Digitalization and automation seem to rule every conversation, not stopping at companies’ Treasury departments. Over the last few months, KPMG has repeatedly delved into this topic in various studies, position papers and event talks, where it grappled specifically with the following questions:

- What does digitalization actually mean for the company’s Finance department, both in regard to applications and people?
- Do managers perceive their companies to be equipped to master these challenges?
- What kinds of measures are being implemented?

Whilst “automation” describes the transfer of process functions from humans to artificial systems, “digitalization” means the transfer from analog information or procedures to digital formats in order for processing them using IT systems. Therefore, the two concepts are somewhat interconnected and closely related to the use of progressive technologies.

In the KPMG study “Digitalization in Accounting” (2018), the most important technology trends mentioned are as follow:

- **Artificial Intelligence**
  Artificial intelligence aims to enable machines to perform human activities. In doing so, it imitates the human brain’s learning abilities and development.

- **Big Data**
  Big Data is characterized by the volume of data to be analyzed, which may be structured or unstructured, and also by the ability to analyze not only static data but (almost) real time data as well.

- **Blockchain technology**
  A blockchain is a decentralized data structure, which stores transactions in a transparent, connected and unalterable manner in a network and uses cryptographic mechanisms to verify the data across the network.
• **In-memory-databases**
  In-memory databases primarily manage data in a main repository on one or several servers. This greatly improves data maintenance and analysis.

• **Machine learning**:
  Learning systems recognize patterns in available data based on commonalities.

• **Rule-based systems**:
  Robotic Process Automation (RPA) is the robot-based process automation: bots take over the roles and duties of users, and interact with other systems.

• **Self-service reports**:
  Here a reporting environment is provided that allows managers and departments to intuitively access reports without having to involve the IT department and to independently analyze significant corporate data.

• **Virtual reality**:
  This denotes the presentation and the perception of reality and its characteristics in a computer-generated, virtual and interactive landscape.

However, what is striking is that the technologies mentioned above and the technology-based solutions have so far only been put to use in a rather limited fashion. However, the prerequisites are present in many cases already today.

Already in 2015, KPMG's Finance & Treasury Management unit took the term “Industry 4.0”, which is essentially concerned with the computerization of production lanes and coined the term “Treasury 4.0” in a position paper. The reason for this was that if IT was going to be such a significant factor for so many companies, then this would also be true for “Treasury 4.0”. Three trends underpin this theory already today:

1. The complex management options using so-called high-end treasury systems, i.e. integrated system solutions of individual providers that map all of Treasury's core functions and which allow a high degree of individualized configuration. The accompanying concept of “management by exception” represents the highest degree of automation.
2. The sometimes very inexpensive reproduction of core functions of Treasury using SaaS solutions.
3. The creation of the heterogeneous best-of-breed system platforms; in plain speak: solutions from different providers covering Treasury core functions with an integrated approach, by connecting various third-party applications to leverage the system.

This development is also mirrored in a paper by the Foundation of VDT Engineering & Service entitled “Minimum requirements in corporate treasury for operational and financial risk management”, revised in 2016, where the principle and description for a process-efficient Treasury department is defined as follows: “Optimizing or standardizing processes, structures and methods and implementing ideal IT enables an efficient management of finances and financial risks, reducing the efforts and costs for purely transaction-related tasks.”

Currently available systems and the system landscapes that can be configured with these allow a very high degree of automation of Treasury processes (“true straight-through processing”). This greatly reduces manual activities and makes work much more efficient. Simultaneously, the focus of Treasury activities is shifting to more analytical tasks. However, this makes an internal control system even more important.

The question now is how companies react to these obvious options. The KPMG study “Digital Finance”, where we presented the results from an empirical investigation on the digitalization of Finance departments in 2017 together with the Fraunhofer Institute, found out that very often, companies lacked specific projects and strategies to properly realign their department. Although 96% of the respondents understood the potential in digitalization and 59% expected digitalization to be a challenge, 3 in 4 companies had not implemented a digitalization strategy in their finance departments.

The results of another KPMG study, entitled “Digitalization in Accounting” put together in 2018 can be summarized as follows:
Homogenization and standardization remain focus topics for companies when it comes to digitalization:
The respondents give precedence to projects that are prerequisites for further steps in digitalization. In so doing, a main topic is the homogenization of basic systems used, the standardization of workflows as well as the quality of master data.

There is conspicuous restraint when it comes to new technologies:
Big data tools, self-service reporting or in-memory databases are currently used almost exclusively in pilot projects or are just being planned. First experiences have been made with bots (RPA) and a handful of companies are experimenting with machine learning.

The use of cloud computing is not yet pervasive:
Both private and public clouds are used only to a small extent and are not foreseen by most.

Both studies mentioned above epitomize one of the most important challenges, which could be a good explanation for the low degree of implementation: **new roles and new knowhow are just crystallizing in Finance departments everywhere (just as in all of the other core functions) and new abilities are becoming increasingly important.**

At a keynote speech at a KPMG Digital Treasury Summit recently held in Frankfurt, Germany, Martin Bellin stated that many of the reservations that employees had towards new technologies were caused by the fact that these often develop faster than we can understand them. Moreover, digital natives (i.e. those under 30) are slowly outnumbering digital immigrants, i.e. those above 40.

Younger employees often expect more changes and are more open towards these. Moreover, younger employees have a higher affinity towards technology and have a good grasp of the issues that arise when finance and IT meet. More experienced employees, on the other hand, react to changes with more aplomb and can better estimate their long-term impact. They are characterized by financial knowledge that they have acquired over many years and a better understanding of the resulting interfaces and dependencies. The success of a department lies in identifying the different abilities of the various employee cohorts and to combine these in different ways to the benefit of the cause at hand.

The tasks in the finance department will continue to change. On the one hand, the job specifications are changing because more analytical thinking will be required. On the other hand, fewer employees will be necessary for repetitive and standardized tasks. In consideration of these circumstances, companies should rethink their HR strategy in regard to continuous professional development (CPD) but also in regard to their hiring policies.

In conclusion, the success of automation strategies and the entry into a digital era depend very much on human factors: the individual employees and a holistic HR strategy.

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Management of the market price risks of currencies, interest rates and commodities in connection with derivative financial instruments inevitably also entails counterparty and liquidity risks. The strategic and operational management of this overall risk exposure will bring its own challenges (and possible solutions) for the Treasury of the future.

**Management of market price risk as a source of counterparty and liquidity risks**

For most Treasury departments in large international groups and medium-sized companies, the management of market price risks from interest rate, currency and commodity markets is an important task. These risks are typically hedged using derivative financial instruments such as (interest rate) currency swaps, FX options, commodity futures, etc. Over time, these instruments are revalued with either a positive or a negative market value.

Depending on the contracts’ structure, liquidity risks arise from cash-secured contracts in the case of futures and CSAs, or counterparty risks in the case of unsecured contracts.
As the graph shows, counterparty risk, market price risk and exchange rate risk as well as liquidity risk arising from margin agreements or other collateral requirements are directly related to each other. Hence, if the market price risk is managed using derivatives, as most companies do, this inevitably entails counterparty risk and/or liquidity risk. Group-wide risk management must therefore use an integrated approach to balance and manage these risks. In view of the limited resources available to cover these risks (e.g. extent of risk-bearing capacity, availability of liquidity), a management decision must be made as to how much overall risk is acceptable for the company, how the risk capital should be allocated to the individual risk types and which risk strategy should be applied to the individual risk types. When deciding on how to design risk management functions and methods, the importance of each risk and the interdependencies between them must be taken into account and assessed.

**Integrated risk management in Treasury’s day-to-day operations**

The joint management of the three risk types should be based on an integrated approach which first defines the associated risk strategy at Group level and then defines the overall risk-bearing capacity and the distribution of the individual risk types.

Depending on the company’s individual situation, the risk assessment and thus also the resulting strategic structure of treasury management can vary greatly.

If, for example, the company’s market price risk is negligible compared to its sales and profitability, it suffices to monitor this assessment at regular intervals using scenario analyses of future market prices and their ability to be passed on to customers.

In the current interest rate environment, liquidity risk is often not that significant due to high cash holdings, or the margin risk is negligible in relation to the liquidity risk arising from the operating business. A suitable strategy may then be to fully bear the liquidity risk in favor of eliminating market price and counterparty risk. Operationally, this would mean concluding CSAs for a large number of OTC transactions and collateralizing them with cash collateral.

If, on the other hand, a company has low cash reserves and high financing costs or tight covenants in financing contracts, its strategic considerations will be based on different premises. In such a situation, the choice must be either to bear a certain portion of the market price risk or to exchange the undesirable liquidity risk for a higher counterparty risk by concluding unsecured OTC transactions.

These strategic decisions should be based on the fundamental premises of risk-bearing capacity and sound modeling with scenario analyses for the individual risk types’ risk level. When building the model, in addition to taking into account current and future exposure levels, market price volatility and changes in creditworthiness, the modeling process must also take into account other macroeconomic factors. The great advantage of considering counterparty risks and liquidity risks together lies in the synergies for the modeling and the implementation of the model for both risk types. This is due to the fact that for both risk types assumptions about future market price developments must be made and appropriately mapped. This applies on the one hand to the actual modeling of the risk measures, but also to the related scenario analyses, which can be covered with a common tool set.

Particularly when analyzing liquidity risks, liquidity risks arising from operations should not be neglected thus allowing for a sound overall view of the Group-wide liquidity risk. At present, models using AI and mass data, for example from the ERP system, are increasingly being used, which can significantly improve the quality of both forecasting and risk measurement.

The latest models for assessing market price risk, liquidity risk and counterparty risk are very similar in their methodology and IT implementation, and are based on proven quantitative models. The risk levels strongly correlate to the data sets required (i.e. information on current exposures, mark-to-market, counterparties, internal and external ratings, market prices, volatilities, etc.) and the models used. Regarding the employees needed to identify, analyze, measure and manage these risks, one would want an integrated team of risk management specialists to achieve maximum synergies and to enable smooth operations.

In addition to performing an initial scenario analysis and defining the risk strategy, it is recommended to standardize and automate these models and analyses, which are then transformed into a rule-based process on a monthly or quarterly basis.

Counterparty and liquidity risks in Treasury – two sides of the same coin. November 2018
From accounting to integrated credit risk management

When recognizing financial instruments in the balance sheet in accordance with IFRS 9 and 13, credit risk must also be taken into account. The calculation of the credit valuation adjustments for all financial instruments measured at fair value, including electricity and gas supply contracts that do not meet the “own use exemption” criteria and the measurement of expected credit losses for financial assets not measured at fair value (including exposures) are based on credit risk models. In the past, many companies limited their treatment of credit risk arising from derivative financial instruments to covering the (minimum) measurement requirements of IFRS 13 in order to determine the fair value. The same applied to their meeting the requirements for the impairment of credit-impaired financial assets in accordance with IFRS 9. In view of an integrated risk management and the liquidity risks to be considered simultaneously, it now becomes apparent that the models are by no means solely necessary for the purposes of the financial statements, but that with a little additional effort, they can also manage operational credit risk, thus generating real added value.

Conclusion

In recent months and years, many companies have started to scrutinize counterparty risk more closely, primarily as a result of the accounting standards IFRS 9 and IFRS 13. At the same time, because liquidity management methods have been automated, they have also significantly improved. Now that companies are largely up to speed, in a next step they should focus on managing both risk types, which offer a great deal of synergy potential due to methodological similarities, by bringing them together both from an operations and an IT approach and dealing with them in a strategy covering both aspects. This can significantly contribute to the improvement of risk capital allocation and the better allocation of risk and liquidity costs to business activities.

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