OPERATIONAL RISK OF ACCOUNTING DIGITALIZATION

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Abstract: Automation of accounting is a trend which requires deep research to mitigate possible risks and to make legal background for standardization. On the real sample of 10 SMEs from Slovakia, we have investigated possibilities of implementation of automatic processing of received invoices including automatic AI solutions capable to withdraw relevant data from an invoice and import withdrawn data into accounting software for further processing. There are several available solutions capable to perform the task. By evaluation of possibilities for small SMEs we came to the conclusion that such solutions are possible and may be viable even for SMEs. As automation of processing received invoices may be viable for SMEs, it can become an industry standard. This research also shows that in Slovakia current accounting act prevents implementation of accounting automation based on AI due to not considering possible error rate caused by such automation.

Keywords: Accounting, digitalization, Operational risk, management.

1. INTRODUCTION

Accounting digitalization and automation is the current trend (Rada et al., 2023) aiming to fully replace accountants by a form of an artificial intelligence solution (Kommunuri, 2022). Occupation of an accountant is considered as one of the most endangered by an artificial intelligence (Tokic, 2018). Introduction of an artificial intelligence accounting bears several concerns, processes and legal questions which must be solved first (Song et al., 2014). Using any form of accounting automation requires to use accounting data, including digitalized accounting documentation. Paper accounting documentation is not suitable for AI based automated accounting despite of some form of automated accounting is possible using accounting data only. For legal purpose, audit purpose and regulatory purpose, accounting documentation which corresponds to the accounting records must be easily accessible. The use of digitalized accounting documentation is essential for the accounting digitalization, especially for companies processing significant amounts of accounting records.

Automation of accounting can be handled in two levels: 1. Automation of repeating operations (Holmes & Douglass, 2022); 2. Automation of accounting general. While the first

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level of automation requires automation of accounting based on algorithms, the second level require adoption of an artificial intelligence capable to evaluate data while processing the data, and capable to provide required outputs (Kommunuri, 2022).

In Slovakia, there are currently several solutions available on the market capable of automated reading and processing of invoices (Vlčko & Melchuová, 2023). These solutions are based on AI neural network solutions (Tumpach et al., 2020). Applying any of these solutions and connecting it to the accounting software provides environment capable to receive, proceed, and account any received invoice of a standard, repeating, business operation of an investigated company (Chyzhevska et al., 2021). While the processed received invoice is from a supplier who regularly supplies to the company, the only necessity is to verify whether the invoice is justified. There are several possible solutions such as reconciliation of invoices to orders or any other similar logical reconciliation to a company operation. In small companies this could have been done by an accountant who knows the company operation and is capable to verify whether received invoice is justified. In larger companies with several divisions or locations an automatic verification solution shall be implemented, otherwise a human intervention would be necessary. Similarly, if an invoice of a not regular operation is received there have to be implemented process of verification whether the invoice is justified. If the company has the power, considering its market significance, it can dictate to its suppliers to use dedicated gateways to deliver invoices. Such solution can be used for implementation of automatization of verification whether the invoice is justified. Small companies are not able to require its suppliers to use dedicated business correspondence digital gateways. Small companies just have to receive invoices by standardised correspondence forms such as email, cloud, post etc. Government can require using dedicated digital gateways to deliver the invoices which is capable of implementing automated verification of justification of invoices. Legal requirement to use dedicated governmentally controlled gateway for all standardised business correspondence such as invoices have been proposed in Slovakia by accounting act novelisation draft (PI/2021/6 Predbežná informácia k návrhu zákona o zasielaní údajov finančnej správe z faktúr daňových subjektov. slov-lex.sk, n.d.). Due to significant number of notes to this novelisation draft, the draft has been withdrawn. Nevertheless, automation of accounting starts with automation of processing received accounting documents. The chart of receiving accounting documents in order to proceed them automatically is shown in the Figure 1. Once the data from the received documents is imported the process of automated accounting could be implemented in place. Automatic accounting solution must be able to proceed the operation correctly to avoid misconduct or misinformation to the users of the accounting information (Francis & Schipper, 1999). In Slovakia, improper accounting can be penalised up to 3 milion € (Act No. 431/2002 Z. Z. on Accounting, 2002). Accounting act in Slovakia does not apply materiality threshold for automated accounting as it does not cover automatic accounting at all, therefore any, even immaterial error is considered as breach of the accounting act and may be subject of penalisation. This example shows that not only technical capabilities are subject of consideration but also operational risk including legal risks must be considered when accounting automation is being implemented.

Automation of accounting does not come without a cost (AlNasrallah & Saleem, 2022). Implementing costs, operational expenses of automated accounting and risks must be considered in comparison to the current human operated accounting expenses. Human operated accounting expenses are represented mostly by wages. In this paper, the research is focused on possibilities of automated accounting for small SMEs which are already established on the market, and which has their operations well established already. In comparison a start-up which does not have its processes yet established or well stablized it might be easier to start its
accounting operation as automated from the very beginning. SMEs represent 99.5% of all business in Slovakia (OECD, 2020).

Figure 1. Process of obtaining accounting document for further automated accounting (Own processing)

As the human driven accounting is well established, the processes, risk and standardised terminology are well described (Agostino et al., 2022), when researching the automation solutions of accounting, the possible bias shall be mitigated. Replacing humans by machines, robots or AI in general is a sensitive issue which widely exceed possibilities of publication in this paper and exceed possibilities of our research. Even thou, it is essential to mention that labour market in Slovakia in recent years shows higher demand than supply of available human accountants. As the trend swells for several years now and have not been affected by Covid-19 crisis and considering the demographic trends in Slovakia (Vaňo, 2019), and in Europe in general, it does not seem to change. Due to lack of accountants on the labour market (Vlčko & Meluchovà, 2022) and legal requirement to perform accounting for every company regardless its size or volume (Act No. 431/2002 Z.z. on Accounting, 2002; Vlčko & Meluchovà, 2021), it is natural that missing accountants must be replaced somehow by machine-driven solutions to avoid reduction of companies on the market.

2. METHODOLOGY OF RESEARCH

On a random sample of 10 SMEs from Slovakia we evaluate possibilities of automation of accounting in 1st level – automation of repeating accounting operations. The sample have been taken randomly. Data have been provided by an accounting company with condition to secure anonymity of evaluated companies in order to protect business secrets. To evaluate volume of repeated accounting operations we reduced research to evaluation of the number of received invoices. There are usually also other areas in companies which could be evaluated such as number of issued invoices, number of monthly salaries, etc. These could be matter of further research papers. Every company operates in specific environment dealing with specific issues. Therefore, it is impossible to generalize the approach to every company. Dealing with received invoices, issued invoices and employees is common for every company. In Slovakia
not all companies are required to account a warehouse through the year. Only audited companies are required to account warehouse through the year (Act No. 431/2002 Z.z. on Accounting, 2002). All other companies can voluntarily account a warehouse through the year. In this sample no company book the warehouse through the year, so this agenda is not investigated in this research. By analysing market available solutions, we have evaluated possible application of automated solutions of importing received invoices data gained by AI processing of the invoices and automated relevant information extraction from an invoice. No matter whether the accounting software itself is capable to extract data form the invoices, every accounting software is capable to import data from another source via standardised data bridge. This research shows that regardless of the accounting software in use, the process of automated data extraction is technically possible and financially viable to implement even for small SMEs.

Risk assessment of automated invoices data extraction have been carried. Out of the possible risks, there has been identified three currently highest probable risks: Erroneous data extraction without recognition results to incorrect financial statements; Penalisation for breach of accounting act if an unrecognised error occurs; digital data archive corruption or breach of data protection. All of these risks could be mitigated applying proper measures. Each of these risks could result into bankruptcy if penalised according to current legislation in place in Slovakia. Despite of advantages of automation invoice extraction and automation of accounting in terms of expense savings, the risk management is necessary to avoid possible loses. Therefore, this research shows that not only expense savings shall be considered, but also risk management is necessary to be considered when a company considers implementing accounting automation in any form or any stage.

2.1. Sample overview

Average number of accounting documents in 2020 is shown in Table 1. Every company is different. Some issue many invoices, others issue few invoices. There are companies which issue zero invoices, and their revenues are being gained by retail cash operations.

<table>
<thead>
<tr>
<th>Company</th>
<th>Accounting records</th>
<th>Received invoices</th>
<th>Issued invoices</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>3615</td>
<td>343</td>
<td>0</td>
</tr>
<tr>
<td>b</td>
<td>8435</td>
<td>220</td>
<td>171</td>
</tr>
<tr>
<td>c</td>
<td>10743</td>
<td>787</td>
<td>1138</td>
</tr>
<tr>
<td>d</td>
<td>4320</td>
<td>316</td>
<td>12</td>
</tr>
<tr>
<td>e</td>
<td>5002</td>
<td>342</td>
<td>10</td>
</tr>
<tr>
<td>f</td>
<td>1976</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>g</td>
<td>2473</td>
<td>207</td>
<td>126</td>
</tr>
<tr>
<td>h</td>
<td>4423</td>
<td>162</td>
<td>0</td>
</tr>
<tr>
<td>i</td>
<td>6314</td>
<td>452</td>
<td>0</td>
</tr>
<tr>
<td>j</td>
<td>99</td>
<td>11</td>
<td>1</td>
</tr>
</tbody>
</table>

Information of issued invoices is only for better overview of the sample. As the process of issuing the invoice is being done in the same ERP as the accounting, the issued invoice is a product of more complex operations which as performed in the same system can be made automatically or semi automatically.
3. RESULTS AND CONCLUSION

Invoices from suppliers are being received to the company by email in PDF, by a gateway in PDF, by post in paper form or by paper form together with the supplied goods. If the invoice is being received electronically in PDF format, it can be automatically forwarded into the software capable to withdraw relevant information out of the PDF. If the invoice is received in paper format, it must be scanned first. Scanning of invoices require human intervention always. Scanning of paper invoices can be implemented into already established process in the company, for example: invoices can be scanned right at the reception desk immediately as received. If received together with goods, the invoice can be scanned right at the moment of receiving goods either by warehouse employee or by a lorry driver, depending on who from the company receives the goods first. Received paper invoices can be verified whether they are justified right at the process of scanning by a person who scan an invoice. The digitally received invoices must be verified for justification by an automatic verification process. This research shows that the process of automation of processing received accounting documents is possible and viable even for SMEs with low turnover and low volumes of accounting documents. As the prices of available solutions are decreasing due to competition, automation of processing of received invoices may become an industry trend or an industry standard. Automated extraction of received invoices and following automated processing saves salary expense which affects possible government salary tax revenues. Automation in general, not only in accounting, is sensitive topic which shall be solved broadly across the industries with consideration of possible risks. Automated processing of received invoices can become standard only when proper legislation would allow so, including consideration, evaluation, and possible correction of possible error rate. Accounting automation, especially using AI capabilities, technically predate legal environment. Lack of legal guidelines and barriers results in operational risks for the companies which implement such solution. For developers, lack of proper legislation implies uncertainty whether developed solutions would be profitable. AI capabilities without proper legal environment may be misused to overturn aims of original accounting acts goals. Wide implementation of accounting automation shall also include adaptation of IFRS (IFRS Accounting Standards, 2022) and IFRS for SMEs (International Financial Reporting Standard for Small and Medium-Sized Entities (IFRS for SMEs), 2015) to new accounting processes, challenges and risk coming from automation. Lack of accounting automation standards may result in financial disadvantage for those pioneers who later would be forced to change their pioneering processes due to new accounting automation standards if the accounting automation standards would be once released.

Once it would be standardised, legally covered, to avoid human accountant to proceed a received invoice, the legal questions and risks must be properly mitigated. For now, the further research is needed and welcome to help mitigate possible risks of implementation of accounting automation solutions for companies. Academic research shall provide outputs to legislation makers and accounting standards setters to set up proper standards for the safe sustainable business environment.

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REFERENCES