Opportunity and Risk Report

GOALS

Software AG's primary goal is to generate sustainable profitable growth and thereby increase enterprise value. To that end, the Company combines established business activities with an involvement in promising new market segments and regions. Its sales models were and continue to be adapted successively from one-time sales revenue recognition at the beginning of a contract to annual revenue recognition (subscriptions and Software as a Service, SaaS). The shift is associated with a temporary decrease of operating margin (EBITA, non-IFRS), but in the medium and long term, higher overall earnings will result from successful customer relationships. In favor of long-term sustainable development, Software AG forgoes short-term earnings growth and the potentially resulting short-lived positive effects on share price. In addition, Software AG is seeking strategic partnerships that will help meet the goal of sustainable profitable growth and strengthen its extremely important ecosystem. With a strategy that is based on sustainable long-term success, the Company strives for a balance between opportunities and risks and takes on risks only if the business activities associated with them have a relatively high probability of enhancing the value of Software AG. It is always a prerequisite that Software AG can evaluate risks and that they remain manageable and controllable. Furthermore, risks and opportunities associated with ongoing operations are systematically monitored, for example, by keeping a constant eye on product and service quality and managing exchange rate developments.

ORGANIZATION

A Group-wide opportunity and risk management system enables Software AG to identify potential risks early to assess and minimize them to the greatest extent possible. Risks are to be understood as possible deviations from planned values. Strictly speaking and in accordance with customary spoken language, risks are defined as negative deviations and opportunities as positive deviations from planned values. By continuously monitoring risks, Software AG can always evaluate the overall status systematically and in a timely manner and better assess the effectiveness of appropriate countermeasures.

This includes operational risks, e.g. risks associated with cyber incidents, as well as financial, economic, legal, and market risks. Opportunities are generally congruent to the operational and functional risk structure in all risk areas. Software AG uses various controlling tools to monitor the identified risks on an ongoing basis; these relate to the development of the Company as a whole and to department-specific issues. The Management Board receives continuous updates on current and future risks and opportunities as well as the aggregated risk and opportunity situation via established reporting channels.

Risks and opportunities throughout the world are managed and controlled by teams at corporate headquarters responsible for pursuing opportunities and preventing risks for Software AG. Corporate headquarters compiles risk and opportunity reports, initiates further development of the risk management system, and elaborates risk-mitigating guidelines for the entire Group. It constantly reviews the functioning and reliability of the system as well as the reporting.

STRUCTURE

Controlling

The Controlling department—which is under uniform global leadership—monitors risks arising from business operations in a timely manner. In addition, both operational and strategic risks are analyzed by means of a structured reporting system. It shows developments in all relevant departments using KPIs and reports them continuously, monthly, and quarterly (depending on KPI) to the Management and Supervisory Boards. Furthermore, if exceptional circumstances relating to potential business opportunities or risks arise, ad hoc analyses are conducted and reported to the Management Board.

Finance

The Finance department is responsible for establishing all guidelines for financial reporting in accordance with International Financial Reporting Standards (IFRS) and for Software AG's annual financial statements in accordance with the German Commercial Code (HGB). All accounting decisions relevant to the Company's financial statements as well as the revenue calculation process are monitored and/or executed by the global Corporate Finance department. This ensures compliance with IFRS accounting regulations throughout the Group.

Treasury

Software AG’s Corporate Treasury team generates a daily finance status report, weekly assessments of foreign currency transactions, as well as summaries of derivatives outstanding. The European Monetary Infrastructure Regulations Report (EMIR) is generated once per month. The CFO receives weekly reports on the Software AG Group’s finance status and a summary of credit default swaps for all banks with which the Software AG Group engages in transactions, especially cash investments. The CFO also receives a monthly summary of short and long-term financing. All high-risk foreign-currency and hedging transactions may be conducted only by the Corporate Treasury team, which is directly below the CFO. A global treasury policy prohibits the national subsidiaries from engaging in any high-risk transactions with derivatives.

General Services

Another component to opportunity and risk management is the transfer of operating risks to insurance carriers. This is coordinated globally by the General Services department at corporate headquarters.

Internal Audit

Software AG’s Internal Audit is an active component of the Company's risk management. Through a systematic and targeted approach, it ensures the effectiveness of risk management along with the evaluation and continual improvement of the internal control systems (ICS) and the management and supervision processes. It is also geared to the creation of added value for Software AG by rating the efficacy and efficiency of business processes. Internal Audit reports to Software AG’s Chief Information Security Officer on a disciplinary basis, but has additional reporting lines to the CEO and the chair of the Audit Committee of the Supervisory Board. This department operates globally.

INTERNAL CONTROL SYSTEM

Software AG’s ICS is based on policies, guidelines, and measures introduced by the Management Board to support the organizational implementation of the Management Board’s decisions. Together with the risk and opportunity management (ROM) system, the ICS comprises management of risks and opportunities relating to the achievement of business targets, the validity and reliability of internal and external financial reporting, and compliance with standard legal policies and regulations including the continuously evolving requirements in the area of non-financial reporting. The ICS also includes a compliance management system (CMS) geared to the Company’s risk situation.

Software AG's ICS is an established component of internal controlling and monitoring processes. It consists of internal policies on business practices as well as Group guidelines on effective internal controls. These policies regulate internal procedures and areas of responsibility at global and local levels. They are designed to provide information to leadership and to monitor the operating business risks of the Software AG Group. In order to enhance transparency, these policies are approved, published, and managed centrally. Compliance with them is assessed on an ongoing basis by Internal Audit as part of a risk-oriented review plan. Individual key Group business processes are managed centrally using software applications based primarily on Software AG technology and monitored using preventative automated control mechanisms.

With respect to the accounting process, the focus of the ICS is on ensuring that Software AG's accounting is correct, appropriate, and effective as well as the financial data reported on its basis. In particular, the aim is to minimize the risk of false statements in Group accounting and other external reporting and to prepare compliant consolidated and annual financial statements. The following processes and control mechanisms were implemented to that end:

- Detailed Group accounting, valuation, and account allocation policies are in place which are continuously updated and complied with; these include an IFRS-based accounting guideline as well as a separate revenue recognition guideline. There are also guidelines on bookings, annual recurring revenue (ARR), and net retention rate. Application is mandatory.
- Compliance with these guidelines is ensured and monitored by Corporate Finance as well as locally and regionally responsible Finance, Controlling, and Administration (FC&A) managers and audited by Internal Audit.
- The national subsidiaries report their figures monthly to Corporate Accounting within the Corporate Finance department using the management information system (MIS). The figures from the national subsidiaries are consolidated using the SAP BCS software tool and fed back into the MIS. Corporate Controlling and the Corporate Finance team then analyze these monthly reporting results. Any deviations that may arise are communicated monthly to the national subsidiaries and/or Corporate Accounting and corrected via the most efficient channel.
- Worldwide separation of the functions of generating and reviewing accounting figures is guaranteed by segregation into two areas: Corporate Finance and Corporate Controlling. The two departments are led by different managers who report independently of each other to the CFO.
- All internal Group supplier and service relationships are centrally coordinated and legally regulated through cooperation agreements. Central departments within Corporate Finance and Corporate Controlling handle internal service allocation. In addition, an intercompany transactions policy standardizes internal Group approval processes throughout the world.
- The revenue calculation process is rigorously monitored by means of globally managed approval processes as of the commencement of contract negotiations. The Global Deal Desk is a preventative internal control system and is employed worldwide. All quotes associated with the intent to close a sale with a customer go through this approval process, in which the Legal department as well as Corporate Finance, Corporate Controlling, the CFO, and the CRO are also involved.
- Internal Audit continually reviews all key customer contracts worldwide with a view to compliance with the approval process and correct representation in accounting.
- Access rules for the local and central accounting programs are uniformly regulated and monitored by the corporate IT department.
- Only employees of Corporate Accounting have access to data stored in SAP BCS.
- All Group reports are reviewed by a second person in Corporate Finance in accordance with the dual-control principle.
- Software AG regularly commissions external experts to evaluate complex matters such as stock option plans, pension provisions, legal risks, and purchase price allocations.

RISK AND OPPORTUNITY MANAGEMENT

ROM is composed of a central interdisciplinary core team of directors from Corporate Finance, Internal Audit, and Legal who report to the CFO in this function. A manager from the relevant field of expertise serves as risk advisor and is responsible for Group-wide assessment, monitoring, and management of the identified risks. The risk advisors are recommended by the core team and chosen by the responsible member of the Management Board. The risk advisors conduct biannual risk evaluations with the core team.

Risks are evaluated according to a uniform valuation system. The system determines the risk category based on the potential impact on Group EBIT for the next three years. This impact is calculated taking into account the risk-mitigating measures taken by management.

Expected impact on EBIT in the next 3 years (cumulative)	Risk category
€20 to €50 million	low
€50 to €200 million	medium
> €200 million	high

The impact on EBIT over the next three years is divided into three categories. An impact of up to €50 million on Group EBIT in the next three years is categorized as low risk. An impact on EBIT between €50 and €200 million is categorized as medium risk. And, risks affecting EBIT by more than €200 million in the next three years are categorized as high risk.

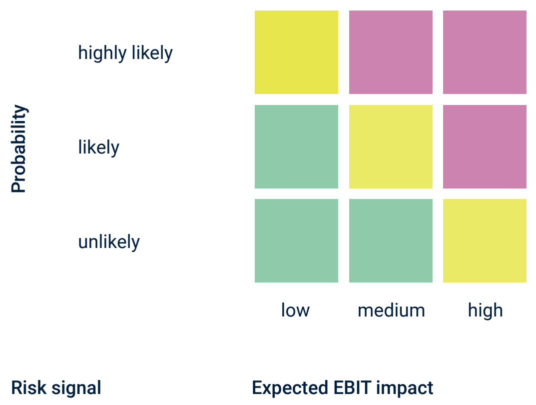
In a separate step, these impacts on EBIT in the next three years are categorized according to the risk advisors' estimated probability into three risk levels.

Probability	Risk level
0% to 33%	unlikely
34% to 66%	likely
>66%	highly likely

Probability between 0 and 33 percent is rated at an unlikely risk level, between 34 and 66 percent at likely and above 66 percent at highly likely. The risk categories and levels are aggregated and assigned an equivalence marker based on expectation values. These are then assigned to one of three cumulative risk signals.

Risk signal	Risk relevance
green	insignificant
yellow	medium
red	significant

This results in the following risk matrix according to which all risks are uniformly assessed:



All Software AG managers must report newly identified risks and opportunities to the core team at corporate headquarters. The team then informs the Management Board to discuss possible areas. The core team reports to the Management Board regularly about the ongoing development of the identified risks and opportunities.

The Management Board regularly presents the ROM to the Audit Committee of the Supervisory Board and discusses with it the level of the identified risks and opportunities as well as appropriate measures for managing the risks and opportunities.

Based on the risk advisors' submitted EBIT impact for the next three years as well as their probability of occurring, the expectation values are calculated taking into account risk-mitigating measures for the individual risks, but without offsetting risks and opportunities. The overall interdependency between individual strategic risks is then evaluated and aggregated with the sum of expectation values for all strategic risks. The result is the total expectation value for all risks. This value is compared against Software AG Group's determined risk-bearing capacity; risk reserves are also calculated. This ensures the effectiveness of the ROM and the ICS.

Internal Audit regularly reviews the effectiveness of the ICS. When necessary, suggestions for improvement are prepared and implemented. This is monitored centrally. Corporate Finance and Corporate Controlling regularly conduct internal reviews of accounting-relevant control processes and modifies them for new developments.

POSITION TAKEN BY THE MANAGEMENT BOARD IN ACCORDANCE WITH THE 2022 GERMAN CORPORATE GOVERNANCE CODE[1]

In accordance with recommendation A.5 of the 2022 German Corporate Governance Code (GCGC), the Management Board examined the appropriateness and effectiveness of the ROM and ICS. Based on that, the Management Board has no indication that the ROM and ICS were not appropriate or effective in their respective entirety as of December 31, 2022.

[1] Not reviewed as part of the external audit of the Management Report since this information persuant to recommendations of the GCGC is above and beyond that which is legally required of the Management Report.

KEY INDIVIDUAL RISKS AND OPPORTUNITIES

Software AG presents key risk and opportunity areas and individual risks and opportunities discerned from the totality of risks and opportunities identified through the ROM in the Risk and Opportunity Report.

Environment and sector risks/opportunities

Macroeconomic environment

The business of a globally operating company like Software AG depends heavily on economic developments worldwide. A global economic downturn—especially in the markets Software AG serves—can result in failure to meet revenue and earnings guidance. Furthermore, risks could arise from political and societal changes, particularly in countries where Software AG markets its products.

Geopolitical risks increased significantly in the 2022 fiscal year, primarily due to the war in Ukraine, which drastically worsened the predictability of economic developments. The war in Ukraine is causing risks and limitations that impact Software AG both directly (e.g., higher energy costs) and indirectly, through changes in customers' purchasing behavior. In addition, the sanctions against Russia represent a challenge for Software AG, just as for all companies with global operations and cross-border projects in Eastern Europe.

If the conflict situation were to extend beyond Ukraine, the risk of a global economic recession would increase additionally. Rising inflation and interest rates can also result in a considerable decline in consumption and increased operating and financing expenses.

Customs disputes and trade restrictions, for example between the USA and China, as well as the current conflict over Taiwan can affect global trade and thus world economic growth. This could have a major impact on Software AG's revenue and earnings performance.

The global government debt situation was further exacerbated for the long term by the effects of the COVID-19 pandemic and of the war in Ukraine. Regardless of the scenarios and possible responses assessed by Software AG in this complex risk area, these developments could negatively impact the business, the assets, and the financial performance and position of the Company.

Market risks

Market risks are related, among other things, to the varying economic developments in individual countries or regions. The technological evolution of different sectors of the IT industry can impact the business potential of the individual business lines positively or negatively.

Software AG's balanced revenue mix reduces dependency on a specific geographical or professional IT submarket. Software AG markets technologies that are not specific to certain industries, ruling out a dependency on individual industries or customers. Thanks to its technological innovations, ongoing R&D investments, and procurement of new technologies as part of technology-driven acquisitions, the Company significantly expanded its product portfolio and will continue to do so in the future. That enables greater flexibility for customers' existing IT infrastructures and significant cost savings. And, it can ensure a long-term broad customer base for Software AG.

In Software AG's view, the Company's new products are a logical way to cope with market-related cost pressures even in weak economic periods. Many customers use Software AG software for business-critical applications for years and often decades when running satisfactorily. This results in a largely stable flow of returning revenue in this business line.

Market opportunities

Software AG sees itself as a technology leader in enterprise digitalization software. Due to its strategic focus, Software AG will continue to concentrate on technologies and regions with high-growth markets. Furthermore, Software AG will continue its Adabas & Natural 2050+ program. And, because of the significance of its ecosystems in successful software sales, it will also further expand its partner model. These measures may lead to better-than-average opportunities for Software AG to grow and claim market share in core markets.

United States

The USA is Software AG's most important sales market. Software AG operates its own sales organization in the USA, and key portions of corporate departments are based there, such as Marketing and R&D. Furthermore, significant local intellectual property rights are located in the USA, resulting in a substantial royalty payments from the Group to the USA. A large percentage of Group profits is generated and taxed in the USA.

Because Software AG's business volume with China is relatively low, no substantial risks to its global business resulting from US foreign trade policies with regard to China are expected.

The extent of the negative impact of ongoing trade conflicts between the USA and China, Russia, and the EU on the Software AG Group's global development is not clear. Software AG is technologically independent of large US-based software platform companies. Growth of the US economy depends on a variety of factors. Nevertheless, future market opportunities should outweigh risks. The dynamic success of the cloud business in the USA offers significant growth potential for Software AG's cloud products, especially StreamSets and webMethods.io.

COVID-19

The COVID-19 pandemic has been affecting the global economy for three years. Multiple lockdowns in most countries of the world initially had a negative impact on the global economy. Many companies froze, postponed, or extended investment activities. In addition, nearly all organizations placed extensive restrictions on business travel. These circumstances made contract negotiations with customers difficult because nearly all meetings could only be conducted online. The lack of customer events and meetings made it difficult to generate new project opportunities which continues to affect Software AG's business today.

The COVID-19 pandemic forced companies and government agencies to move large portions of their administrative work to the home office. This has resulted in the permanent establishment of hybrid work. The pandemic shed light on the lack of digitalization in business processes, which had and continues to have an accelerating effect on digitalization. In the meantime, new means of business collaboration have been established. The positive effect of this is that the initially feared risk of a pandemic-related decline in business did not manifest. Regardless, many companies and government agencies still have a need for optimization. This is resulting in new business opportunities for Software AG, particularly in the Digital Business segment, which could compensate, or even overcompensate, for the negative effects of a global economic recession.

Corporate strategy risks and opportunities

Product innovation and portfolio

The software sector is subject to very fast innovation cycles with respect to new products as well as go-to-market models, such as usage-based models (pay per use) in the IoT and cloud markets. These are based on constantly changing customer, market and integration requirements. Software AG is rapidly converting its customer contracts to subscriptions and, increasingly, SaaS models as well. New innovation trends are very difficult to predict and are sometimes identified too late. Due to the uncertainty of future developments in the software market, Software AG considers itself exposed to risks and the associated impacts when it comes to the following points, among others:

- New innovation trends are not recognized or are recognized too late
- Company resources such as R&D, Product Marketing, Marketing, Sales, and Mergers & Acquisitions (M&A) are not allocated or not in the appropriate scope to the right products
- Insufficient focus on future growth-relevant products
- Key competitors' large financial resources can have a negative impact on business success
- Lack of balance between fast product innovation on the one hand and product quality on the other

Software AG's product portfolio consists primarily of software tools and platforms whose value for customers is maximized through customized solutions. This translation of platform technology to customized solutions is the Company's key success factor. Software AG took measures to counter the described risks:

- Organization of the product business in market-defined business units that are clearly geared to competition and customers
- Regularly scheduled innovation competitions (TechInterrupts) to promote ideas and identify possible applications for new tech trends
- Ongoing exchange with leading experts from the field of (business) information technology in the context of a Scientific Advisory Board
- Ongoing exchange with specific customers in Customer Advisory Boards
- Regularly scheduled in-depth discussions with leading industry analysts such as Gartner and Forrester
- With the goal of shortening time-to-market, Software AG's

products are also augmented by acquisitions when it comes to newer development trends
- Because the IoT and webMethods.io products are still relatively new, a considerable amount of resources have been and will be dedicated to quality assurance

Product quality investments were further increased in webMethods.io (integration Platform as a Service solution). These investments allow product defects to be corrected as early as possible. Software AG also ensures product quality through implementation of product standards, the Chief Quality Officer, and the ISO 9001 certified quality management system. Product quality and user-friendliness as well as customer support are monitored using these mechanisms on an ongoing basis.

Growing the SaaS business (cloud business) is extremely challenging and cost-intensive. In this context, Software AG is exposed to risks and impacts when it comes to the following points, among others:
- Insufficient scaling in the cloud business and the associated inadequate margin growth
- Technical and legal risks regarding data protection and data security
- Competitive advantages of new startups without a long history in the on-premises business

Software AG took measures to counter these risks, for example:
- Monitoring through a dedicated, externally ISO 27001-certified information security management system and cross-departmental response teams for failures in data protection and information security
- Expanded work with external IT forensic specialists
- Ongoing monitoring and optimization of cloud infrastructure usage

In particular, the expansion of the IoT business and the recognition achieved in the Digital Business line by distinguished technology analysts like Gartner and Forrester are generating major market opportunities for Software AG. As digitalization continues to advance—fueled by the COVID-19 pandemic—in companies' administrative units and production (IoT) activities as well as in government organizations, Software AG can influence the development of markets and drive its own growth.

The product portfolio and innovation risks described above were rated at risk signal yellow at the end of 2022 (2021: green).

Market risks and opportunities in the Digital Business segment

The comprehensive Digital Business segment is streamlined into product offerings based on API Management, Integration & Microservices, Business Transformation, and IoT & Analytics. This structure ensures the right roadmap prioritization of customer and market requirements for product development. It improves opportunities for further expanding the competitive advantages of Software AG products and receiving outstanding ratings by the relevant technology studies. A more streamlined R&D focus is also improving customer satisfaction and business success. Software AG is exposed to risks and the associated impacts in the following contexts, among others:
- Inadequate consideration of agile customer requirements in product development
- Undesirable developments in product sales revenue in the Digital Business segment
- Insufficient visibility and awareness in the USA, Software AG's largest single market
- Suboptimal availability and robustness of cloud services
- Too dependent on individual large-scale deals

The occurrence of each of these risks could have a negative impact on business development in the Digital Business segment.

Software AG took measures to counter the described risks, for example:
- Regularly scheduled customer feedback events for the entire R&D organization
- Permanent monitoring of product revenue development by the general managers of the product lines
- Ongoing marketing activities with a focus on the USA and the goal of improved pipeline generation and market visibility
- Close control of cloud services by the Operations teams
- Expansion of subscription license model which will lead to a stabilization of revenue in the medium term
- Ongoing support for cloud customers through Customer Success Managers to improve customer satisfaction and reduce termination risks

The relatively new time-to-value model was developed and introduced in connection with the sustainable subscription and SaaS sales models. With this model, customer benefits, and in turn customer satisfaction, grow over time.

These efforts are intended to reduce sales complexities and shift the focus to the strength of the individual product offerings. The Management Board sees opportunities in raising the visibility of products with existing and target customers, sharpening Software AG's identity, and significantly improving customer satisfaction and success. In the Management Board's estimation, this will all contribute to significantly increasing the Company's share in the high-growth API Management, Integration & Microservices, Business Transformation, and IoT & Analytics markets. The complete Digital Business line holds major opportunities for Software AG's future business development. This is especially due to the fast pace of the IoT market's growth, as well as the ever clearer digitalization trend, which drives growth in the API Management, Integration & Microservices product line.

Growth in API Management, Integration & Microservices

The API Management, Integration & Microservices product line in the Digital Business segment generates the largest volume of business of all Software AG product lines. Software AG's growth depends on the growth of this product line. The intensity level of competition is very high in this business. The Company therefore considers itself to be exposed to the following risks and impacts, among others:

- Insufficient balance between development speed and quality assurance
- Insufficient competitiveness in the market for specialized R&D talent
- Too little product brand awareness, especially in the USA
- Insufficient leveraging of synergy effects between subproducts

The following measures were taken to manage the strategic risks in this product line:

- Market observation and trend tracking, including collaboration with leading tech analysts, Gartner and Forrester
- Proactive marketing campaigns to grow the pipeline and generate new business as well as improve Software AG's visibility in key markets
- Intensified cross-selling activities for products in the API Management, Integration & Microservices product line with customers in the IoT & Analytics and Business Transformation product line to generate new business
- Allocated more R&D and other resources to cloud solutions
- Dedicated measures to improve long-term recruitment and retention of R&D talent, e.g. expansion of share-based remuneration components

It is anticipated that the digitalization of enterprise processes and administration—including the public sector—will drive development of the API Management, Integration & Microservices product line. This product line holds major opportunities for Software AG's future business development.

Due to the measures described above, including in the context of the intensified digitalization trend, the risk rating remained unchanged at green at the end of 2022 (2021: green).

Development of Business Transformation

The Business Transformation product line in the Digital Business segment consists primarily of the ARIS and Alfabet products. This market is characterized by intense innovative competition. To keep up with this competition, Software AG delivered new functionality for its process mining products in the previous year and is continuously introducing product innovations.

Like all major Software AG products at present, the products in this product line are cloud-ready. To accelerate this product line's growth and transition to the cloud business, Software AG introduced the option for customers to purchase standard software packages online. In addition, specialist consulting teams and the Customer Success Management organization are being built on an ongoing basis; their task is to expand customer relationships and the respective business volume as well as to support the Sales organization in growing this field of business. Furthermore, customer support during the term of cloud agreements serves to increase customer satisfaction and minimize the risk of termination.

The Business Transformation products are particularly well suited as entry products for Software AG technology. Because average deal sizes tend to be smaller than in other Software AG product lines, efficiency is also lower in direct sales. Software AG's sales focus for these products is aimed more at other channels such as partner and direct online sales.

Expansion of the partner ecosystem is necessary to boost the success of this product line. A higher number of implementation partners is needed to support customers in the implementation of these software products. These were not and are not yet available to Software AG to the extent necessary and are currently being increased, e.g. through the strategic partnership formed with Persistent in 2022. Competition for human resources has also intensified considerably in this product line. Software AG enhanced its recruitment and staff development programs to address potential fluctuation in this area.

These risks were given a green risk signal at the end of 2022 (2021: green).

Ongoing development of IoT & Analytics

Business in the IoT & Analytics product line within the Digital Business segment (cloud & IoT business) is growing faster than the rest of Software AG. IoT is a rapidly growing market subject to intense competition. The market is being driven by hyperscalers (computing networks to achieve major scaling in cloud computing and big data), systems integrators, and industrial companies that are developing their own IoT system landscapes.

In this context, Software AG is exposed to risks and impacts when it comes to the following points, among others:

- Inconsistencies in product quality due to the proportionally low level of product maturity and to high speed of development
- Insufficient attention to technical challenges and necessary product enhancements
- Underestimation of challenges regarding customer growth and economic relevance
- Attempts by competitors to poach highly qualified employees
- Insufficient sales and consulting capacities in smaller regions
- Because the products in this line are increasingly sold as SaaS offerings, there is a growing risk that service level agreements will not consistently be met.

Any of these circumstances could have a negative impact on business operations in this segment. Software AG therefore took measures to counter these risks, for example:

- Introduction of the Continuous Integration and Continuous Delivery concept in the R&D process
- Amplified training options in modern cloud technologies
- Strengthening and automation in Cloud Operations, to enable better scalability of cloud solution operations
- Introduction of modern team-building and management methods
- Intensification of partnerships with consulting firms and hyperscalers
- Expansion of proactive support and de-escalation measures

The risks associated with the IoT business were rated at risk signal yellow (2021: yellow).

Market risks and opportunities in the Adabas & Natural business

Software AG's traditional Adabas & Natural (A&N) products is currently in an advanced stage of the product life cycle. The age structure of A&N employees poses a challenge for Software AG—in R&D, Presales, Sales, and Professional Services—and its customers. The necessary generational shift across all customer-oriented functions must be well organized. Otherwise, there is a risk of losing customer contacts and expertise with the corresponding negative effects on sales opportunities.

There is hardly any new customer business in this segment. The product portfolio is based on existing customers. Growing cost pressure on customers has the effect of more migration of mainframes to open system platforms. But resources are tight when it comes to supporting customers with this migration. There is also the risk of customers changing to new competitor products, which would have negative effects on revenue and profit margin. It would also reduce the cross-selling potential of other Software AG products. Software AG's strategy is based in part on extending customers' existing A&N license rights and/or selling add-on products. The potential offered by renewing licenses continued to drop compared to past years. Software AG's A&N customers have nevertheless been very loyal up to now. In Software AG's view, this is because A&N products are highly valued for their:

- High availability
- Low operating costs
- Strategic relevance for operation of customer applications running on A&N
- Future guarantee

This presents the opportunity to attract customers with positive Software AG experiences to long-term maintenance and modernization of their IT infrastructure while keeping A&N technology. Software AG is the best partner for that. Retaining and acquiring product expertise make this possible. Ongoing innovation and R&D activities lead to significantly better prospects for the A&N business line. Software AG began communicating its Adabas & Natural 2050+ program in 2015 and is fundamentally willing to continue developing A&N and providing A&N customers installation support through the year 2050 and beyond. This initiative resonated extremely well with customers and increased the level of loyalty among the customer base. The transition to subscriptions in the A&N segment also opens up additional revenue potential.

Software AG is countering the described risks with the following additional measures:

- The Adabas & Natural 2050+ program can significantly delay the anticipated long-term revenue decline
- Ongoing development of hosting and private cloud availability for A&N products can lead to new business
- Through the sale of new products, the Freedom for Legacy initiative can lead to incremental revenue and enable existing A&N customers to integrate their legacy applications with modern software environments
- Customer support for migration of mainframes to Linux platforms with the help of A&N technology (rehosting) to cut hardware costs for customers and prolong maintenance periods
- Expansion of A&N service capacities to support local partners and their re-hosting activities
- Generation change training programs for young A&N staff in R&D and Presales working for Software AG and customers
- Extended application support to serve customers
- Expansion of offshore R&D and support centers
- Focus on key operating system platforms like z/OS®, Linux®, and Windows®
- A&N modernization to extend the product life cycle, e.g. enhancement and sale of Adabas encryption and auditing products as well as zIIP™ functionality for online transactions and Adabas for zIIP
- Regular customer satisfaction surveys
- Increased marketing budget

These measures can significantly slow the downward trend of A&N sales while providing opportunities for generating additional sources of revenue.

Customer evaluations show that the majority of all A&N installations are business-critical for customers. This means that many customers' economic livelihood depends on the performance and availability of their A&N installations. After having invested heavily over the past decades, these customers cannot and will not forgo this technology. There is thus an opportunity that this business line will continue generating high revenues in the future.

There are significant opportunities associated with product innovation and A&N modernization/digitalization packages; this type of offering can make the need for large, cost-intensive projects to replace A&N technology superfluous. In this way, A&N remains a future-proof technology, which can make a positive impact on A&N customers' investment decisions. The macroeconomic environment as described also had barely any negative effects on business performance in this segment. In times of crisis, customers rely on proven technology and do not undertake activities to try out new technologies.

These risks were assigned risk signal yellow at the end of 2022 (2021: green).

Acquisitions

Software AG complements its technology offering to further expand its market share in relevant core markets worldwide through targeted acquisitions. Acquisitions are an opportunity to participate in waves of innovation, to expand the product portfolio, and increase relevance in the market and with prospective customers. Acquisitions can help shorten time-to-market significantly for new products that address the latest trends. The uncertainty of future market and technology trends poses a risk associated with determining the right target companies that are well matched to the Company's future strategic focus. The selection of an unsuitable target company leads to management resources and investment funds being tied up without sufficient return on investment. This can result in risks associated with possible impairments, the unnecessary use of Software AG's cash, and a decrease in the Company's competitiveness and growth potential.

The prolonged period of low interest rates, high liquidity in the market, and heightened interest among strategists and investors in digital business models caused a sharp rise in the price of potential target companies in the software market, which reflected unfavorably on the profitability of potential acquisitions. A slight decline in prices was recently observed in light of interest rate developments, increased inflation forecasts, and the uncertain macroeconomic outlook. Regardless, potential target companies remain highly valued or do not yet have the right relevant size or profitability. Companies with cutting-edge technologies that are already successful in the market and offer an attractive financial profile are often highly priced due to the intensity of competition. This market situation can pose a considerable obstacle in the acquisition of new technologies and limit Software AG's non-organic growth and innovation capabilities. A risk therefore exists of acquiring unsuccessful business models or suboptimal products lacking in market maturity. There is always a residual risk inherent to due diligence processes of not having correctly assessed strategic risks or synergy potential.

The following risk-mitigating processes were defined for the time prior to and after acquisitions:

Pre-acquisition phase

To mitigate the risk associated with the selection of potential target companies, the Mergers & Acquisitions (M&A) department is continuously observing and evaluating the relevant market segments. Software AG expanded and optimized its process for identifying investment areas, target companies, and potential divestitures. In this context, potential companies are identified using a sophisticated screening process and assessed based on acquisition criteria. To reduce risks associated with due diligence processes, Software AG conducts a critical business model and business plan analysis of all potential target companies. Its current due diligence process identifies problems, rejection criteria, and uncontrollable risks early, as well as validates the opportunities associated with the acquisition. In-depth due diligence is carried out with respect to technological, sales, staff, strategic, and operational integration. Prior to a takeover, an intensive review is conducted to ascertain whether the technologies of the target company in question efficiently strengthen and/or supplement Software AG's product portfolio, how market access and market penetration will improve, and what potential synergies can be realized. Every acquisition is preceded by a detailed analysis of the target company's economic fitness as well as a validation of the combined business plan and synergy potential with the help of experienced due diligence teams. These teams consist of a core team and experienced specialists from the relevant business units as well as external consultants. They assess whether the target company's corporate culture can be harmonized with that of Software AG. In order to ensure consistent integration coordination regarding business plan implementation, staff members who will be responsible for integration later are included in due-diligence processes at an early point in time.

As in the previous year, the risks associated with the pre-acquisition phase were given a green risk signal at the end of 2022.

Post-acquisition phase

There is also a risk that an acquired company will not be successfully integrated and the strategic goals of the acquisition will not be achieved.

Insufficient integration could result in growth and profitability issues as well as failure to achieve combined business plan targets. It would become difficult to quickly exploit revenue and cost synergies. There is an additional potential risk associated with the loss of key specialists when not enough attractive positions are created quickly. Especially smaller-scale acquisitions pose the challenge that managers who have worked as generalists must transition to the role of specialist in a larger organization following an acquisition. The main challenges relate to the integration of the product portfolio, the sales/go-to-market model, the processes, the people, and the different corporate cultures. The risk of insufficient integration also has a negative effect on the integration of future acquisitions.

Due to these risks. Software AG established a Post-Merger Integration (PMI) team with a dedicated PMI manager to lead the unit; they are responsible for integration of past and future acquisitions and report to the COO.

Through established control mechanisms, any possible integration risks or opportunities are identified during the due-diligence stage. The established integration processes clearly define roles for centrally managed sales, development, and administrative tasks. This ensures integration across all departments and enables quick generation of revenue and cost synergies. Possible areas of employment for future employees are assessed at the beginning as well as ways for ensuring knowledge transfer.

The acquired company's budget for the post-acquisition period is detailed and approved by stakeholders as part of the purchase process in order to guarantee continued business operations. Specific KPIs are identified and monitored for each integration. A key component of these activities is the integration of sales. In due course, the new sales models and product offerings are integrated with the Software AG sales organization to leverage revenue synergies. This enables the sale of acquired products to Software AG's existing customers (upselling) and sale of existing products to new customers (cross selling). The acquired sales organization can act as an overlay function for the existing sales organization.

Due to the learning and experience curve in connection with the recent StreamSets acquisition, these risks were rated at risk signal green at the end of 2022 (2021: yellow).

Environment, social, governance

As part of its strategic risk and opportunity management, Software AG started reporting separately on the strategic risk associated with environment, social, and governance (ESG) aspects in the 2022 fiscal year. In light of growing global challenges, particularly regarding climate protection, Software AG rolled out a new Group-wide sustainability strategy in the 2021 fiscal year, defining sustainability as a strategic priority. Software AG joined the United Nations Global Compact (UNGC), the world's largest corporate sustainability initiative, in the first half of 2022, representing a decisive commitment to corporate responsibility.

Sustainability plays a central role in Software AG's strategic focus. It strives to lead the global search for technology solutions to the most pressing social and environmental challenges and aims to help its customers and partners in their sustainability efforts. Software AG's Management Board is of the conviction that sustainability is a prerequisite to long-term business success.

The basis for Software AG's sustainability strategy is its Sustainability Roadmap 2025. It provides the direction on how the Company will meet its targets in five key action areas. In addition to anchoring ESG criteria in its corporate governance, Software AG is committed to fostering a respectful, transparent, and inclusive corporate culture for its employees and always attracting the best talent for the Company. With its technology solutions, Software AG aspires to play an active role in enabling customers to operate their organizations sustainably. Furthermore, technology solutions are being developed through research projects that are making a positive impact on society and environment and promote the UN sustainable development goals. When it comes to environmental impact, the Group's global carbon footprint is assessed to develop a reduction path to achieving net zero CO_2 emissions.

Achieving its sustainability targets is essential for Software AG's success as an attractive employer and with customers and investors, as these target groups increasingly link ESG criteria explicitly (e.g. for financing) or implicitly to a company's rating. If Software AG were not able to fully or partially meet its sustainability targets, possible negative impacts would be the loss of or inability to obtain employees and customer orders, increased costs of capital, decreased market value, and penalty fees for not meeting legal requirements.

The ESG risks were assessed for the first time and given a yellow risk signal at the end of 2022.

Corporate strategy risks and opportunities

The strategic realignment (Helix), which began in 2019, contributed to Software AG surpassing its target of 90 percent of product sales revenue in recurring revenue one year earlier than planned (end of 2022) at 93 percent. This means that a core goal of this strategic realignment was achieved. The strategic projects carried out under Helix were coordinated by a dedicated Transformation Office that reports to the CHRO. The high number of measures meant that a clear transformation focus was lost and the transformation was being driven forward in too many separate activities at the same time, which in turn increased the number of resources involved. With the transfer of the Transformation Office to the COO's Management Board area of responsibility, all projects were reviewed for transformation relevance and many were terminated. Three key projects were identified and completed in the third quarter of 2022. Further transformation projects are planned.

Additionally, work is currently underway to refine the strategy so as to leverage the major shift in market trends and conditions that emerged since the pandemic and ensure Software AG's maximal success in upcoming years. There are many opportunities associated with a refined strategy in the form of an update of the current strategic direction. Helix has already improved

Software AG's adaptation speed. And in light of the highly dynamic development of the IT sector—especially integration software—this must continue to be accelerated if the Company is to maintain its lead which is confirmed by outstanding analyst ratings.

Product distribution risks and opportunities

Sales efficiency and sales risks and opportunities

The complexity of Software AG's products together with the complexity of the requirements of its customers alike require a well-trained and highly specialized sales force and lead to relatively long sales cycles. Because sales expenses are the largest single item in Software AG's consolidated income statements, profitability targets can only be met if the sales organization is as efficient and effective as possible.

An ineffective sales organization can be an indication of an inadequate sales approach, inadequate capabilities, uncompetitive prices or products, or unscalable product solutions. A sales model has to increase efficiency and remove inefficiency. One approach is to drive sales of standard, repeatable product solutions. This can also shorten sales cycles. In this context, Software AG's land-and-expand sales strategy must be further refined and developed.

In addition, the sales organization must be more streamlined into one unit that generates new deals with annual recurring revenue and another unit that carries out efficient renewal of existing recurring customer contracts. If Software AG does not decisively optimize its sales efficiency and sales approach in key markets, its growth and profitability targets will be difficult to meet. Software AG's shift to the subscription model from the previous sales model based predominantly on perpetual licenses could mean that customers terminate agreements more quickly when products do not fully address their wishes. Higher average deal size and better scalability can improve sales efficiency. A sales focus on the expansion of relationships with strategic customers as well as signing new logos is essential. However, business with large customers increases the dependency of license revenue on a smaller number of large customer contracts though.

Insufficient average deal sizes closed by the Direct Sales organization with full administrative support from Legal and Finance and insufficient use of standard agreements and processes have a negative impact on sales efficiency and profitability. Some of the smaller country subsidiaries have too few technology consultants (Presales staff) and skills to provide customers with technical consulting on the entire Digital Business product portfolio. Not enough standard contracts are used—even for small-scale deals—due to the "customer-first" approach in place. The impact of COVID-19 and the macroeconomic environment caused customers to delay their purchasing behavior.

Software AG intends to continually increase sales efficiency and thereby further accelerate deal size growth in the Digital Business segment through the following measures:

- Accelerate the transition to recurring license models such as subscriptions, usage-based licenses, and SaaS in all product lines with better scalability and forecast accuracy
- Further develop the Customer Success organization to provide ongoing care and consulting to customers in areas such as the renewal and expansion of existing contracts
- Handling of customer contract renewals based on subscriptions and SaaS by specialized teams, while the Direct Sales organization concentrates on generating new recurring customer contracts
- Further reduce complexity of product offerings and pricing with simpler product bundles
- Further simplify administrative processes to increase sales efficiency

As in the previous year, these risks were rated with a green risk signal at the end of 2022.

Partnership risks and opportunities

Software AG's growth strategy is also anchored in the expansion of its partner ecosystem to broaden vertical and regional market reach. The partner ecosystem must be further expanded to generate additional growth in markets that have not yet been addressed.

Global systems integrators and consulting firms play a key role in the strategic transformation projects in Software AG's customer target groups. Their expertise and assessment of Software AG products have a significant impact on Software AG's sales success. For this reason, close collaboration with globally operating systems integrators and consulting firms is of strategic importance. Close collaboration with leading cloud providers like Amazon Web Services (AWS) and Microsoft

Azure is also essential as customers are increasingly moving their applications to the cloud and relying on the strategic support of cloud providers.

Sales channel conflicts between direct and indirect sales or inadequate remuneration and incentive structures for partners can be an obstacle to a successful partner business. Successful partner sales require the establishment of a partner-friendly culture in the organization. This will work if, for example, the right targets are set for Software AG Sales, the technology consultants (Presales), the Professional Services organization, as well as Sales leadership.

It should be noted that Software AG products are not yet sufficiently ready for business with original equipment manufacturers (OEMs). Therefore, too many adjustments still need to be made to products and specific product support provided when it comes to OEM partner contracts which has a negative impact on profitability in this area.

The implementation of a global partner strategy, standardized partner business processes, collaboration between direct and indirect sales as well as the necessary compensation structures with a focus on incremental rather than existing business remain a focal point. The following measures were introduced to grow the success of the partner business:

- Optimize the global partner management team with a focus on evolving strategy and expanding relationships with strategically key partners and with the ecosystem network in general
- Establish suitable incentives for collaboration between direct and indirect sales
- Simplify partner-related processes and systems on all levels
- Allocate a dedicated marketing budget to accelerate generation of new partner business
- OEM-enable products and introduce standard processes for certification of OEM solutions by R&D
- Sharpen focus on signing new customers

The risks associated with partnerships were rated at risk signal yellow at the end of 2022 (2021: green).

Personnel risks and opportunities

Employer appeal

Software AG’s most valuable asset are its people along with their knowledge, personal skills, and enthusiasm for their work. In an increasingly competitive environment and employee market in which every organization is trying to attract the best talent for itself, one of Software AG’s main challenges is to attract, foster, and retain talent. The Company must ensure that a sufficient number of appropriately qualified, highly motivated employees is available at all relevant locations at all times. Uncertainty about Software AG’s future success could have a negative impact on its image as an employer both among prospective and existing talent. This can increase attrition risks. Attracting and fostering talent are therefore decisive factors and key to ensuring Software AG’s business success.

Software AG stayed on course during the COVID-19 pandemic. However, other macroeconomic topics and an ever-changing work reality (hybrid work) require additional energy, patience, and a new mindset to overcome these emerging challenges. The Company’s internal transformation is taking place at the same time as a global social and economic transformation that is also affecting every individual. Despite the changes of recent years, Software AG was able to steadily improve employee satisfaction.

Furthermore, the demographic trend in some countries and markets could result in a decline in growth potential due to a shortage of qualified young talent. Succession management and well organized knowledge transfer are key success factors in minimizing the impact of this risk.

The age structure in the A&N business line could lead to a loss in expertise. Software AG is taking the following measures to counter this risk:

- Measure, monitor, track, and assess internal and external key indicators such as external rating platforms, attrition rates, employee satisfaction, etc.
- Ongoing evaluation of market-oriented remuneration and target salaries based on global benchmarks
- Foster an education culture through comprehensive learning and growth programs, mentoring, courses, and workshops for employees and leaders
- Support leaders to deepen and strengthen their capabilities and competencies
- Globally optimize employee development reviews and establish options for personal and professional advancement

- Promote physical and mental health
- Improve employee engagement and satisfaction with annual employee surveys and apply improvement where weaknesses are identified
- Specific offerings to foster and educate high school and college students early in their development
- Strengthen Software AG's presence externally in the labor market and social media as well as promote the Software AG image as an attractive employer
- Improve talent acquisition by adapting the hiring process to reflect the changing talent market
- Continue activities for direct recruitment of new employees and training of existing staff

Software AG assumes that these measures provide a sound basis for ensuring its long-term success.

Due to the growing intensity of competition among employers for talent, personnel-related topics were rated with the yellow risk signal at the end of 2022 (2021: green).

Legal risks

Intellectual property

This strategic risk mainly consists of the two subcategories described below.

Infringement proceedings

Especially in the USA, a generous number of software patents are granted. This, along with the peculiarities of US procedural law, facilitates patent disputes. Aside from potential lawsuits from other tech companies, this situation is also exploited by non-practicing entities (sometimes referred to as "patent trolls"), which are often financed by hedge funds to file patent infringement proceedings against software companies in particular. This is also relevant to Software AG. Patent disputes in the USA entail the risk of high legal costs incurred in defending against claims, which are not reimbursed according to American procedural law. The risk associated with non-practicing entities has been mitigated in recent years due to a new legal ruling by US courts and legislation providing protection against non-practicing entities in some states.

Furthermore, a large number of well-known tech companies have joined forces to form the License-on-Transfer (LOT) Network. The LOT Network is a non-profit community established to combat the non-practicing entity business model. To strengthen its own position, Software AG joined the network in 2020. Members of the LOT Network grant each other licenses in the event that patents are transferred to non-practicing entities.

The last patent infringement proceedings brought against Software AG by a non-practicing entity ended in a settlement in the 2019 fiscal year. Since this case, which lasted many years, there have been no further attacks by non-practicing entities in recent years. Nevertheless, there is a risk of being sued by competitor tech companies for patent infringement. Software AG has an Intellectual Property (IP) Rights team to counter patent lawsuits. In addition to tasks associated with IP law protection, the team handles Software AG's own patent portfolio and coordinates its defense against patent infringement lawsuits. Having a patent portfolio is the best protection against claims from other market participants because it offers opportunities for cross-licensing agreements. There was room for improvement regarding Software AG's patenting activities in recent years. IP leadership therefore launched an initiative whereby workshops were held at all relevant R&D locations to examine the option of new patent registrations. In addition, Software AG's recently updated and highly attractive inventor remuneration system provides a heightened incentive for employees to develop patentable innovations and engage in the patenting process.

Software AG owns a significant number of patents, which can be used to protect its business and defend against patent infringement suits. There are however various inherent risks to dealing with inventions. For example, inventions may not be incorporated into products and thus published before having been registered with the patent office because they are otherwise no longer protected. Furthermore, patents can be weakened if the underlying technology is built into open-source software that is subject to a permissive free license.

To defend itself against patent infringement lawsuits, all relevant source code files and other technical as well as marketing documentation were and are stored centrally so that all required documents are available quickly in the event of a lawsuit. This documentation process is employed for newly acquired companies as well. All new products are evaluated for potential patent infringements before publication. R&D and Product Marketing employees receive training on the subject of inventions and patents.

In principle, there is also a risk of trademark infringement. Trademark research is conducted to carefully review new product and brand names against previously existing identical or similar trademarks that could be infringed upon.

Implemented measures and processes reduce this risk considerably for Software AG. It is currently unforeseeable to what extent future patent infringement suits will be fueled by the increasingly protectionist tendencies worldwide.

Protection of Software AG partners' IP rights

Because Software AG licenses third-party products, it is required to defend rights granted to customers such as rights of use for specific resources. Unauthorized undetected use by customers can result in liability risks relating to lost license fees owed to software distributors. To mitigate this risk, audit rights have been included in all customer contracts which entitle Software AG to monitor customers' use of products in accordance with contractual stipulations. All third-party software sales agreements are reviewed for unfavorable terms and modified as needed by a central department. In addition, Software AG continued developing and optimizing its procurement process.

Like last year, the risk associated with the protection of IP rights was rated at a green risk signal as of December 31, 2022.

Risks from cloud contracts

The overall buying behavior of enterprise customers in the software market has changed radically. Customers increasingly request term-based, self-installable software products and hosted cloud products. Unlimited self-installable software products are less and less in demand. The demand for subscription and SaaS offerings is therefore rising continuously. Software AG's Management Board therefore defined a "subscription-first" approach as part of the new strategy, whereby all Software AG products have been offered primarily as subscriptions since 2020. Software AG is also continuously expanding its cloud offering. Nearly all Software AG products are now available as cloud solutions. This satisfies the increasing customer demand for pay per use and subscription options and, regardless of the deployment model, provides access to the advantages of this form of consumption.

The risk associated with information security and data protection is significantly higher in the cloud business than in on-premises business because Software AG acts as a processor. This transfers the risk to Software AG as the cloud provider. This results in an increased legal risk associated with cloud agreements. To minimize this risk, an information security management system (ISMS) in accordance with ISO 27001 was implemented and externally certified.

The assessment of risks associated with cloud contracts is included in the two following risks regarding data protection and information security. A separate assessment therefore did not take place.

Data protection

As a provider of maintenance, cloud, and consulting services, Software AG works with personal customer data and thus acts as a processor. Software AG also processes personal data about its employees, customers, prospective customers, partners, and suppliers in the role of controller. The Company is legally required to treat this data in accordance with the applicable data protection laws and protect it against unauthorized access, alteration, or deletion. Software AG must ensure personal data is treated confidentially, but available at all times for the required application without loss of integrity. Due to the increasing number of cyberattacks, guaranteeing compliance with data protection is becoming more challenging. Software AG's order processing agreements with customers require compliance with data protection laws, particularly with the European Union's general data protection regulation (GDPR). At the same time, growing IT complexity increases the attack surface for cyberattacks. According to the GDPR, penalties of up to 4 percent of Software AG's consolidated annual revenue can be issued in the event of infringement of data protection laws. Furthermore, additional costs for external consultants may be incurred, process productivity may decline, and significant reputational losses detrimental to sales may result. Sizable investments are necessary on an ongoing basis to take these security measures and comply with regulations.

Software AG counteracts these risks by improving its data protection management system (DPMS) on an ongoing basis. This DPMS defines processes that help ensure data protection such as internal data protection policies and standardized processes that are constantly being adapted accordingly.

In addition, the following measures were taken to reduce the risk associated with data protection:

- Software AG's data processing agreements (DPA) with customers minimize the risks it assumes to the legally admissible extent
- Implementation of a data protection policy that is binding for the whole Group as well as binding corporate rules (BCRs) for international data transfer to ensure a uniform level of data protection throughout the Software AG Group (current project)
- The DPMS is monitored and optimized on an ongoing basis
- Mandatory data protection training for all employees to raise awareness for the requirements of data protection
- As a result of the malware attack in October 2020, Software AG acquired a great deal of experience in processing personal (including sensitive) data and drew the necessary security-related conclusions. With the help of investments and measures now concluded, Software AG significantly improved its level of data protection. However, 100 percent security cannot be guaranteed as attacks are getting ever more intelligent.

The Schrems II ruling (Judgment of the European Court of Justice on Transfers of Personal Data to Third-Party Countries) strengthens data protection for EU citizens. The ruling also creates compliance issues that can, however, be mitigated through the use of EU standard contractual clauses (SCCs). The ruling stipulates, among other things, that necessary data transfer to an "unsafe third country" can be legally safeguarded through the use of EU SCCs. Under certain circumstances, using an SCC can help provide the legal security necessary to transfer personal data to a data processor based in an unsafe third country. The main prerequisite for using an SCC is that a data processor can guarantee an equivalent level of data protection as that in the EU. To minimize the risk of unauthorized data processing in an unsafe third country, Software AG concludes SCCs with the relevant data processors. In addition, supplementary and technical security measures were taken, e.g. encryption, to ensure compliance with the rules associated with the Schrems II ruling.

The risks associated with data protection were rated at risk signal green at the end of 2022 (2021: yellow).

Information security

All data and IT service functions for internal purposes and customer services globally are subject to an upward threat potential curve because of the fact that malware attacks are getting increasingly smarter. Furthermore, government regulations on data protection and IT security are getting ever stricter. The growing complexity of IT increases the vulnerable attack surface of Software AG's sensitive data and IT systems to hackers and poses a constant threat to its tangible and intangible assets. This risk, however, is not specific to Software AG. It affects nearly every company worldwide.

To mitigate these risks, Software AG introduced and implemented the following measures:

- The SecureBiz program was introduced at the beginning of 2021. This program primarily comprises improvement of the following points:
  - Continuous tracking of the IT landscape for weak points as well as security monitoring
  - Information protection and management
  - Network redesign including network segmentation, real-time data flow, and irregularity monitoring
  - Hardened active directory and Azure active directory
  - Admin rights only issued upon request
  - End-device management
- An ISO 27001-certified information security management system (ISMS) is in place for cloud business customers
- Employee training on information security was introduced and will be expanded continuously
- To increase transparency of IT security, internal control mechanisms are monitored and optimized to reach a state-of-the-art level
- Management and monitoring of overall information security was separated from IT security operations
- Software AG's IT security strategy and the corresponding management program are aligned with the global corporate and IT strategies
- The IT Security department ensures the ongoing development of processes, workflows, and tools and monitors the extent to which they are correctly installed and employed so as to prevent potential malware attacks
- Risk evaluations are optimized and rolled out uniformly on all security-relevant IT systems

All these measures, however, cannot and will not provide a 100 percent guarantee of IT security. The systems have become too complex, and potential attackers too well trained and equipped, sometimes by foreign governments with extensive resources. Software AG therefore can and must do everything in its power to achieve the maximum level of security.

The risk associated with information security was given a yellow risk signal at the end of 2022 (2021: red).

Other legal risks

Regulatory, compliance, and litigation risks

Regulatory and political changes, such as embargoes, can influence Software AG's business operations in different national markets. That could have a negative impact on the Group's future business and financial performance. Uncertainties regarding regional legal systems could hinder or prevent the assertion of Software AG's rights (e.g. commercial property rights).

A multinational software company like the Software AG Group is subject to global risks associated with legal disputes and government and official processes. Software AG cannot rule out that litigation and proceedings will have negative effects on the earnings of the Company; as a rule, the Group's financial position can even be negatively affected when lawsuits are won, given the high cost of defense attorneys and other defense services needed to thwart accusations, for example in the United States. Despite detailed risk assessment and forward-looking risk provisions, there is a risk that the actual cost of litigation is higher than the assumed risk value.

For further information on specific legal disputes, please refer to Note [32] in the Notes to the Consolidated Financial Statements and Other Provisions in the Separate Annual Financial Statements of Software AG (Parent Company).

Financial operating risks

Exchange rate risks

Software AG is exposed to exchange rate risks through its global business activities. Software AG's sales organizations operate in the currency of the countries in which the sales are transacted. This can result in currency risks and opportunities for Group revenue. Further information on currency impact on revenue is provided in the Financial Performance of the Group section of the Economic Report.

Exchange Rate Fluctuation Impact on Group Revenue in 2022:

Currency fluctuation in 2022	Change in exchange rates volume-weighted 2022 vs. 2021	Impact on revenue in 2022 in € millions
US dollar 31.5% of revenue	12.0%	32.4
Pound sterling 6.4% of revenue	0.3%	0.2
Israeli shekel 6.3% of revenue	5.6%	3.2
Australian dollar 3.4% of revenue	3.9%	1.2
Brazilian real 3.1% of revenue	18.0%	4.5
Canadian dollar 2.8% of revenue	7.8%	1.9
South African rand 2.2% of revenue	1.8%	0.4
Other currencies 16.5% of revenue	6.6%	9.8
Currency effects on total revenue	**5.9%**	**53.6**

The sales-related expenses are in the same currency as the sales themselves, however. This natural hedging relationship is strengthened in the USA due to the fact that components of Software AG's R&D and global Marketing are based there. Software AG further utilizes derivative financial instruments for hedging. This mitigates the effects of exchange rate fluctuations on Group results. Furthermore, portions of the Company's liquid assets are held in the USA. Its hedging instruments are used to cover existing foreign currency receivables and payables and anticipated cash flows. All exchange rate risks are monitored centrally.

Risks from financial instruments

Liquidity and cash-flow risks concerning derivative financial instruments are eliminated by the fact that Software AG secures only existing balance sheet items or highly likely cash flows. Based on the financial instruments open on the balance sheet date, an increase in the market interest rate level by 100 basis points would have increased Group net income in 2022 by €1.0 million (2021: €2.9 million). Provided conditions such as revenue structure and balance sheet relationships remained constant and no further hedging transactions took place, this approximate correlation could be applied to future fiscal years as well. Under these conditions, a 10-percent decrease in the euro's value against the US dollar as of December 31, 2022, would have caused Group net income in 2022 to increase by €1.1 million (2021: €1.7 million). Constant monitoring of the relevant banks' creditworthiness helps Software AG minimize the risk of losing business partners with whom derivative financial instruments are concluded.

Other financial risks

Other financial risks include predominantly the risk of bad debt losses. No cluster risks exist due to Software AG's diversified markets and customer structure. Default risks in the long-term average are quite marginal as a result of the generally high level of creditworthiness on the part of its customers. To reduce the impact of these risks, Software AG uses an automated approval process for customer contracts, known as the Global Deal Desk, based on its own technology. To protect cash holdings, Software AG constantly monitors partner banks' creditworthiness and adjusts investment decisions accordingly.

GENERAL STATEMENT ON THE GROUP'S RISK SITUATION

While the assessment of individual risks has changed compared to the previous year, the Software AG Group's overall consolidated risk situation shows an essentially constant risk situation year-on-year.

The Management Board assumes that the risks are limited and manageable. No individual or consolidated risks can be identified that, due to the extent of their impact or their likelihood of occurring, are likely to jeopardize the going concern of the Company now or in the future.

SOFTWARE AG'S RATING

The necessity for an external rating did not arise because of Software AG's solid financial structure and employed financing instruments. There is currently no external rating of Software AG. Nevertheless, there are some facts that shed light on Software AG's external rating.

Based on the financial statements from December 31, 2021, as in previous years, Software AG was given central bank eligibility by the German Central Bank (Deutsche Bundesbank). This means that lending banks can use credit claims with Software AG as collateral for refinancing with the Deutsche Bundesbank.

Software AG's own banks were unified in their classification of its creditworthiness as investment-grade at the end of 2022.

Risk Summary

	Impact on EBIT in the next 3 years	Probability	Risk signal
Corporate strategy risks and opportunities			
Product innovation and portfolio	medium	likely	yellow
Growth in API Management, Integration, and Web Services	medium	unlikely	green
Development of Business Transformation	low	likely	green
Ongoing development of IoT & Analytics	medium	likely	yellow
Market risks and opportunities in the Adabas & Natural business	medium	likely	yellow
Acquisitions: pre-acquisition phase (selection)	medium	unlikely	green
Acquisitions: post-acquisition phase (integration)	low	likely	green
ESG	medium	likely	yellow
Product distribution risks and opportunities			
Sales efficiency and sales risks and opportunities	low	likely	green
Partnership risks and opportunities	medium	likely	yellow
Personnel risks and opportunities			
Employer appeal	low	highly likely	yellow
Legal risks			
Intellectual property (IP) right protection	low	unlikely	green
Data protection	low	likely	green
Information security	medium	likely	yellow