms might be affected by a lock-in period, which increases the risk of a declining share value and could face high or low possible exit value due to the pricing of the investment bankers that underwrite the public offering and determine the IPO price. Private equity firms might be affected by a lock-in period (no possibility of selling shares before), which increases the risk of a declining share value.

Among the four possible exit options assessed, the sale to a strategic buyer is the most desirable and realistic option. Due to being financially strong and actively investing, strategic buyers can also be expected to generate a high exit value and are therefore highly recommended.

10. Due Diligence

Due diligence is essential in private equity, where investors carefully review and evaluate the potential investment target. Due diligence aims to identify any risks or issues that could affect the investment decision and to get a clear picture of the target company's operations, finances and management. During due diligence, private equity investors will typically review the company's financial statements, contracts, legal documents and business operations. They may also conduct market and industry research, speak with the company's management team and customers, and seek the opinions of consultants and experts. The due diligence conducted for M+M identified and briefly assessed the following key areas to identify potential risks: Commercial, Human Resources, Investment Thesis, and ESG. As a result of the analysis, two issues of significant relevance were found and mitigation strategies were proposed - first, revenue recognition. Most of M+M's revenue is generated through the direct resale of third-party products, with Autodesk, by far the largest contributor. The demand situation for Autodesk products and certification has resulted in red flags. As a mitigation strategy, it is recommended to carefully monitor Autodesk's order situation to detect changes in order volume early. Second, is the global talent acquisition challenge. As M+M is a leading software company and a technology leader in CAM software, talent acquisition could be a significant future risk. Increasing activity on job portals and expanding company benefits to retain the existing employee base could be useful risk mitigation strategies.

SECTION B – Individual work

B1. Financial modeling by Henry Paul Heyer

B1.1. Introduction to financial modeling

Financial modeling is a crucial part of every M&A transaction. In this paper, which is a supplementary source to the leveraged buyout investment committee presentation of the publicly traded Mensch und Maschine SE, an in-depth look at best practices and the theory behind financial modeling is taken. Firstly, financial modeling and the corresponding financial models are evaluated in a broader sense to improve the reader's understanding of the topic's importance and the area of application. Secondly, for the investment committee paper, important corporate finance modeling practices are analyzed to lay an intensified focus on the forecast of the three financial statements in combination with a leveraged buyout model to fully grasp the logic and intuition behind the technical work that has been done as a foundation of the Investment Committee Presentation. Lastly, the strengths and weaknesses of the techniques used are assessed to understand the viability of results, improving the reader's idea of the applicability of financial models for different use cases.

B1.2. History and purpose of financial modeling

Financial modeling is the process of creating a mathematical representation of a financial decision-making situation. It is used to assess the performance of a company and its stock, as well as to forecast the future performance of a company. The history of financial modeling can be traced back to the early 20th century when financial institutions began using mathematical models to calculate the portfolio risk and derive optimal portfolio allocations. Financial modeling has since evolved to include a wider range of uses, including predicting the impact of mergers and acquisitions, valuing companies, and assessing the risk of investments. Modern financial models are increasingly complex, incorporating numerous variables, such as macroeconomic factors, company-specific

data, and financial market dynamics. Financial modeling continues to evolve as new technologies and data sources become available.

More thoroughly, when it comes to financial modeling, its main purpose is the same as one of the probably many other models as well – to rebuild a situation from the real world in a simplified, easier-to-understand way to allow the respective user to improve its actions and especially to make better-informed decisions (Cook, 2020). In financial modeling, these complex situations refer to financial circumstances. Most of the time, these mathematical models are used in order to make either improved investment- or business decisions, be it the investment into a stock (relating to asset pricing) or more corporate-finance-related topics like the acquisition of a company or the change in the operational structure of an SME business (Low & Tan, 2016). With financial modeling becoming more and more important year over year as its acceptance and importance seem to constantly increase, as seen in a study by Ernst & Young, its main purpose is to evaluate a set of assumptions the modeling user is making about the business or investment at scope in order to enhance the quantitative foundation of related decisions. When assessing the areas of application, one must divide between the corporate finance side and the asset pricing side. While the asset pricing side mainly deals with publicly traded companies, portfolio diversification decisions, and market timing and pricing, the corporate finance side is crucial for evaluating the Mensch und Maschine leveraged buyout.

B1.3. Financial modeling – corporate finance applications

In corporate finance financial modeling, the core of the financial model is usually built through the forecast of the three financial statements, consisting of the balance sheet, the profit and loss statement, and the cash flow statement. Here, the financial analysis is derived through observation of past financial statements to extrapolate future developments by taking historical figures into account while making educated estimations on the impact of other major industries-society-and

macroeconomic trends, to name a few. When the analyst has decided on the assumptions he intends to use for the financial model, these are input on a monthly, quarterly, or annual basis and often include growth rates, e.g., for the total revenue, but also relative forecasts, for example, the prediction of the number of capital expenditures as a percentage of overall sales (Lambert, 2012). After making an initial guess about the future development of the business at the scope, more and less optimistic cases are included in the analysis, often supplemented through sensitivity analysis. A probabilistic approach is taken when talking about financial modeling and especially making corporate investment decisions based on these financial models. As the initial financial model only represents the single best guess of the analyst, more perspectives are taken into account. While this might include an optimistic and a pessimistic case, frequently different scenarios are evaluated as well, for example, a growth case going hand-in-hand with higher marketing expenses and higher capital expenditures or a stagnant case where revenue remains constant while the business is improving its cost structure in order to stay competitive. In this context, it is especially noteworthy that these cases cannot always be labeled as better or worse but simply as different outcome possibilities which should be evaluated in order to avoid overseeing scenarios with catastrophic implications for the business at scope in order to minimize potential losses (Rosenbaum and Pearl, 2011). For the leveraged buyout, usually, three cases are created: the bank case, the IC case, and the management case. The bank case in this context is used to negotiate debt terms and is the most pessimistic case. More on the structuring of leveraged buyouts later. Next to adding these cases, the main assumptions are stress-tested through sensitivity tables or even Monte-Carlo-Simulations. While the cases aim at providing other scenarios and are phrased in a "What-if-a-instead-of-b-happens" way, the sensitivity table assesses the main assumptions. It analyzes how far they may deviate from the initial forecast before the case at scope turns unfavorable. An example of stress-tested assumptions is to see how high the entry multiple in a transaction might be before a certain

threshold of return is undercut. In a controlling context, the final forecast of the three statements often already marks the end of the financial model, as the controller can already derive many statements for upcoming periods to optimally steer the enterprise – how high may personnel costs increase before net income turns negative? Which effect might the relocation and, thus, the change of tax rates have on the overall business, the profitability, and cash generation of it? These are questions the CFO would now be able to answer in a more data-driven way (Rasmussen, 2010). However, an analyst in the field of mergers and acquisitions needs to go further and examine the business more complexly to make a rational investment decision. While the forecast of financial statements flows into various valuation methods and techniques like the discounted cash flow methods, the adjusted present value method, or even comparable companies' valuation (for these, see the valuation part), the most important one, at least for private equity funds and thus, the investment committee paper underlying this thesis, is the leveraged buyout model.

B1.4. The leveraged buyout

A leveraged buyout generally refers to the acquisition of a company using a combination of equity and debt, which in turn allows the acquirer to generate a higher return than a solely equity-financed acquisition due to the well-known leverage effect. The most active investors conducting leveraged buyouts are private equity funds, which retrieve the respective equity from committed capital from their limited partners, while the debt-financing stems from third parties, usually financial institutions or debt funds (Schall, 2015). In practice, the acquisition price is often determined as an EBITDA-multiple before the company is held about a time horizon, most often ranging from 4-6 years, before the private equity funds sell the business either to another financial investor, a strategic or to a variety of investors through an initial public offering. Since entry- and the EBITDA determines exit-purchase-price, one can identify three main sources of value creation: EBITDA growth (resulting either from increasing revenues at constant margin levels, EBITDA margin

improvement at constant revenues, or increasing revenues coupled with increasing EBITDA margins), multiple arbitrages (acquiring the company at a lower EBITDA multiple compared to the exit multiple) or deleveraging, sometimes also termed as cash generation, where ongoing free cash flows from the acquired company are used to pay down the acquisition debt, resulting in a higher equity share of the overall company value (Amihud and Mendelson, 2018).

After touching on the main idea behind a leveraged buyout, the financial modeling and investment evaluation process must be discussed. Here, the before-mentioned forecasted statements come into play, with a few other assumptions made by the analyst.

Overall, many say that leveraged buyouts can be referred to as a decathlon of financial modeling, as the analyst needs to make assumptions not only on the future financial performance of the company at the scope but also regarding current market valuation levels, the current commercial development of key markets, assumptions regarding the financing structure including various judgment calls on the current state of debt capital markets, and many more. In the following, the steps are highlighted one by one. Firstly, the analyst must make assumptions regarding the company's initial acquisition at the scope. Here, components from the valuation of companies come into play – how much of a multiple does the acquirer need to pay for the company in current market conditions? For a deep dive into the valuation and derivation of suited multiples, refer to the valuation section. Next to the valuation, assumptions regarding the financing need to be made, besides other, the combination of debt products used, the overall leverage level, and the respective debt pricings to sufficiently forecast the costs of debt within the holding period (Sivakumar, 2000).

Once the acquisition assumptions are made, the before-forecasted financial statements come into play. Next to the business development, private equity funds aim at creating extra value by optimizing the corporate structures, improving the overall cost profile, or acquiring inorganic growth through add-on acquisitions – all of which need to be incorporated into the forecast of the

three statements, as well as the specifics of the acquisition structure: interest costs on acquisition debt lower net income and taxes as well as cash flow. In contrast, debt repayments significantly impact the business' overall cash generation.

Once the initial debt assumptions are incorporated into the model, they need to be adjusted to the current state of the financial model. After the acquisition assumptions have been included in the company's three-statement forecast, the analyst can make statements if the assumptions are suitable for the target at the scope or if the leverage level might be too low or too high. Three main metrics to evaluate the current debt level are the cash cover, the interest cover, and the leverage ratio. The importance of them are examined in the following one by one:

$$Cash\ Cover = \frac{Free\ Cash\ Flow}{Debt\ Service}$$

The cash cover is calculated by dividing the free cash flow by the overall debt service of each respective year. It represents one of the most important metrics banks observe to choose how much debt a leveraged buyout is granted. As a rule of thumb, the minimum cash cover required is 1.3x in the bank case, at the lowest – if it falls below 1.3x, debt service is too high for the respective cash generation of the business. If this is the case, the single components need to be adjusted by changing the debt structure to shift cash pressure to different years where the cash level is high enough or by lowering the overall leverage level to reduce the debt service. However, private equity funds usually desire to maximize their leverage level to utilize the leverage effect to boost returns on equity fully.

$$Interst\ Cover = \frac{Free\ Cash\ Flow}{Cash\ Interest}$$

The interest cover focuses less on the overall debt level but rather on the interest aspect of debt and neglects non-cash interest charges. The interest cover is similar to the cash cover and indicates if the business' cash generation is high enough to fulfill its cash interest payments. As debt repayments are not included in the interest cover, it should be significantly higher than the cash cover – amounting to a rule of thumb of >2.5x in the bank case.

$$Leverage\ ratio = \frac{Net\ debt}{EBITDA}$$

While the first two ratios were mainly concerned with the cash generation of the business and whether the business at scope can handle the chosen debt level without getting into liquidity troubles, the leverage ratio shows the development of the leverage level over time. It gives the first indication of the cash generation value creation. Calculated as net debt divided by EBITDA, the leverage ratio in the beginning usually roughly equals the amount of debt used in the initial acquisition (less usually minor parts like the cash balance) and is reduced constantly as the company is paying down its debt year by year. With these three metrics and an integrated three-statement model, the analyst can choose a suiting debt level that poses high-enough leverage to use the leverage effect while choosing a debt structure that matches the cash generation ability of the business at the scope. Additionally, this modeling task provides the analyst with the first more in-depth analysis of the company to be acquired, as in this step, it would become clear if the cash generation ability of the company is too low for issuing a solid amount of debt – if this would be the case, the cash cover, as well as the leverage ratio, would be rather low which in turn would diminish returns on this investment as the equity-financed share of the leveraged buyout would be too high (Clark & Gregory, 2013). Finally, after the analyst has calculated the initial acquisition

details, decided on a suitable level of debt and the respective debt structure, forecasted the three statements, and incorporated the financing details, it is time for the exit calculations.

When calculating the exit value, again, an EBITDA multiple is applied. After arriving at the exit EV and deducting net debt and related positions, the equity value remains distributed to the respective equity shareholders. The two main return metrics in this context are the multiple of invested capital ("MOIC"), as well as the internal rate of return ("IRR"), which are explained in-depth in the returns section. Since the exit proceeds for each party are now given, these metrics can be calculated.

B1.5. Strengths and weaknesses of financial modeling in general

Firstly, financial modeling is used in various investment-related industries and has proven to be useful for evaluating investments more quantitatively. The main advantage of financial modeling is probably that the historical financial performance of a company will be understood in-depth within the process of setting up a financial model, while the detailed forecast of both P&L, as well as balance sheet positions leads to an intensive thought process of small details of a company like the cash conversion cycle and slight margin improvements – assumptions that would probably not be as well-thought through if not summarized in a financial model, all while allowing the user to grasp the overall effect of these assumptions on the overall business performance, leading to a better understanding of the company at the scope and more-detailed investment decisions. Secondly, next to the main case, the scenario and sensitivity analysis enable the analyst to grasp the risk-return profile in a more efficient way, which in turn minimizes behavioral investment decisions, which empirically perform poorly (Shefrin and Hersh, 2006). Additionally, the inclusion of sensitivity tables and scenario analysis improves the overall investment selection process as companies with unproportionate large downside potential can quickly be eliminated from the selection process. Thirdly, financial modeling helps not only in the context of the investment

decision context but also in identifying financial weaknesses in a company, be it from the perspective of a CFO or a private equity fund steering one of its portfolio companies. Not only through an in-depth understanding of the business and especially the margin profile but also through comparing forecasts to actual results from time to time, businesses can be managed more efficiently, and weaknesses of businesses become obvious easier and more quickly.

However, while financial modeling poses many upsides, there are some negatives to mention as well. One main disadvantage is the dependency on input variables largely based on subjective guesses. While market CAGRs are often used for growth rates, small deviations from these market CAGRs can already make significant differences in the outcome, especially in investment decisions. While sensitivity and scenario analysis lower this issue, the problem remains unresolved. Thus, the output of the financial model is still significantly impacted by the analyst's attitude, including distortions stemming from behavioral biases. Secondly, financial models take up much time to create, and for many recipients, the output might not be as straightforward as for the model-creating analyst, nor will they grasp all the assumptions made in the same way. Next to the high time resources consumed, choosing a suitable level of detail for a financial model can be challenging. Not always does it benefit the output if the last revenue business unit is split again in various ways to forecast them then separately, as this might seem like a very precise approach, but in the end will only be a big mix of educated guesses, leaving the recipient with a very unstable, pseudo-precise model behind. Lastly, a well-designed financial model might make investors feel overly confident in their decisions, as they have considered all possible outcomes. While sensitivities pose a great way to better understand the risk-return profile of the company at the scope, outliers still exist. If they do happen, they might catch investors off-guard in a way they would not have done if less time and emphasis had been put on the financial model. To put things in a nutshell, a financial model offers many benefits and allows investors to grasp the risk-return

profile of an investment in a way that other methods never could. Especially in the environment of leveraged buyouts conducted by private equity funds, financial models seem to be very helpful as the financial model is crucial for the debt issuance to fund the acquisition, but also because experienced professionals are creating the financial model which should be able to make justified assumptions, all while minimizing behavioral biases. However, the financial model should only be one tool in any investor's toolbox, and there should not be a 100% -reliance on the model's output. Additionally, the setup and a sufficient level of detail, not too low but especially not too high, are very important to save large amounts of resources and keep the model in an easy-to-understand way. Looking forward, the future of financial modeling is very promising. With the advancement of technology, financial models are becoming more sophisticated and powerful. Machine learning, artificial intelligence, and predictive analytics are just a few of the technologies that are being used to improve financial models. As companies continue to invest in these technologies, financial modeling will become increasingly more accurate and efficient. Additionally, cloud computing and big data will allow for faster processing and more detailed analysis. With these advancements, financial modeling will become an even more essential tool for business decision-making.

Lastly, it might be interesting to explore financial models as an interactive tool in order to teach students about the financial industry in general – even if one might argue not to use a financial model when it comes to investment decision-making or the steering of any corporate, it should be non-arguable that through creating a financial model from scratch and linking the respective parts, be it from financial statement analysis, quantitative stock analysis or familiar areas, financial topics are going to be understood more thoroughly.

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