Evaluation of ERP products for the Management of Economic Processes on the Czech Market

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Abstract: This article is targeted on the problems and issues relating to the management of economic processes in an enterprise as one of the key ancillary processes in an ERP system. The article goes on to define and delimit the individual sub-processes as well as the relationships between them. The management of economic issues is then confronted with the opportunities and possibilities offered by the functionality of ERP systems – i.e. the software applications without which it would be difficult to imagine the integrated management of an enterprise as a whole, including its coverage of economic, production, logistics and Human Resources issues. The article further summarizes the observations and findings of the Center for invEstigations into Information Systems (CVIS) and presents the main results and outcomes of their research into the Czech ERP market with an orientation on its coverage of economic process ERP systems.

Keywords: Enterprise Resource Planning (ERP), Business Processes, Economic Processes, Financial Accounting, Tax Accounting, Through-flow Accounting, Managerial Accounting, Cost Accounting, In-house Accounting, Budgeting, Calculation, Decision-making Roles, Cash-flow Management, Controlling, Reporting Statements, Activity Based Costing, Balanced Scorecard.

1. Introduction

From the very beginnings of its existence, the Center for invEstigations in Information Systems (CVIS) has devoted itself to defining the terminology in the field of ERP systems as precisely as possible – both for itself as well as for interested parties among its members and partners [1,2]. The general foundations for research investigations in ERP systems, their classification and effective exploitation in enterprises served to create the cardinal monographic oeuvres of Professors Jiří Voríšek [3] and Zdenek Molnár [4] at the end of the Nineteen-Nineties and distinguished oeuvres from abroad by world-renowned research organisations like Accenture [5] and Deloitte [6]. The last mentioned pair of works serve, together with the professional publications of T. H. Davenport [7], T. Stevens [8], and D. L. Olson [9,10], as the basis for our own classification of ERP systems. We define an information system in the ERP category as being an efficient and effective tool or instrument which is able to cover the planning and management of the main internal processes within an enterprise (i.e. resources and their transformation into outputs) - and this, at all levels – from the operative to the strategic. By the term “Internal Processes”, we mean those processes over which the management have full control – and are thus, the owners of the same. Among these key internal processes are: production, (purchasing, sales, and internal) logistics, human resources management and economic (financial) issues.

Some of the most important characteristics of ERP systems are:

- The automatisation and integration of the main/core business processes;
- The sharing of data, procedures and their standardisation across the whole enterprise;
- The creation and making accessible of information in real time;
- The ability to process historical data;
- A holistic approach to the implementation and use of an ERP concept [1,2].

Among the main requirements made upon an ERP system are:
• The realisation of measurable benefits and contributions in the field of reducing the overall structure of costs arising from the ineffective management of an enterprise;

• The realisation of non-measurable benefits and contributions in the field of the management of business processes and the accessibility of information in real time.

CVIS also devotes a substantial part of its time and research capabilities to the analysis of ERP systems from the process point-of-view and their practical applicability in the course of the management of standard as well as specific business processes. To-date, we have oriented ourselves above all on the support of value-creation chains – especially in the fields of planning and managing production [11]. Since 2008, we have equally conducted more detailed research into the support processes, and especially into the management of economic processes.

The following chapter provides a summary of the basic perspectives and starting points for research into the support of economic management in ERP systems and selected outcomes and results of research conducted in Czech manufacturing and commercial enterprises, and this within the framework of foreign as well as Czech ERP systems.

2. Overview of the Main Outcomes

2.1 The process-based management of an enterprise

The basis for the success of any enterprise is constant improvement at all of its levels as a response to the constantly changing entrepreneurial environment. It is thus not enough just to reduce costs and to improve the level of managerial decision-making. The foundation-stone for long-term stable growth of an enterprise lies in the systematic and long-term management of innovation. Enterprises manage innovation especially in the fields of products and services, cooperating with suppliers and customers, and especially on the level of the enterprise´s processes. All of these innovations are interlinked and mutually influence one another, and each type of innovation has an impact upon the enterprise´s processes.

The management of these innovations do not directly require the realisation of new processes in the whole enterprise; on the contrary, it presupposes the flexible integration of the requisite changes, including so-called Best Practices – i.e. a standardised approach reflecting worldwide experience with the management of a company´s processes.

In today world, the key role in the course of the implementation of these Best Practices is played by modern information systems in the ERP category. A crucial and fundamental condition for its maximal effectiveness is the process-based management of an enterprise. This considers the organisation as a set of business processes, which interweaves through the individual departments and provides its outputs either to the internal or the external customers of the enterprise. A process-based organisation tries to organise and manage work as a unified process, which is sub-divided into its individual, mutually logically interlinked sub-processes [2,12,13].

The potential for improvement only of individual activities in these processes is limited – the greatest savings often are to be found in “hidden” places in these processes. In the course of looking for potential improvements, it is essential to look at the process as a whole and to search for improvements in the team of workers who share in the performance of that process. The outputs of these processes are taken right up to the customers – the individual processes are dependent upon each other and have to work together. In order to be able to manage these processes, we have to have pre-allocated aims and a chosen method for their measurement. The final consequence of the improvement of individual processes influences the whole of the value-creation chain within an enterprise, which then produces value-added for the customer [12-14] or, even better – supported by a modern ERP/SCM solution, which fulfils an integrative role within the framework of the supplier-customer chain, and generates value throughout the whole network structure [2].

The implementation of process-based management leads especially to reductions in costs, increased speed and quality, increased use of the invested assets, increased value-added for the customer, the possibility of quantifying some of the phenomena and increased precision in forecasting future events, the ability to achieve mutually incompatible goals, supports teamwork and engagement-levels of the members of the team, averts the endless implementation of the widest variety of managerial approaches and procedures, etc.

The process-based management of an enterprise brings with it a whole range of benefits, but nevertheless cannot take place and avoid certain negatives. Many managers confuse these negatives with problems which the introduction of a process-based management approach evokes – like for instance, the short-term chaos entailed or increased demands upon time spent at work. It is not
possible to convert to a new way of working from one day to another, and for this reason the old and the new systems will have to co-exist side by side until such time as the new approaches take hold and embed themselves into the company culture. An often-discussed negative effect in working praxis is almost always connected with the dismissal of employees. An enterprise can influence this situation however by reallocating employees other jobs, cancelling some of the outsourced activities, stopping the practice of project-related employment, reducing overtime or halting the induction of new staff prior to the realisation of the transformation process [13-15].

2.2 Economics as a support process

We can characterise support processes as a process which provides value-added, which does not take place across the full spectrum of the enterprise, which does not have external customers and which does not generate sales. According to Brady, Monk and Wagner, we can include the following among the economic processes of an enterprise: Financial Accounting, Cost Management, Planning and Budgeting, and Cash-flow Management [16].

At the same time, we can sub-divide Accounting into the following three basic branches:

1. **Financial Accounting** – The main purpose is to provide trustworthy information about the financial situation and operations of the enterprise in the form of financial statements for a variety of different users.

2. **Tax Accounting** – The main purpose of which is to depict the activities of the enterprise such that these will serve for taxation and state requirements (and especially for the correct declaration of the income tax basis).

3. **Managerial Accounting** – Whose main purpose is to provide the requisite information especially to managers at all levels for the management and evaluation of the enterprise [17-19].

A system for the management of economic processes based only upon financial accounting information is unable to fulfill the requirements of the contemporary turbulent environment. It is necessary to complement the view of the past (i.e. feed-back) by predictions of future events (i.e. feed-forward). This perspective was often applied by Tomáš Baťa in his time [2] in his system of internal company accounting practices, which included calculations, budgeting and operational accounting (i.e. accounting within the individual workshops). Today, this whole system is called Managerial Accounting. The authors Brady, Monk and Wagner not only include Financial Accounting among the economic processes, but also the individual elements of Managerial Accounting [2,16].

2.2.1 Financial Accounting

The basic function of accounting is to provide all of its users with reliable information about just how a given company is economically capable and efficient. Accounting is required to provide information especially about the financial situation (statements in the form of balance sheets) and financial efficiency and performance (in the form of profit and loss accounts) for a given period. Accounting information is intended not only for managers, but also for a variety of external users who are interested in the enterprise for a wide number of reasons [20].

Financial Accounting processes all of the accounting matters that express changes which occur in the enterprise’s property and assets and related accounting units as well as tracks costs and benefits/contributions from the point-of-view of the accounting units as a whole. **Financial Accounting is not concerned with questions relating to the management** of accounting units as a whole nor of their subsidiary organisational elements; neither does it resolve the problem of how to arrive at data about the quantity and prices of produced goods and services that have been created, but rather, of the as yet unrealised inventory (e.g. unfinished products, sub-assemblies and products), which the enterprise has created as a result of its own activities [20,21].

When recording financial accounting, one must not forget to uphold the general accounting principles (e.g. the assumption of accounting units, the duration of the enterprise, the accrual principle) as well as valid legislation. Among the basic legal framework of Czech Accounting practices is the Law on Accounting, the accompanying proclamations to that law and Czech Accounting Standards. In Europe as well as here, the financial and taxation accounting systems are mutually interlinked and intermingled; in addition, the tax rules and laws have a significant impact upon the accounting procedures of financial accounting – which under certain circumstances are significantly impacted [22,23].
2.2.2 Managerial Accounting and Controlling

The depiction of economic phenomena is, in Managerial Accounting, subordinated a priori to the requirements of the top management of the enterprise. Especially problematical evaluations are, within the overall framework of this type of accounting, resolved rather on the basis of a view to the future rather than on the basis of historical prices, - which are given preference by Financial Accounting. Managerial Accounting makes use of valuations on the basis of pre-set quantities, at the level of Opportunity Costs and Benefits (expressing “lost” benefits or saved costs) or else on the basis of a wider understanding of reproduction prices. This enables one to track the results from the sale of individual products or services for instance [18,24].

The most frequently cited components of Managerial Accounting are:

- Calculations;
- In-house accounting;
- Budgeting;
- Decision-making roles.

In the USA and Great Britain, the concept of Calculations is unknown; however, they make use of so-called Cost Accounting [25].

Operations within accounting units are the domain of In-house Accounting, which usually tracks operations according to the individual internal departments and within their framework, also according to the individual performance and operations of the enterprise. The forms, organisation and orientation of this in-house accounting process is determined by the Accounts department itself in line with internal rules and regulations. Czech legislature only states that in-house accounting must ensure verifiable supporting materials for the financial accounting process on the following:

- About the state and changes to the state of inventory created by one’s own activities;
- In order to express the activation of one’s own performance;
- For the valuation of inventory and other performances created by one’s own activities.

In-house accounting may be organised within the framework of analytical accounts for financial accounting purposes or in independent accounting spheres, or as the case may be, a combination of both approaches [21,24,26].

According to Professor Jiří Vysusil, choice between one’s own production and purchasing, the optimisation of costs, the analysis of critical points, valuations of investments, pricing decisions and other such are all decision-making roles. In addition, investment calculations and budgeting are an independent component of decision-making roles. These should show whether or not the planned investment makes sense. Here, well-known methods like Rate of Return, NPV – Net Present Value, or IRR – Internal Rate of Return are all used. If the Managerial Accounting is to be of good quality, it must confront differing variants of the decision-making problems and must know how to select the best possible variant [18,25,27].

While financial accounting is usually managed by the Chief Accountant, the function of Controller has specially been created for the management of Managerial Accounting. All this was developed and applied in Anglo-Saxon countries. European countries reacted to the origin of Managerial Accounting in two ways. Some adopted it, adapted it and further developed it in line with their own needs, while others changed the designation of Controller into Controlling (which is totally unused in the USA) to describe the duties and functions of this work, and in the end, even a whole new discipline of the theory of management. This conception has been furthest developed in Germany (P. Horvath, H. Vollmuth) and Austria (E. Eschenbach). The duties and functions of Controlling are richer than those of Managerial Accounting, and this is mainly because a strong emphasis is placed not only on Operative, but above all on Strategic Controlling [25,27,28].

Professor Jiří Vysusil also mentions that Managerial Accounting and Controlling stand - theoretically and practically, opposite each other despite the fact that they both have the same goals and almost the same methods [25].

Controlling has continued to develop in business praxis and has become an indivisible part of every modern enterprise. In spite of this, there are significant differences of opinion between theory and practice about the term Controlling. It is not possible to find an unambiguous one word equivalent for this term in the Czech language, which is why it is never translated.

However, the following main functions are often allocated to Controlling:

- Planning (the creation of a wide variety of differing plans);
- Provision and documentary needs (ensuring requisite high-quality information);
- Controlling and analytical (controlling the enterprise’s processes, their analysis and detecting probable deviations);
- Reporting (a complex system of indices and information, often in the form of concrete statements and reports) [17,29].

The professional literature oriented to Managerial Accounting, or respectively, on Controlling mentions an enormous quantity of widely differing methods, approaches and indices. It is clear that such an extent of analyses and plans is impossible to master, not so much for technical reasons, but rather due to time constraints. Among the most frequently mentioned tools are:

1. Type, calculation and capacity classification of costs;
2. Cover contribution (their contribution to covering fixed costs and profits);
3. BEP – Break Even Point;
4. Short-term commercial results;
5. Breakdown of deviations from plans or budgets;
6. Cost, or respectively, profit centres [18,24,26-28,30,31].

Controlling is thus, truly often a much more demanding set of tools, than the simple controlling and meeting of plans or budgets. It is therefore possible to consider them as a component of a MIS – Management Information System.

From the above, we can assume the point-of-view that the management of economic processes within the enterprise must have well-mastered financial and managerial accounting sub-processes. The information from these areas is then used by the Controller, and should be at least at the level of the above-mentioned MIS.

3. Research Methodology

The key for establishing an appropriate research methodology in the fields to be investigated is an understanding of the meaning and significance of so-called methodological triangulation – i.e. the combination of the qualitative as well as quantitative methodological approaches as a full-valued research alternative [32]. One decidedly cannot do without qualitative methods, which is confirmed on the one hand by investigations by world renowned researchers, and on the other by CVIS’ own research activities.

The CVIS performs research investigations in the Czech ERP market on an annual basis - since 2000. The research methodology used by CVIS are based upon their own experience [2] as well as observations and expertise defined in the professional oeuvres of authors like Gill, Johnson [33] and Pavlica [32].

The research investigation itself is realised in the following way:
1. A questionnaire is sent out to provider/supplier organisations, in the form of a quantitative questionnaire complemented by a qualitative control of the data provided (e.g. by telephone calls to their customers to verify selected references and the correctness of the data about the functionality and other aspects of the ERP solution).

2. Qualitative questioning of users as well as supplier/provider organisations in the form of market research and discussions, which are then processed into case-studies.

The aims of the research are:
1. To prepare an overview of the ERP market for prestigious Czech publications like Extra Publishing and CCB.
2. To verify general theories about the ERP market, and to generate situational and contextual interlinked theories.

In order to realise the individual investigations, the authors make use of their own prior experience of research into the Czech ERP market. The selection of the sample is deliberate, and on the basis of the following requirements and principles:

1. To acquire data from the maximum possible number of provider/suppliers of all of the information systems available on the Czech market that have ERP functionality, and to do so through repeated questioning.
2. To exploit personal contacts with concrete individuals responsible for solutions in the management teams of the provider/supplier companies, because of the motivational factor and to evoke their interest in the results of the research.
3. In the course of creating the sample of respondents for the purposes of the research study, emphasis is placed on ensuring that the given sample corresponds to the basic set and thereby, includes everyone who fulfills the set conditions – which are that they are domestic producers of software applications in support of ERP systems as well as representatives of world-class software corporations in the Czech Republic and who provide ERP systems here.
4. Thus, the aim is the maximisation of the number of respondents, and at the same time this is done with an awareness of the potential risk of simplifying techniques and a certain level of superficiality of responses.
5. Previous experience has shown that, in the course of researching the local ERP market, it is not valid to say that there is a direct proportionality between the size of the sample under investigation and the simplification of the techniques used and thereby, also reducing the responsive ability of the questionnaire. Respondents are sufficiently motivated to provide exhaustive responses through the possibility of making presentations of their products in professional publications – and which they also understand and take to be a certain form of promotion of these products.

The high levels of responsive ability, validity and reliability of the research investigations are based upon the following principles:

1. If new questions are included in the questionnaire, a pilot research study is undertaken on a small sample of respondents such that it is possible to verify if the questions are properly and clearly formulated, and whether they are clearly understandable or not.
2. The investigated sample of respondents is deliberately selected; in 2008, it represented almost 90 % of the basic sample, from the perspective of the number of implementations of the ERP systems under investigation.
3. The information acquired through the questionnaire is verified over the telephone and in selected cases, confronted by calls to customers as well as being confronted through qualitative questioning (i.e. market research and discussions).
4. The reliability of the research studies are based upon their annual repetition of the verified methods and approaches used, while deviations of results are tracked and controlled over time.

In view of the above-mentioned facts, it is therefore possible to generalise upon the outcomes, results and conclusions gained through the written responses to the questions posed.
4. Research Characteristics

In collaboration with CVIS, a quantitative research study was performed on providers of ERP systems in the Czech Republic. The selection of these providers was based not only upon the long-term research investigations conducted by CVIS, but also that of the overview available on the online portal: SystemOnline. In all, some 81 providers were approached, of which 75 returned a duly completed questionnaire (i.e. a rate-of-return of 92.6%). This sample corresponds almost 100% to the Czech market for ERP systems and in addition, it also represents more than 20,000 references from the point-of-view of the number of implementations (i.e. ERP projects) in the Czech Republic as of the end of 2008; and for these reasons, it is possible to consider these results as sufficiently representative and to use them for generalisation purposes. The questionnaire-based investigations took place in July, 2009 and June, 2010.

According to the specifications of the European Commission [2], the information systems providers in this research survey fall predominantly into the small-business category. If we take turnover volume (i.e. up to 220 million CZK), then 58.7 % of all providers are represented in our sample; and if we take employee numbers (up to 50 employees), then it is around 48%. Medium-sized enterprises rank second, and only a small part of the sample can be classified as large-scale enterprises.

At present, the ERP systems market in the Czech Republic **is dominated by Czech-made products.** This fact has been a long-term result arising from the previous investigations conducted by CVIS [2]. Another significant representation is that of American and German information systems. All of the foreign products are however localised to meet the conditions prevailing on the Czech market - and especially as regards their compliance with Czech legislative requirements (e.g. the problems and issues of financial accounting practices).

An important criterion for the selection of an information system is its ability to resolve problems with the management and controlling of the value-added chain processes, especially in the areas of production and logistics. For these reasons, organizations often choose their provider according to branch or sector-specific solution and on the basis of references from others in the field. These sector-specific solutions contain pre-defined operations typical for the chosen field of business. In the context of the actual implementation of the information system, the chosen solution is then further modified in line with the specific requirements of the customer.
The manufacturing and production field is represented above all by mechanical engineering (78.7 %), electro-technical engineering (70.7 %), consumer goods production (69.3 %) and the metal-working (64 %), furniture-making (62.7 %) and automobile (61.3 %) industries. On the other hand however, solutions are also on offer for the mining, forestry and wood-processing, glass-making, military or aircraft production industries. The non-manufacturing sector is predominantly represented by wholesale (74.7 %), retail (64 %) and transport (42.7 %) organizations. Sector-specific solutions are also offered for the banking and insurance industries, educational establishments, or health care or public or state sector organizations.

Some of the ERP systems providers, apart from specialising in sector-specific solutions (Best-of-Breed), also orient their efforts on organizations according to their size. Representation is almost balanced in the small and medium-sized enterprises segments as well as in the large-scale enterprise segment. The majority have ERP systems intended for all types of organization. None of the ERP systems investigated however is intended only for small businesses – the reason being above all, the effort to address the widest possible spectrum of potential clients.

The representation of key enterprise processes in the range of ERP systems available on the Czech market is depicted in the Figure here below (Fig. 3). The sample only included those ERP systems which are classified as All-in-One (61 providers). The reason for this narrowing down of the overall sample of respondents is the fact that these systems have the ability to cover all of the internal business processes. These systems can therefore be compared with one another, since they are substitutes. In addition, they offer high degrees of integration sufficient for the majority of these organizations. Best-Of-Breed ERP systems were not included in this sample, since these are often oriented on specific business processes and thus essentially need not serve the economic (financial) processes.

**Figure 3: Coverage of key business processes by ERP systems (All-in-One)**

**Logistics** is the only process that is a component of all of the investigated information systems. We rank in this category all of the activities associated with purchasing and sales; further, the order-processing system or those logistics processes closely associated with the inventory and stock control functions. In view of the fact that virtually no enterprise can get by without these operations, this is only to be anticipated.

Management of the **economic** processes is an important component of the range of ERP systems on offer. Economics includes all of the financial and in-house accounting functions, budgeting, calculations, decision-making roles, and cash-flow management and controlling (s. below).

**Human Resource Management** (HRM) represents the smallest component offered by ERP systems. Here, we can include above all the field of wages and salaries accounting, as well as the selection and training of employees, etc. Some systems integrators (partners for the provision and implementation of these systems in the Czech Republic) do not themselves offer a complex solution for this function, but assure it through the intermediary of sub-delivery solutions for the management of HRM and Remuneration packages from specialised Czech systems providers. However, these integrators guarantee their customers a unified package as such, which means that the HRM and Remuneration issues are assured by means of these sub-delivery applications packages.
One of the questions in the questionnaire is concerned with the issue, **whether or not it is possible to implement economic issues management functionality independently with another ERP system**. Almost 48% of all information systems enable this choice. Support for the economic management process is, as a rule, implemented as the very first function (e.g. for users from the Accountancy departments of the enterprise) and subsequently, after familiarisation with the functioning of the ERP system, the other functions – i.e. the production, logistics and HRM functions are introduced.

5. **Research results of products offered on the Czech ERP market**

5.1 **Current state of solutions offers in the economic processes management field**

Based on our literary research, we chose the following basic financial and economic management fields. These fields were the subject of the written questions in the questionnaire too. Attention to the problems and issues relating to financial accounting in the Czech Republic is devoted above by the authors like Kovanicová [20]. A new and specific field is that of Through-flow Accounting, whose fundamental precepts are set out in the publications of authors like Basl, Majer, Smira [14]. The fields of Managerial Accounting, Budgeting and Calculation are the preserve above by the authors like Kral [20], Lang [24], Lazar [21], Petrik [23] or Vysusil [26]. Controlling is mentioned in publications by authors like Horvath [28], Vollmuth [27], and above all, the Czech professor Vysusil [31]. The field of ERP systems is in the publications of authors like Brady, Monk and Wagner [16] or Laudon [34].

**The Financial Accounting and In-house Accounting functions are the well-represented functions in the economic management fields.** 96.5% of all ERP systems offer solutions for these two functionalities. Only two information systems solve these fields on a partial basis. In addition, it is clear that functionality for the management of financial and in-house accounting purposes are thus offered on a concurrent basis.

A much less frequent term is that of so-called “Through-flow Accounting”, which is closely associated with the Theory of Restraints. Our results show that this functionality is **not, currently, a standard component of ERP systems.** Only 7 ERP systems enable this functionality. And this is despite the fact that 27 systems contain Advanced Planning and Production Scheduling Methods by means of TOC principles. From this, it is clear that there is a difference between the use of TOC as a resource for tracking bottle-necks in production and its complex use as a leading managerial concept, including use of Through-flow Accounting practices.

**Both Cash-flow (93%) and Controlling (87.7%) are strongly represented in ERP solutions.** More than 77% of all ERP systems offer Budgeting, and 86% offer Calculation solutions. Equally, both of these fields are not covered in solutions offered by 6 ERP systems. On the other hand, **Decision-making roles** have a significantly smaller representation in the economic management field.

![Figure 4: ERP systems (All-in-One) offering economic management functionality](image-url)
5.2 Current state of ERP solutions covering the Reporting function field

Another part of the quantitative questionnaire was targeted on the Reporting and multilingual functions of these ERP systems. **It is possible to consider the possibility of preparing and printing out of all of the Accounting Reports** (i.e. Balance Sheet, Profit and Loss Statement, Statement of Cash-flow, and Statement of Changes in Equity) **for the enterprise as a whole** as standard components of ERP systems on offer. A similar result can be observed for the possibility of creating and printing out accounting statements for individual departments within an enterprise, or for selected time frames (e.g. per week, month, etc.).

The possibility of invoicing in currencies other than the standard reporting currency is supported by 80.7% of all ERP systems. According to the Law on Accounting, accounting entities are only compelled to concurrently use other currencies in those cases where the foreign currency, share in the commercial entity, stocks, hares or bonds, derivatives, assets, allocation set-asides and other reserves are expressed in a foreign currency. A similar situation applies to the necessity to use the Czech language in all accountancy materials. Once again, the only exceptions are in those cases where the documentation concerned was completed in a foreign language and which comply with the requirement that they be comprehensible. For this reason, the provision for a multilingual function in ERP systems in the accounting practices field is almost pointless. This functionality is however used by customers for other areas of their business dealings (e.g. in production) or it is simply a component of the bid by a foreign provider of an information system.

From the perspective of the user, and especially the accounts department itself, it goes without saying that it is advantageous to **be offered the possibility of altering, complementing or adding-to various accounts in the accounting system including the automatic actualisation (updating) of all accounting statements at the same time**. Thereby, users need not manually re-enter or perform checks upon all of the accounting entries in accounting statements separately. Five of the ERP information systems on offer quite simply do not offer this function, and for another eight, it is only partially resolved. From the user perspective therefore, these information systems may well seem to be uninteresting, as long as this lack is not compensated for by advantages in other areas.

A high percentage of these ERP systems (59.6%) also support real-time concurrent reporting using other accounting systems (e.g. IFRS, or the US GAAP). Of the overall number of 57 (All-in-One) information systems, 22 were of foreign origin. We can assume such support for international accounting practices for this particular group of ERP systems. Support of another accounting system(s) was identified in 34 ERP systems in all. The result therefore is that 12 ERP systems of Czech origin enable reporting according to a different accountancy system. It is however important to say that solutions offered for this particular area by individual providers may differ significantly from one another.

<table>
<thead>
<tr>
<th>Function</th>
<th>All ERP Systems</th>
<th>Czech Origin Systems</th>
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<tbody>
<tr>
<td>Preparing and printing reports and statements for the company as a whole</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Preparing and printing reports and statements for departments</td>
<td></td>
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<tr>
<td>Possibility of altering, adding-to, changing accounts</td>
<td></td>
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<tr>
<td>Concurrent reporting according to other accounting systems (IFRS, US GAAP)</td>
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<td>Concurrent accounting in other than local currency</td>
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<td>Multilingual aspects</td>
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<td>Support of the Sarbanes-Oxley Act</td>
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Source: CVIS 2010 - Evaluated: 57 All-in-One ERP systems provided in the Czech Republic.

**Figure 5: ERP systems (All-in-One) offered with Reporting functionality**
The last part of the quantitative questionnaire was targeted on information systems’ implementation and on essential modifications to it (e.g. parameterisation, customising). In the questionnaire, it was hypothesised that the implementation of ERP functionality for the management of economic and financial issues must adapt itself to the conditions prevailing in the user organization. 67 out of a total of 75 experts answered this question representing their opinion on the investigated ERP systems.

![Bar chart](image)

**Figure 6: Implementation of ERP systems solutions for economic management purposes**

The results show that, in the economic management field, it is usual that customisation does not take place, since it suffices to parameterise the standard settings of the ERP system. Exceptions could be for instance, the customisation of the Reporting function, i.e. the outputs and printing sets. Parameterisation is understood here to mean changes to the information system’s functions to bring its parameters in line with the concrete conditions of a particular organization. From this, it is absolutely clear that the economic management function is more-or-less standardised in enterprises.

A second frequent response was the possibility of customised modifications within the context of individual fields of business activity. Here, this goes to confirm previously published results and outcomes in the area of sector-specific ERP systems solutions [2]. The third most frequent response was to customised modifications which are unavoidable in corporations with a Holding structure. This situation may occur in enterprises that are part of corporations and which need to consolidate accounting reports and statements for example.

6. **Conclusion**

Management of the economic function is currently an essential and important component of ERP systems offered and delivered to the Czech market, despite this however, there sometimes exist enormous differences between individual information systems.

The fields of Financial and In-house Accounts Management are the most represented fields in providers’ portfolios. Through-flow Accounting is understood by providers as being a way of tracking the whole order-processing process within an enterprise by means of the information system, i.e. from the initial order right up to and including the final payment of the invoice, and this also includes the associated flows tracked in classical financial accounting practices. In the ERP systems currently on offer, Through-flow Accounting is, for the time being, only represented to a lesser extent. Against this, we can say that support for the advanced planning of production using TOC principles remains much more extensive among providers today. This support however must be understood only as a tool for the tracking of bottlenecks in an enterprise’s (production) processes, and under no circumstances as a full-valued Through-flow Accounting function.

Calculation is a typical tool for the management of economic procedures, and especially in manufacturing organizations. Not always however, is calculation understood by ERP systems...
providers to be an essential component of the economic management process, but rather, this is mainly implemented directly into the production process.

Respondents often did not differentiate between the terms “Controlling” and “In-house Accounting”. Both of these tools are considered to be virtually identical. The Controlling instrumentaria is however to a large degree well represented in ERP systems on offer. The outcomes and results of our investigations confirmed that Controlling is often understood in a very simplified manner, and then only as a tool for the breakdown of deviations from the norm of plans or budgets. Among the most important information that managers need for their everyday decision-making processes and the management of the enterprise are items that have something to do with the main or core business activities of the enterprise. There are above all, costs associated with the purchasing (production), revenue from sales and overall profit achieved by the enterprise.

We can state that a common component of ERP systems on offer is also the Cash-flow Management function. In addition, the majority of ERP systems enable, by means of pre-defined models, the tracking of financial and monetary resources as well, and which had not yet been captured and depicted in classical financial accountancy practices (e.g. orders), or which had never even been included in the system itself (e.g. loan planning).

In the Reporting field, ERP systems users predominately use the possibilities of preparing and printing out all of the accounting reports and statements (i.e. Balance Sheet, Profit and Loss Statement, Statement of Cash-flow, and Statement of Changes in Equity) for the enterprise as a whole and also add to or modify accounts in the accounting structure with their automatic updating on the accounting statements and reports. These functions are a common component of providers product offers. An interesting discovery was the very high level of support by ERP systems in the field of concurrent Reporting in line with other accounting standards and systems. The results even demonstrated that 12 information systems of Czech origin also enable this possibility.

In the course of implementing ERP functionality for economic management functions, it is usual that customisation and modification do not take place, it being considered sufficient to parameterise the standard settings of current ERP systems. Further, from the results it is possible to see that sector-specific solutions do not only involve the production and logistics fields but also, frequently, the economic/financial field too. We can therefore state that organizations operating in the same business sector have similar basic economic management practices; these however differ in their specific internal processes. If customisation does occur, then this is most frequently the modification of its internal and external outputs, including the print-out setup; the subject of which is also varied – orders, invoices, internal documentation, etc.

From the discussions and interviews we conducted with the providers, the following were mentioned as current trends among users of information systems in the economic management field:

- The transformation of financial accounting from a calendar year into the accounting (business cycle) year (often as the consequence of requirements from the foreign mother company).
- Requirements for the support of the consolidation and processing of accounting closure Reporting according to other accounting standards (another consequence of Reporting to owners abroad).
- Requirements for the support of electronic communications (e.g. electronic documentation and signatures).
- The ever greater use of controlling instrumentaria (e.g. tracking developments in outstanding debt payments, profitability/feasibility of orders, etc.).

7. References


