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TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGIES NAMED  
AFTER MUHAMMAD AL- KHWARIZMI**

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## **FINAL QUALIFYING WORK**

On theme

**“ The effect of the circulation of e-document  
on the management of organizations ”**

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THE STATE COMMITTEE FOR COMMUNICATION, INFORMATIZATION  
AND TELECOMMUNICATION TECHNOLOGIES OF THE REPUBLIC OF  
UZBEKISTAN

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**ASSIGNMENT**

**for graduation qualification work of student**

**Pak Ekaterina Aleksandrovna on the theme “The effect of the  
circulation of e-document of the management on the organizations”**

1. Confirmed by order: №1729 from 01.12.2017
2. The date of defense of the work: 01.06.2018
3. Primary information regarding to the work: Orders and instructions of the president of Republic of Uzbekistan, regulations on economic activity, economic books, dissertations, articles of foreign and local economic scientists.
4. Significance of collected materials: 1. Introduction. 2. Theoretical bases of influence of electronic document management on management of the organizations 3. Analysis of the economic efficiency of the implementation of electronic document management. 4. Perfection of workflow automation in management in the system of SAP Business One. 5. Life safety and ecology. 6. Conclusion.
5. List of graphical and tabular materials: Electron version of economic and financial indicators of communication enterprises.
6. Date of the assignment: 20.01.2018.

Supervisor: \_\_\_\_\_

Assignment taken: \_\_\_\_\_

7. Supervisors of some parts of the work:

Part	Reviewer	Significance, data	
		Assignment given	Assignment given
1	Qodirov A. M.	20.12.2017	20.01.2018
2	Qodirov A. M.	20.02.2018	20.03.2018
3	Qodirov A. M.	16.03.2018	16.04.2018
4	Amurova N.Y.	18.05.2018	18.05.2018

8. Progress chart

№	Part names of the work	Performance time	Signature of adviser
1.	Theoretical bases of influence of electronic document management on management of the organizations.	26.02.2018	
2.	Analysis of the economic efficiency of electronic document management.	22.03.2018	
3.	Perfection of workflow automation in management in the system of SAP Business One.	16.04.2018	
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Graduate \_\_\_\_\_  
(Signature)

“04” June 2018

Supervisor \_\_\_\_\_  
(Signature)

“04” June 2018

Ushbu bitiruv malakaviy elektron ish xar oxasida zamonaviy AKT larni joriy etishning nazariy asoslari chuqur o'rganilgan, O'zbekiston bozori va kompaniyalari faoliyati "Accelarated Business Consulting" AK misolida tahlil qilingan, hamda sug'urta faoliyatida yangi AKT larni samarali joriy etish yo'llari taklif qilingan.

В данной выпускной квалификационной работе глубоко изучаются теоретические основы эффективного внедрения электронного документооборота на предприятия, состояние рынка Узбекистана. На примере компании "Accelarated Business Consulting" были проанализированы, а также предлагаются пути эффективного внедрения современных ИКТ.

In this qualification paper the theoretical bases of effectively applying advanced ICT was investigated deeply, electronic document flow to enterprises, the state of the Uzbek market. On the example of the company "Accelarated Business Consulting" were analyzed, as well as, the suggestions were given on the ways of effective implementation of modern ICT.

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## INTRODUCTION

Over the twenty-four-year of period of independence, we are witnessing a complex reformation of the national economy. All the factors that connote the power of the country are experiencing the consistently and steadily development. Speaking about the economic reforms carried out in our country, it should be mentioned that every field of national economy is in growth. Most of all, the production power that improves the welfare of the people, that has positive impact upon the social life of the country is spectacularly developing. By mentioning the recent economic achievements conquered, projecting long-term projects and global conditions, which could potentially impact on the world market and the national economy as well as, the President paid a special attention to the words following, in the cabinet of ministries, during the speech dedicated to the end of 2014 and the main strategies in 2015:

"Nowadays, the rapid processes taking place in various regions of the world, first and foremost, the growing contradictions, rapidly changing the situation in the world market, global financial and economic crisis which is still ongoing and its consequences, the decrease in the growth rate of investment activity and the growing rates slow-down, will, of course, negatively impact on the economy of the country.<sup>1</sup>"

"... It is necessary to support and to develop the sectorial companies and production powers that can compete in the world market and in the next stage, can provide the economic growth and become a locomotive of the economy in further modernization and diversification."

In fact, today, in the process of integration of the countries of the world, such a complicated situation in the world financial markets will affect our economy and the government will be required to take such measures as consistent economic and financial conditions.

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<sup>1</sup> The President speech in the Cabinet of Ministries, "Devoted to the end of 2014 and the main strategies in 2015", (press-service.uz)

Uzbekistan's GDP performance in the last decade, high levels of sustainable growth is the result of effective fiscal policy which has been implemented by the government. To ensure the continuity of production in the market economy, the protection from the potential dangers is also considered essential and there is a vital importance of insurance. Insurance is one of the essential elements of the production and it appears to be of the key economic tools in a market economy.

A number of similarities have been drawn between the EDMS and the Content Management System (CMS) by some experts, however, some differences have been spotted as well. For instance, one main difference between these two software is that the EDMS is basically used for archiving, while the Content Management System is used to handle a number of web contents centrally – that is, from a central website.

To improve the efficiency of insurance activity can be achieved by using advanced information technologies. At the same time, the main objective is considered to facilitate and accelerate the process between the insurer and the insured. The current advanced ICT available, enables not only to accelerate insurance operations, but also can be used as an effective tool to reach to the people.

The Final qualifying work's target of study - the implementation of advanced ICT in national insurance market from the participants and specifically from "ALSKOM" IC.

The Final qualifying work's objectives – the study of ICT usage of companies in their professional operation for the sake of improving the efficiency of services they promote, the project related to information technologies which were launched by companies and broad comparison these technologies with their analogous in abroad.

- The qualification work has identified the following tasks as the main ones to carry out:

- Theoretical study of the activities of insurance and the analyze insurance companies participation in the national market;

- the study of marketing policy and the implementation of ICT which were set up to reach the endpoints in the activity;

- To examine the current challenges in the insurance and proposals to eliminate them.

- To examine the perspectives of digitalizing the whole operation.

The theoretical and practical importance of the final qualification work. Conclusions and recommendations issued on the basis of the results of the analysis carried out in the framework of the final qualifying work, will serve as academic and theoretical fundament to improve the country's insurance market by using modern ICT, as reform to establish effective and efficient operations by the insurance companies.

The work consists of introduction, 4 chapters, conclusion and suggestions and references. The bar charts, pie-charts, diagrams, tables and pictures are user to give insight into the questions.

# **1. Theoretical bases of influence of electronic document management on management of the organizations.**

## 1.1 Modern information technologies and their impact on management.

An electronic document management system (EDMS) is a software system for organizing and storing different kinds of documents. This type of system is a more particular kind of document management system, a more general type of storage system that helps users to organize and store paper or digital documents. EDMS refers more specifically to a software system that handles digital documents, rather than paper documents, although in some instances, these systems may also handle digital scanned versions of original paper documents.

An electronic document management provides a way to centrally store a large volume of digital documents. Many of these systems also include features for efficient document retrieval.

Some experts point out that the electronic document management system has a lot in common with a content management system (CMS). One major difference, though, is that most CMS systems involve handling a variety of Web content from a central site, while a document management system is often primarily used for archiving.

In order to provide good classification for digital documents, many electronic document management systems rely on a detailed process for document storage, including certain elements called metadata. The metadata around a document will provide easy access to key details that will help those who are searching archives to find what they need, whether by chronology, topic, keywords or other associative strategies. In many cases, the specific documentation for original storage protocols is a major part of what makes an electronic document management system so valuable to a business or organization.

To accomplish the first step, our software proposes a central repository with all the functions of EDMS software (Electronic Document/Data Management System) :

- Trace the history of all documents;
- organise exchange flows;
- ensure internal and external confidentiality;
- manage the entire lifecycle of documents;
- handle versioning, revision and status;
- access documents by searching for text, classification orders or document features;
- view through viewers adapted to each format;
- annotate documents without altering them, ensure traceability and follow-up of annotations;
- declare, classify, qualify and trace follow-up of observations;
- control cycles of validation, rereading, approval and distribution;
- manage alerts and subscriptions.

SAP Business One is an ERP software platform specifically intended for small and medium-sized businesses (SMBs). SAP Business One (also known as SAP B1) was designed with the idea that smaller companies need ERP software to help manage their business, but not the kind of ERP that large and complex organizations need. It has functional modules for finance, customer relationship management (CRM), warehousing and production management, purchasing and procurement, and reporting and analytics.

SAP B1 was originally developed by TopManage Financial Systems, a company based in Israel, and was acquired and rebranded by SAP in 2002. More functionality has been added to SAP B1 from acquisitions made by SAP. A reporting and budgeting function called XL Reporter was acquired from the Ilytix Systems AS, based in Norway, in 2005. SAP acquired Praxis Software Solutions, based in Minneapolis, 2006 and integrated its Web-based CRM and e-commerce functions into SAP B1.

SAP B1 was built on and runs on Microsoft SQL server and now also runs on the SAP HANA in-memory platform. It can be deployed on-premises and in the

cloud and can be accessed remotely via a mobile app. SAP sells B1 primarily through a partner network, with about 700 value-added resellers in the network as of 2015. The partner network has also developed more than 500 industry-specific applications, according to SAP. The vendor claims to have more than 48,000 customers in 2015.

SAP Business One's approach to software provides many benefits including:

- lower costs by minimizing training requirements. It even includes hyperlinks to free on-line video training in context of the related screens;
- enterprise Search – Find any data instantly. Enter an invoice number and the system will show you where it appears in any transactions;
- improved customer relationships – When different people assist you customers but know all the past conversations, emails and business transactions that took place, your customers feel like you care about them;
- industry specific solutions – Hands down SAP Business One has the largest ecosystem of 3<sup>rd</sup> party providers that have built solutions in their open and extensible architecture to cover nearly any industry in any country. No solution comes close to the vastness of this well tested, certified and regulated community. You all know why Apple and later Android succeeded where predecessors like Palm and BlackBerry failed...Apps. Well that's what the SAP Partner Community and their solutions are to ERP software;
- focus on your business and save time – Don't waste time trying to use and figure out complex software. Apple has proven that simplicity and ease of use outweighs the 'throw in the kitchen sink' approach to features that few use but yet slows down and clutters so many older designed technology products;
- increase your bottom line – When a system is integrated across modules, including ones that many competitors expect you to bolt another solution on for, such as CRM (Customer Relationship Management) it reduces redundant data entry, complex or manual reporting to combine data, errors and delays;
- sustained business growth through streamlined operations;

- improved customer satisfaction and brand loyalty through quicker response times and instant access to customer information;
- mitigate mistakes and risks by automating the core processes and eliminating the need of paperwork and redundant data entry process;
- foster deep relationships with key stakeholders including customers, vendors, and employees through better supply chain management;
- customized features to meet specific business requirements;
- accurate real-time reporting and analytics;
- high ROI, low technology costs and quick time to value.

This industry-specific software offers the flexibility, agility and reliability to meet your business' unique process requirements and evolving business demands. With this fully integrated solution, businesses are able to react to market demands with increased insight, efficiency and flexibility.

SAP Business One is designed for small to mid-sized enterprises (SMEs) and large enterprises with subsidiary operations to better manage their entire business. This SAP application works best for organizations who have outgrown their current packaged accounting software or spreadsheets or may need to switch to an advanced ERP. Many of our customers first start their research knowing they have specific business pain such as tracking inventory, orders, and pricing and lack of visibility in sales order processing, invoicing and deliveries. Through the discovery process, they analyze how SAP Business One can solve their complex business challenges and more. SAP Business One is also a good fit for large enterprises who are looking to rapidly grow into new geographic markets.

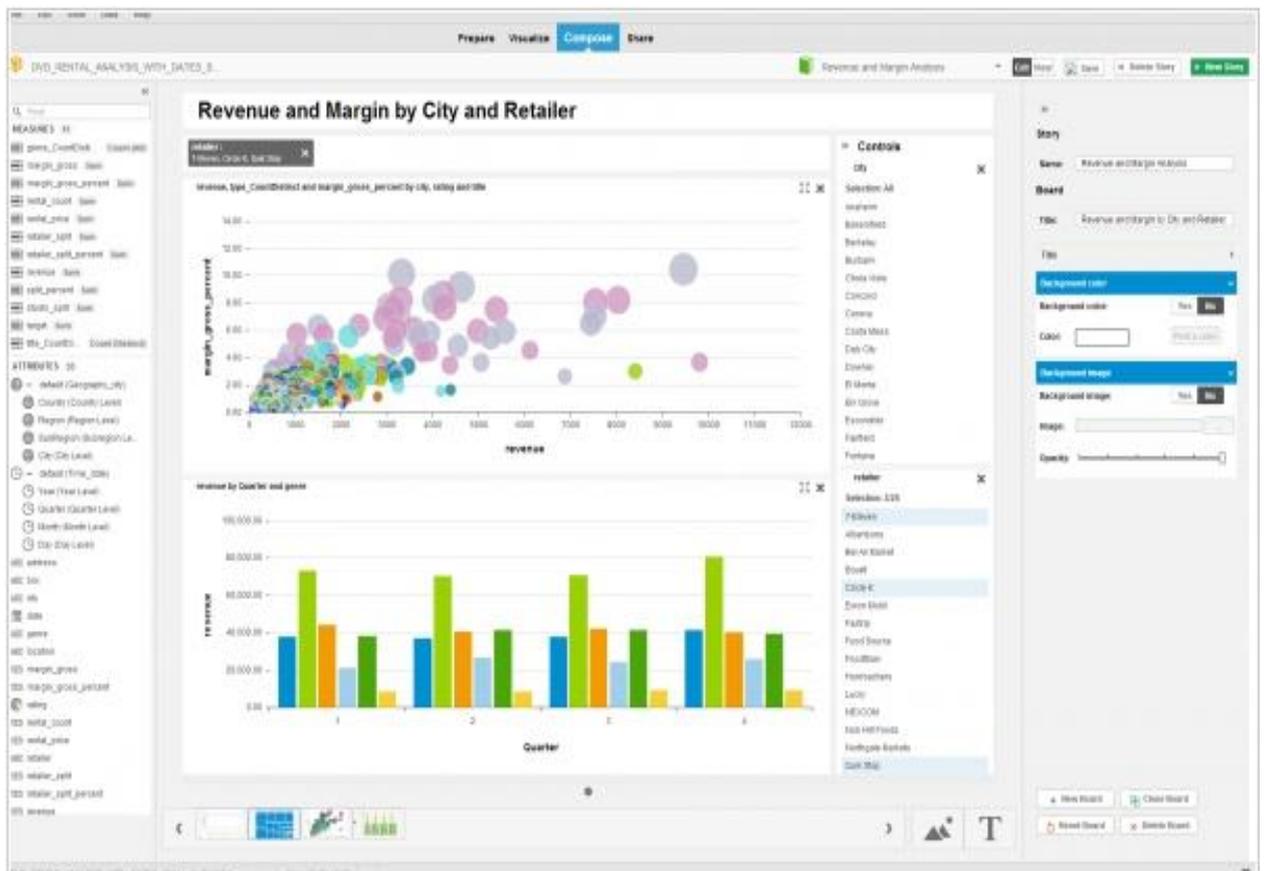


Figure 1. The interface of SAP Business One

Harness data company-wide so you can gain and share unprecedented insight to compete body in today’s digital economy. SAP Lumira combines self-service BI discovery and visualization with interactive dashboards and analytic applications – all in one solution that rapidly promotes insight across the organization.

- On-premise and cloud deployment;
- single, simple design canvas that fosters collaboration between the business and IT and speeds adoption;
- inclusive self-service analytics across every line of business;
- real-time performance and insight with an optimized solution.

Reap benefits of the extensive industry functionality, best practices, and processes built into SAP Business One. And as your business expands, you can extend SAP ERP to accommodate your business needs using the SAP ERP modules or any of over 500 add-on solution built by SAP B1 partners.

From pharma industry to manufacturing industry looking to gain control over their expenses, procurement, finance, inventory and other aspects, SAP Business One has a complete and customizable solution for your industry such as:

- Oil and Gas – Pharma- Food & Beverage – Manufacturing – Wholesale Distribution – Automotive- Logistics- Professional Services – Malls and Recreation- High Tech -Industrial Machinery and Components – Dairy – Publications- Trading- Consumer Products – Construction and Operations;
- when you choose to deploy SAP Business One with Unecops, you can streamline your financial operations, run real-time inventory updates and empower your people to make smart decisions faster. Allow us to help you streamline your business processes with SAP ERP while you focus on other strategic initiatives;
- SAP Business One is an integrated enterprise resource planning (ERP) software suite designed primarily to serve small to midsize businesses. SAP Business One is used to address the needs of many industry verticals including manufacturing, retail, service, and distribution industries;
- SAP Business One Financials Management offers applications for general ledger, journal entries, project cost accounting, budget management, financial reporting, multi-currency support, and other functions. Business One is a single system which only requires one installation;
- SAP Business One is deployed on-site and runs on Windows operating systems. It is designed for deployments with between one and thirty users. The system offers a remote support platform that can perform automatic system health checks, scheduled database maintenance operations, upgrade eligibility checks, and automatic fixes for detected issues. In addition, the Business One Software Development Kit gives programmers the ability to interface external applications with Business One or add custom functionality.

1.2 The essence, classification and legal support of electronic document management.



SAP HANA is an in-memory, column-oriented, relational database management system developed and marketed by SAP SE. Its primary function as a database server is to store and retrieve data as requested by the applications. In addition, it performs advanced analytics (predictive analytics, spatial data processing, text analytics, text search, streaming analytics, graph data processing) and includes ETL capabilities as well as an application server.

SAP HANA enables data analysts to query large volumes of data in real time. HANA's in-memory computing database infrastructure frees analysts from having to load or write back data.

HANA's columnar-based data store is atomicity, consistency, isolation and durability (ACID)-compliant and supports industry standards, such as structured query language (SQL) and multidimensional expressions (MDX).

SAP HANA also includes a programming component that enables a company's IT department to create and run customized application programs on top of HANA, as well as a suite of predictive, spatial and text analytics libraries across multiple data sources. Because HANA can run in parallel to a source SAP ERP application, analysts can access real-time operational and transactional data for real-time analytics processing and not have to wait for a daily or weekly report to run.

How SAP HANA works:

SAP HANA stores data in memory in a columnar format. Doing so enables the product to deliver real-time or near-real-time transactions and analytics. For SAP, the columnar format offers better access to, and processing of data compared to traditional, row-based memory.

SAP HANA origins:

SAP HANA originated in research begun in 2006 by SAP co-founder Hasso Plattner while he was a computer science professor at the Hasso Plattner Institute in Potsdam, Germany. The goal was to develop a database that could operate with a near-zero response time for transactional and analytical data processing. Plattner wanted a system that could answer any conceivable business question in real time.

SAP releases versions of HANA as Support Package Stacks (SPS), which contain new features or advancements. Along with SPS releases, SAP makes revision versions available that may have additional features or fixes, and there may be several revisions between each SPS release.

In addition, SPS releases may include maintenance revisions if there are any major fixes that need immediate attention.

Prominent SAP HANA products:

As of this writing, SAP has heavily emphasized its flagship HANA business suite -- known S/4HANA -- as the product of choice for digital modernization. S/4HANA includes the core ERP processes of finance and procurement, as well as other apps for supply chain and sales and distribution. S/4HANA is available on premises, in the cloud or as a hybrid setup.

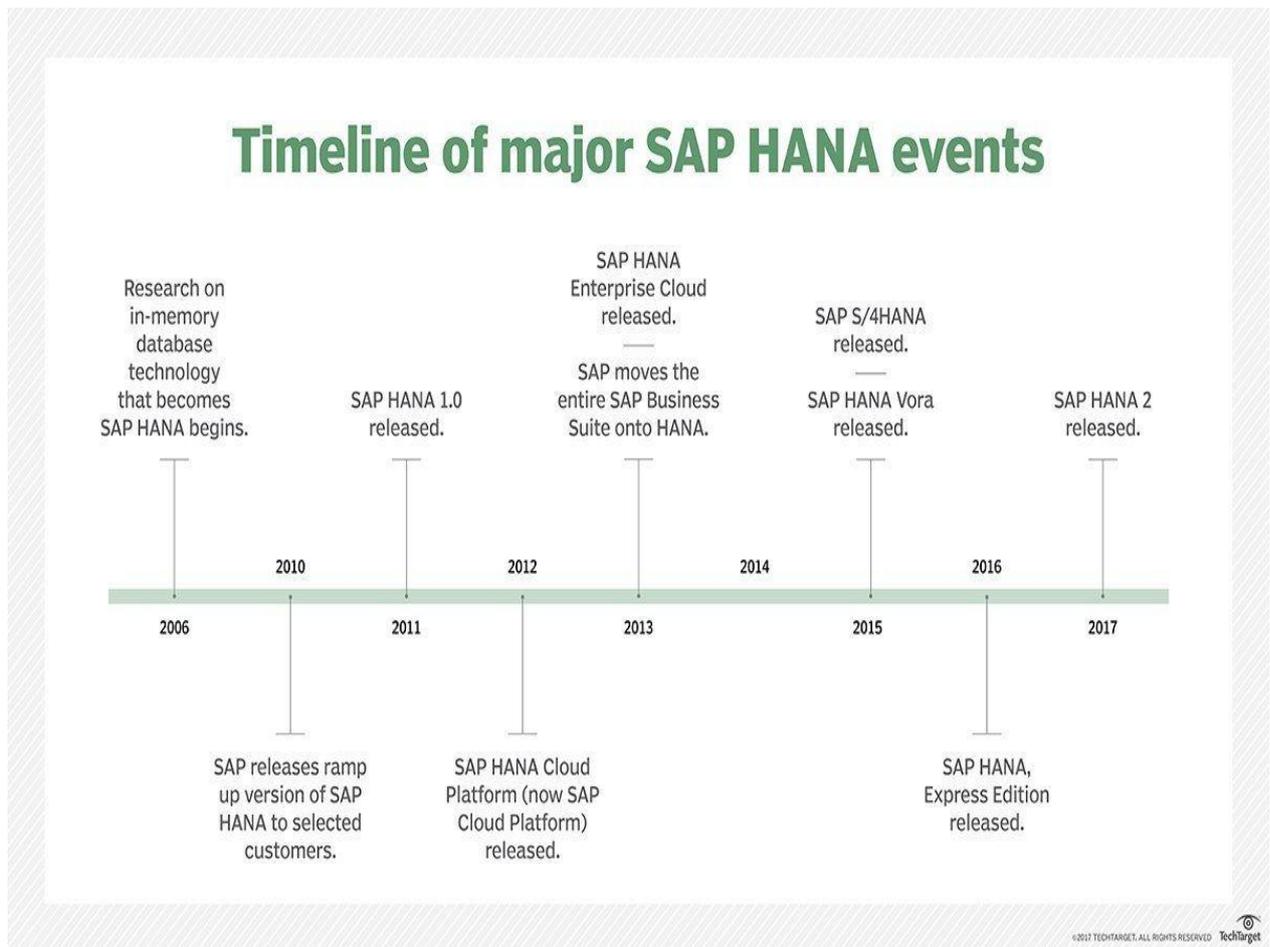


Figure 2. Timeline of major SAP HANA events

SAP HANA, Express Edition, released in 2016, is a streamlined version of HANA aimed at spurring more adoption by enabling it to run on laptops and other resource-constrained hosts, such as a cloud-hosted virtual machine.

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What makes SAP HANA fundamentally different?

- HANA leverages the modern hardware technology . It uses large main memories and massive parallel processing on multi-core CPU's . Due to this, the access speed increases and response time decreases.

- it stores all data in-memory and in a columnar format (via encoding). Though, it is both row and column stored. Due to columnar structure many of the transactions like aggregations become quite fast. And, this can reduce the database footprint by 95%.
- all the operations are carried on demand, in the memory. This makes it possible to run OLTP and analytics applications in a single instance.
- apart from this, HANA also has certain mechanisms like delta storage and row-level insert and update performance.

SAP HANA<sup>2</sup> (high-performance analytic appliance) is an application that uses in-memory database technology that allows the processing of massive amounts of real-time data in a short time. The in-memory computing engine allows HANA to process data stored in RAM as opposed to reading it from a disk. This allows the application to provide instantaneous results from customer transactions and data analyses.

SAP B1 was built on and runs on Microsoft SQL server and now also runs on the SAP HANA in-memory platform. It can be deployed on-premises and in the cloud and can be accessed remotely via a mobile app. SAP sells B1 primarily through a partner network, with about 700 value-added resellers in the network as of 2015. The partner network has also developed more than 500 industry-specific applications, according to SAP. The vendor claims to have more than 48,000 customers in 2015.

SAP HANA is designed to process structured data from relational databases, both SAP and non-SAP, and applications and other systems rapidly. It is capable of using three styles of data replication depending on the source of the data – log-based, ETL-based and trigger-based. The relocated structured data is stored directly in memory. Because of this, data can be accessed quickly in real time by the applications that use HANA.

SAP HANA supports various use cases for real-time analytics. Some examples include:

- Monitoring and optimization of telecommunications network;

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<sup>2</sup> <https://help.sap.com>

- supply chain and retail optimization;
- fraud detection and security;
- forecasting and profitability reporting;
- energy use optimization and monitoring.

Accelerators, which are non-disruptive ways to take advantage of in-memory technology. These solutions involve an SAP HANA database sitting next to a customer's SAP ERP system. Transactional data is replicated in real-time from ECC into HANA for immediate reporting, and then results can even be fed back into ECC. Solutions include CO-PA Accelerator, Finance and Controlling Accelerator, Customer Segmentation Accelerator, Sales Pipeline Analysis, and more.

These applications offer real-time insights on Big Data such as smart meter data, point-of-sale data, social media data, and more. They involve complexities such as personalized insight and recommendations, text search and mining, and predictive analytics. Only SAP HANA is well suited for such applications, including Smart Meter Analytics, SAP Supplier InfoNet, SAP precision retailing, and Geo-spatial Visualization apps (from start-up Space-Time Insight). Typically these processes tend to be data-intensive and many could not be deployed in the past owing to cost and performance constraints.

SAP HANA is an in-memory data platform that is deployable as an on-premise appliance, or in the cloud. It is a revolutionary platform that's best suited for performing real-time analytics, and developing and deploying real-time applications. At the core of this real-time data platform is the SAP HANA database which is fundamentally different than any other database engine in the market today.

Other database management systems on the market are typically either good at transactional workloads, or analytical workloads, but *not both*. When transactional DBMS products are used for analytical workloads, they require you to separate your workloads into different databases (OLAP and OLTP). You have to extract data from your transactional system (ERP), transform that data for reporting, and load it into a reporting database (BW). The reporting database still requires significant effort in

creating and maintaining tuning structures such as aggregates and indexes to provide even moderate performance.

Due to its hybrid structure for processing transactional workloads and analytical workloads fully in-memory, SAP HANA combines the best of both worlds. You don't need to take the time to load data from your transactional database into your reporting database, or even build traditional tuning structures to enable that reporting. As transactions are happening, you can report against them live. By consolidating two landscapes (OLAP and OLTP) into a single database, SAP HANA provides companies with massively lower TCO in addition to mind-blowing speed.

The electronic document and records management system (EDRMS) checklist covers a range of activities and tasks that may be helpful for project managers and teams in an Australian Government agency when:

- initiating an EDRMS project;
- selecting an appropriate EDRMS to meet specific business requirements;
- implementing an EDRMS. The checklist can also be used in an internal audit program. Project management tasks are not the focus of this checklist as agencies will have their own preferred project management methodologies.

The beauty of SAP HANA lies in the fact that it does most of its calculations in-memory at the database layer instead of the application layer as done traditionally. SAP HANA is not just a database. It consists of different engines that crunch calculations efficiently and return results to the application layer.

Due to this push-down of logic, the data latency (Time taken between request and response) is really small and that's where the true magic lies.

SAP HANA opens up possibilities that were unimaginable with a traditional database which range from real-time status reporting of your inventories, online analysis of streaming data from sensors, unrivaled predictive analysis capabilities and many more.

An electronic document management system (EDMS) is a software system for organizing and storing different kinds of documents. This type of system is a more particular kind of document management system, a more general type of storage system that helps users to organize and store paper or digital documents. EDMS refers more specifically to a software system that handles digital documents, rather than paper documents, although in some instances, these systems may also handle digital scanned versions of original paper documents.

Specialized document management software is used to organize and store each individual file. These tools simplify the storage and retrieval process by using powerful optical character recognition that reads the contents of each document. This information is stored as part of the electronic file, making it possible to search the content of each document stored in the database. Employees can search for all documents from a particular client that contain certain key words or using any other variable. What would normally take hours of a file clerk's time can now be accomplished by anyone within minutes.

Once the document has been scanned, the clerk can forward it to anyone within the organization for review. In a traditional paper environment, this involved delivering the file manually. It was common for files to go missing or to languish on the desks of the employee for days or weeks, unavailable to anyone else. Document management systems allow for immediate review by anyone in the organization. Any document can be immediately forwarded between employees, even between offices and territories.

## **2. ANALYSIS OF THE ECONOMIC EFFICIENCY OF THE IMPLEMENTATION OF THE ELECTRONIC DOCUMENT MANAGEMENT.**

Every electronic document can be protected using an enhanced security protocol similar to that used by banks. Documents can be protected so that only specific employees can access certain information. Locked filing cabinets are replaced with password-protected security systems that greatly reduce the chance of information falling into the wrong hands. Human resources can be assured that sensitive information remains fully protected, while the sales department can store documents available to any employee.

### **Off-Site Backup**

The database of documents can be easily stored on any device. The primary storage device is often located within the company's primary office, often on a server located in the information technology department. The data are also easily backed up and stored off-site.

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- initiating an EDRMS project;
- selecting an appropriate EDRMS to meet specific business requirements;
- implementing an EDRMS. The checklist can also be used in an internal audit program. Project management tasks are not the focus of this checklist as agencies will have their own preferred project management methodologies;
- Completing the checklist, reviewing the results and planning the steps to take should involve input from all sections of your agency with an interest in managing records, including;
- records and information management professionals;

- IT specialists;
  - senior managers and executives;
  - end users. Completing the checklist will require a range of skills and competencies;
  - an understanding of the agency's records management requirements;
  - familiarity with business information systems and the technological environment;
  - knowledge of associated records and information management and IT strategies, policies and procedures;
  - contract negotiation skills;
  - project management skills. If your agency does not have the necessary time or expertise, you may wish to engage consultants to undertake activities on your behalf.
- Throughout the checklist reference is made to relevant documents. You should also refer to your agency's specific strategies and plans that might have a bearing on the project (for example, your IT strategy). Tasks to prepare for an EDRMS implementation are roughly sequential. Some tasks in the initiation phase may be carried out in parallel with tasks in the implementation phase. The ability to run several streams of work together will depend on the skills and resources allocated to the project and the timeframe.

Statement of the problem Records and Information management has in the recent past received increasing support and attention in the public sector across the globe as governments embrace information & communication technologies in the management of their corporate records. The public sector in most countries in Africa have embarked on reforms aimed at streamlining and bettering the life of their citizens, and creating new government machineries to establish efficient and effective management systems. However, despite the tremendous efforts and resources allocated to reforms, little progress has been made, and many African countries have not come close to their goal of developing and transforming their societies to the same standards as developed 4 countries. Effective implementation of electronic document management systems still remains a challenge for many countries mostly in the Public Sector. There has been a lot of complains raised by the public in relation to the manual system used in MoHEST such as delay in service delivery, misfiling of

records, lost files especially after employees have retired thus making it difficult for them to get their retirement benefits among other challenges. A sound records management system needs to be in place for the efficiency and effectiveness of services in the Public sector (World Bank, 2000). In 2010, the integrated records management system was installed and rolled out in the Uzbekistan Government Ministries to manage records processes and functions. In spite of that, there still has been complains by the public on unavailability of records and delay in service delivery largely attributed by use of manual system irrespective of the integrated records management system being in place. Therefore, this problems presents a potential study to investigate the implementation of Electronic Document Management System in the Uzbekistan's Ministry of Higher Education Science and Technology.

1.4 Aim of the study The aim of the study was to investigate the success of the implementation of electronic document and records management system in the Ministry of Higher Education Science and Technology and suggest recommendations for improvement where necessary.

Management system (ERMS) must do. The revised edition was scoped to include 'information from ISO 15489; work performed in the archive field by various countries in the European Union; and to ensure compatibility with key standards for metadata and other records management related issue'. Fanning (2007:14) reported that other reasons for the revision are user-specific, such as improvements to simplify the user interface of EDRMS by reducing metadata users' need to input, and to simplify the classification system. Although MoReq2 markets itself as a standard for the functional specifications of electronic records and not documents, it does include thirty-three specifications for document management and collaborative working under the optional modules section.

Hence, MoReq does provide guidelines on the functional specifications of all the major components of an ERMS as well as EDRMS to manage electronic and paper documents and records throughout their information lifecycle. It consists of 794 specifications for the design of an EDRMS that manages both paper and electronic documents and records, and also specifies 197 metadata elements for an

EDRMS. It has chapters devoted to providing specifications for classification schemes, retention and disposition schedules, capturing records, searching and retrieving information, security, and rendering and administrative controls. 2.9.2 Department of Defense (DOD) 5015.2 Standard (STD) The Department of Defense (DoD) 5015.2 standard (STD) performs the same function for the United States (US) as MoReq2 does for Europe. Unlike MoReq2 the DoD 5015.2-STD is focused only upon specifications for electronic records, and thus for Electronic Records Management Systems (ERMS) and not for EDRMS, as the management of documents are omitted from this standard. The United States Department of Defense's standard DoD 5015.02-STD sets the mandatory baseline functional requirements and identifies non-mandatory features deemed desirable for 18 ERMS used by US Department of Defense organizations, as well as for the transfer of records to the US National Archives and Records Administration.

Some experts point out that the electronic document management system has a lot in common with a content management system (CMS). One major difference, though, is that most CMS systems involve handling a variety of Web content from a central site, while a document management system is often primarily used for archiving.

In order to provide good classification for digital documents, many electronic document management systems rely on a detailed process for document storage, including certain elements called metadata. The metadata around a document will provide easy access to key details that will help those who are searching archives to find what they need, whether by chronology, topic, keywords or other associative strategies. In many cases, the specific documentation for original storage protocols is a major part of what makes an electronic document management system so valuable to a business or organization.

Implementation of EDRMS The main objective of the pre-installation phase is to set a firm foundation upon which the system shall be operationalized and provide guidelines to ensure that the subsequent phases of the project that is installation, customization and configuration of the system, does not only meet the business needs

of an organization but also adheres to established professionalism and best practices in records management. The respondents were asked whether implementation of the EDRMS was done in phases so as to give the users time to assess the system. The responses were as follows; - 33% of the respondents said that the implementation was done in phases, 67% reported that it wasn't done in phases. The table below gives a summary of the respondent's feedback.

Document management is one of the precursor technologies to content management, and not all that long ago was available solely on a stand-alone basis like its imaging, workflow, and archiving brethren. It provides some of the most basic functionality to content management, imposing controls and management capabilities onto otherwise "dumb" documents. This makes it so that when you have documents and need to use them, you are able to do so. Some of the key features in document management include:

- Check-in/check-out and locking, to coordinate the simultaneous editing of a document so one person's changes don't overwrite another's;
- version control, so tabs can be kept on how the current document came to be, and how it differs from the versions that came before;
- Roll-back, to "activate" a prior version in case of an error or premature release
- Audit trail, to permit the reconstruction of who did what to a document during the course of its life in the system;
- Annotation and Stamps.

Document management eventually was subsumed into content management in no small measure because there is more information available to us today than ever before, and most of it is not being created by us. Thanks to the mainstreaming of a whole range of sources like the Web, thumb drives, smartphones, etc., the need has accelerated to deal with information of all kinds: not just in terms of more media types like text vs. images vs. voice files, but also in terms of how structured – and thus how readily managed – it all is.

Document management systems today range in size and scope from small, standalone systems to large scale enterprise-wide configurations serving a global audience. Many document management systems provide a means to incorporate standard physical document filing practices electronically. These include:

- Storage location
- Security and access control
- Version control
- Audit trails
- Check-in/check-out and document lockdown.

Document management, while still recognized and utilized independently, it is also a common component found within an Enterprise Content Management environment.

#### Electronic Document Management System (EDMS, ECM)

Opportunities of using EDRMS an electronic document and records management system is as good as nothing if it is not in operation. Research has revealed that 75% of EDRMS projects collapse in most organisation thus leading to loss of financial resources pumped into the project. There are numerous business opportunities in which organisations accrue by operationalising EDRMS among them is gaining business competitive advantage especially in service delivery and enhancing simultaneous access to information by users irrespective of the geographical location. The respondents were asked what is the level of operationalisation of EDRMS at MoHEST. A majority of the respondents (91%) indicated that it is operationalised to a very small extent as presented in the graph below. They reported that it has been in operation in less than a year then afterwards the project stalled.

Duration of addressing the identified challenges is very significant to the system users. The faster the response of addressing the challenges the better to the system users. Many system users lose concentration and interest if the duration to address the challenges takes long. The respondents were asked how long it takes for the above challenges to be addressed.

Accelerate business reporting by leveraging ERP Accelerators, which are non-disruptive ways to take advantage of in-memory technology. These solutions involve an SAP HANA database sitting next to a customer's SAP ERP system. Transactional data is replicated in real-time from ECC into HANA for immediate reporting, and then results can even be fed back into ECC. Solutions include CO-PA Accelerator, Finance and Controlling Accelerator, Customer Segmentation Accelerator, Sales Pipeline Analysis, and more.

SAP HANA excels at applications that require complex scheduling with fast results, and SAP is delivering solutions that no other vendor can match. These include Sales & Operational Planning, BusinessObjects Planning & Consolidation, Cash Forecasting, ATP calculation, Margin calculation, Manufacturing scheduling optimization (from start-up Optessa), and more.

EnVision, the leading Electronic Document Management System (EDMS) in the industry, provides a comprehensive solution for managing the creation, capture, indexing, storage, retrieval, and disposition of records and information assets for hundreds of clients serving more than 200,000 users across the region.

The main objective of enVision EDMS is to enable the usage of un-configured information and documents from a single point in an electronic environment and easy-to-access way allowing multithreading. enVision Intelligent Content Management System supports different languages including English and Arabic and enables the capability to easily integrate with different local peripheral system or software (LDAP, Active Directory, SAP or other ERP systems) and online data providers.

Compliant and certified with the industry and international standards such as ISO 9001, ISO 20000, ISO 27001 and TS 13298, enVision's conceptual design was built to provide the best usage of information in a paperless communication environment. The aim is to make all documents easy to find, update, and share.

Maintaining paper documents and files is an expensive proposition for an organization. Documents must be inserted into file folders and placed in an expensive filing cabinet, and office real estate must be set aside for their storage. When a file is

needed, it must be retrieved and then filed away once more. Because of these issues, many companies have moved toward an electronic document management system. Many systems are available, but they all offer similar functionality.

### 2.1 Automation of workflow in software SAP Business One.

When a document arrives in an office that is using an electronic document management system, it is scanned using a bulk scanner. These scanners operate much like a photocopying machine, with a sheet feeder that can handle multiple pages at a time. Once the document is scanned, a clerk assigns it a name, file number or other tracking code. After an electronic document is created, the original paper document can be shredded.

#### Document Management Software

Specialized document management software is used to organize and store each individual file. These tools simplify the storage and retrieval process by using powerful optical character recognition that reads the contents of each document. This information is stored as part of the electronic file, making it possible to search the content of each document stored in the database. Employees can search for all documents from a particular client that contain certain key words or using any other variable. What would normally take hours of a file clerk's time can now be accomplished by anyone within minutes.

#### Electronic Routing

Once the document has been scanned, the clerk can forward it to anyone within the organization for review. In a traditional paper environment, this involved delivering the file manually. It was common for files to go missing or to languish on the desks of the employee for days or weeks, unavailable to anyone else. Document management systems allow for immediate review by anyone in the organization. Any document can be immediately forwarded between employees.

Every electronic document can be protected using an enhanced security protocol similar to that used by banks. Documents can be protected so that only specific employees can access certain information. Locked filing cabinets are replaced with

password-protected security systems that greatly reduce the chance of information falling into the wrong hands. Human resources can be assured that sensitive information remains fully protected, while the sales department can store documents available to any employee.

The database of documents can be easily stored on any device. The primary storage device is often located within the company's primary office, often on a server located in the information technology department. The data are also easily backed up and stored off-site. This is a tremendous improvement over paper files, which could easily be destroyed by water damage or fire. Keeping an entire copy of a document database off-site provides an excellent business continuity plan, ensuring key information is not lost due to a catastrophe.

Organizations focus on several components to drive success—delivering a great product or service, attracting top talent, marketing effectively, staying ahead of industry trends. At the operational level, document management is key to moving your business forward. No matter how large or small your company may be, electronic documents can pile up, creating confusion and clutter that can bring workflow to a standstill.

You know you need an electronic document management system to stay on top of things. But how do you choose the right one, and how can you be sure you're getting the most out of it?

### 1. Compatibility

The right DMS will complement, not clash with, your current IT setup. Choose a system that features compatibility, even if it costs a little more. You'll save money and time in the long run, and your team will thank you.

### 2. Ease of Use

Your staff should be able to use your new DMS after a basic orientation. A robust system that requires a programming degree to use will only frustrate your team.

### 3. Common Sense Organization

The organizational structure of your DMS should be intuitive. Commands and process steps should make sense, even for new users who have had only basic instruction in using the platform.

#### 4. Internal Communication

Documents are communication tools, so your DMS should make communication among users effortless.

#### 5. Versioning

Your DMS must track changes for all materials, and organize files so that you can monitor the various versions of each document. Look for a system that offers detailed versioning so that you can understand and control your updates at every stage in the process.

#### 6. Backup and Security

Digital information is vulnerable to both external and internal attacks. As part of your company's disaster recovery plan, make sure your DMS includes robust backup and security features. Your software should also provide administrative controls, so you can set user permissions that will refine your internal security levels.

#### 7. Mobile Compatibility

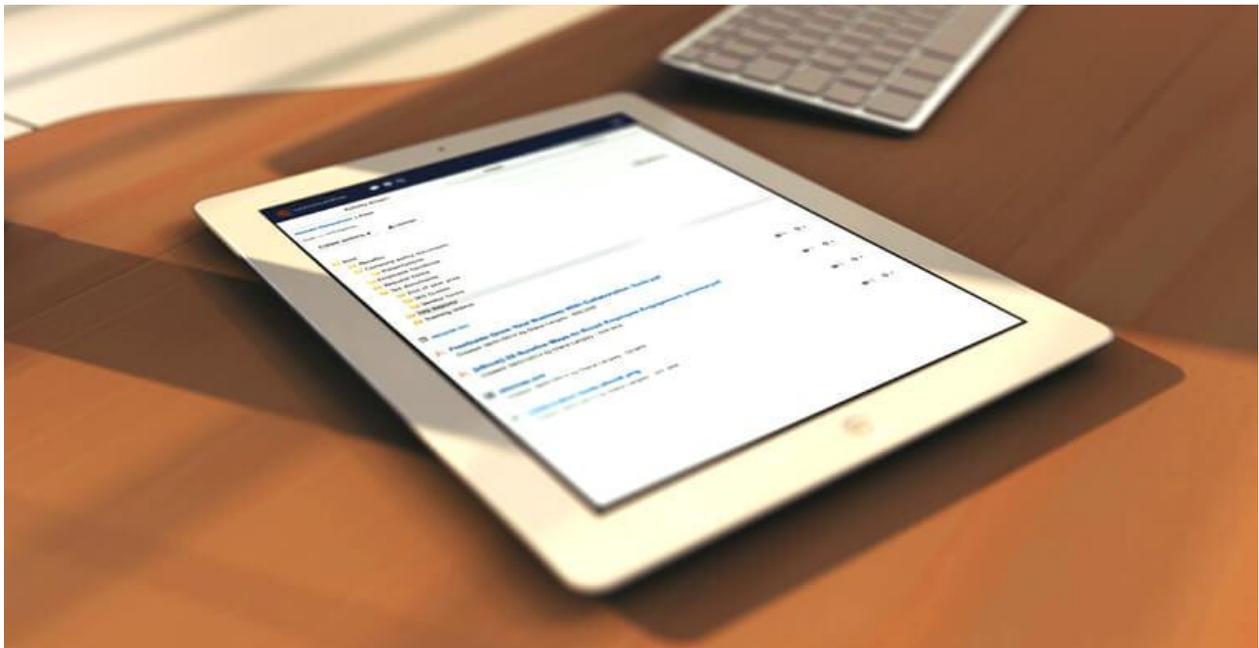


Figure 3. Smartphones and tablets copatability

Smartphones and tablets are increasingly replacing laptops and PCs. Mobile compatibility is essential to any great DMS. You and your staff need a platform that will enable you to access the documents you need, whether you're in the office or working remotely.

## 8. Workflow and Project Management

Project management software is enhanced when it's incorporated into your DMS. Many of the documents you upload will be referenced for projects, so combine these two platforms for greater efficiencies. You'll eliminate the need to "hop" between project and doc management applications.

## 9. Collaboration

A dynamic DMS enables you and your team to collaborate more efficiently, giving you a central location in which to upload, access, and revise your information. Collaboration features also allow for conversation among users, so that your documents can be developed in real time to meet your organization's needs.

## 10. Scalability

Your business is growing, and your software needs to keep pace. Select a DMS that can be scaled to meet the demands of an expanding organization.

Whenever you introduce a new software platform, make it as easy as possible for staff members to get answers to their questions. Identify at least one person in your organization as an expert on your new DMS. Give your expert in-depth training, which most reputable software vendors often provide via webinars or online tutorials. Your point person should also have a strong handle on best practices for doc management, as well as strong time management and social skills.

Create organized spaces within your electronic document management system so that staff work directly with only the information they need for the task or project at hand.

Be discerning as to which documents you decide to upload so that you can avoid clutter and distraction in your platform.

A document is more than simply an electronic file : it is the container—i.e., the documentation info record with identification data, and the content itself— i.e., the

computerised content files (AutoCAD, word processing, photos, videos, etc.), must be both differentiated and linked together.

Electronic document management systems do away with the time-consuming process of sifting through paper files at the risk of discovering the document was not properly put away by the last person to pull it. EDM systems allow files to be recalled at the click of a mouse, while providing information on when and by whom the file was last viewed and/or marked up. Documents can be scanned and stored to create an electronic database accessible to users across an enterprise. Cloud-based EDM systems can also allow out-of-office users to access company and project-related documents through a wireless connection. Document management systems can be useful for every department within a construction company. The accounting office can better track revenue and expenses by being able to pair order forms with resulting bills from suppliers and store receipts, and project managers can share updated blueprints instantly with on-site supervisors. EDM systems also help companies make sure confidential information is protected, and can ensure compliance with legal regulations, according to PaperGear.com. Additionally, because files are computer based, electronically backing up files can help reduce the risk of losing important documents in the event of a fire or natural disaster.

Implementing document management and scanning software is not just a "green" initiative to save trees and be environmentally responsible - it is also good businesses. File Hold software ships with scanning software that supports workstation scanners or Multi Function Center types. Document scanning is a way for organizations to become more efficient and to save money. It is estimated that the cost of processing paper (copying, printing, postage, disposal, recycling and storing) can be as much as 31 times the purchase cost of the paper.

File Hold Document scanning software gives customers the ability to turn cabinets of paper into a secure, version controlled, and compliant document management system.

In order to encourage more efficient operations, Sage Construction and Real Estate document management software gives customers a web-based solution for

managing and sharing workflows, documents and conversations among members of project teams. The software functions much like a corporate intranet by centralizing all project-related information and documents in a secure, online location through a Software-as-a-Service model. No matter where team members are located—in the office, at home, or in another country—everyone can access the data and track changes on the shared platform.

To accomplish the first step, our software proposes a central repository with all the functions of EDMS software (Electronic Document/Data Management System) :

- Centralise and organise all documents in any format;
- trace the history of all documents;
- organise exchange flows;
- ensure internal and external confidentiality;
- manage the entire lifecycle of documents;
- handle versioning, revision and status;
- access documents by searching for text, classification orders or document features;
- view through viewers adapted to each format;
- annotate documents without altering them, ensure traceability and follow-up of annotations;
  
- declare, classify, qualify and trace follow-up of observations;
- control cycles of validation, rereading, approval and distribution;
  
- manage alerts and subscriptions.



Pic. 1 The process of equal delegation of duties

TDMS : the second step

Successful engineering projects require going beyond managing data in document form to access a vaster and finer breakdown of information to identify data pertaining to facilities, infrastructures and projects.

The data modelling in our software is flexible, to adapt to the company's needs and expand going forward to accommodate new needs. It manages all type of objects and articles, as well as sheets and fields related to them. As it does for documents, our software structures and manages data lifecycles, especially their evolution over time. In particular, it can manage successive versions and ensure traceability of modifications.

Each type of article can have its own lifecycle, take its own different forms and use its own associated processes.

Documents and data can be created in-house, be easily imported and be organised in complex virtual repertories to be managed in actual tree structures or "configurations". Moreover, for efficient management of data and documents, information is carefully controlled by a right-of-access system depending not only on the user, but also the status of the article over its lifecycle.

EDMS software and TDMS at work to produce documentation.

With its automated document generation tools and links with the most utilised office hardware and design software, our IT solution for data and document management accelerates and organises your document production.

Smoothly integrated into Word and Excel, Microsoft Office links can easily create and edit documents from validated models and file them directly in the central data repository. This gives you excellent consistency and efficient document sharing, especially for heavy data volumes.

Available AutoCAD and Microstation links in our software gives Autodesk AutoCAD and Microstation users a real management and integration tool, easily and without duplication, for all data generated with CAD and stored in the central repository.

Using templates ensures document consistency, beginning from letterheads, titles, and information, that can be sourced from the centralised database:

- Two-way link between fields in the drawing or document and PLM data;
- centralised management for Office and CAD documents;
- access to search database functions via office and CAD tools;
- management of Office and CAD templates;
- management of external document references and Xrefs for CAD documents.

Although the idea of paperless office has been present for long time in advertising campaign of informatics companies the fact is that most of business documents are still on the paper. Such documents are the subject of the first two DMS sections. During development of DMS system place of scanning activity shifted from the end to the beginning of business processes. World-wide trends show that lately mostly sold scanners are smaller scanners planned for early scanning.

Content should be read from scanned document for additional identification of document (indexing process) or for processing read data, entering in content management system and knowledge management system. Document content is read manually or automatically using OCR/ICR program support. Success of automatic document reading depends on document subject which can be:

- Structured – documents with known structure and variable subject. Examples are annual financial report, cash flow reports, and similar.
- Non-structured – document with completely free structure and subject. Examples are annual reports, auditor's reports, and similar.

Non-structured documents are dominant in present business environment. OCR systems are applied to all types of documents but the result is better in reading structured documents.

Sage software also aligns with many companies' efforts to go green, as it allows team members to share ideas and conduct research without having to print, reproduce, distribute and store numerous paper files over the course of one project.

The solution allows for greater visibility into the project process, with the storage and invoicing of documents and the option to establish rules-based routing. Finally, members can receive automatic electronic notifications and alerts based upon

user criteria, such as whenever changes are made to a project item, such as a drawing, document, or meeting date.

Business process is the number of relative independent actions which have to be done successively to carry out certain business task. According to the importance of documents in business process are divided in:

- Documents orientated processes;
- processes orientated to events.

Example of documental process is processing the entry invoice that consists of number of activities and in classical work method large part of total process duration refers to physical transfer of documents.

If in the process or project various business subjects are involved such as is the case of construction where, beside project contractor, there is a number of small or medium entrepreneurs additional requirements are placed to business document management. In such surroundings project contractors often require small and medium entrepreneurs to adjust technologically to their documents management system. Investigations show that small and medium entrepreneurs in such business models see the biggest problem in lack of structured documents and inefficiency of information flow.

Records management is passive segment of business documents management system where documents are filed and archived. Its main task is to provide reliable proof of certain condition. Like in business of process segment everything is subordinated to dynamics, change of condition with new activities in the process as is everything subordinated in records management to statics, i.e. in records management, in certain moment frozen conditions are stored.

Records management system<sup>3</sup> is responsible for everything necessary to provide:

- Permanent storing of all entries on business for previously defined period or permanent independently on destructions which may happen in the meantime;
- credibility of entry so that it can serve as the proof of certain fact or activity;
- non-alteration;

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<sup>3</sup> <http://www.interpares.org>

- managing credible entry on activity and facts regardless of filing media;
- establishing mechanism for recording required facts in records management system in reliable, comprehensive and permanent manner;
- managing risks;
- „Invisible“ functioning of RMS, but benefits of such system should be visible;
- electronic document management (EDM) employs a computer system and software to organize, store, manage, and track electronic documents and scanned images of paper-based information, according to the Association.

Information and Image Management. The electronic storage option allows workers to use keywords to search for files without ever having to leave their desks.

Most document management systems allow users to modify and manage systems and typically incorporate many physical filing procedures, such as storage location, security and access control, and version control, the AIIM says. Another benefit of maintaining electronic files is the ability to keep a record of who has accessed the content. One example of how a document management system can further help operations is when a particular item—such as a contract, estimate, or proposal—needs group approval. Sharing an electronic version of the file can ensure that the correct people review the document and can create an audit trail that allows everyone to see one another’s edits while also preserving the document in its original form.

EDM systems offer many applications relevant to the construction industry, including keeping track of important documents such as blueprints, receipts for supplies, bids, permits, and more. One design engineering and project management company was able to reduce its manual data entry by 85 percent and save up 50 staff days per year by eliminating its paper-based systems, USP magazine reports. On Line Design and Engineering, which had 580 staff members handling approximately 2,500 financial documents, applied a document management system to make its purchase-to-pay process more efficient and free up more document storage space.

## 2.2 Calculation of economic efficiency of workflow automation with the help of SAP Business One.

An Electronic Document Management System\_(EDMS) is a collection of technologies including imaging, document management and workflow processing used to create, capture, distribute, review, maintain, store, organize, index, retrieve

and dispose information assets. It can offer significant cost savings and workflow improvement opportunities. The major benefits for having an EDMS are outlined below:

- **Improved Workflow** – For an enterprise extending to multiple locations in different geographies, an EDMS allows instant access to documents that would normally require time to be transferred from one location to the other either via mail or fax. Unlike paper-based processes, the status of a document within an electronic workflow can be easily queried and determined.
- **Cost Reduction** – The major hidden costs in a paper-based workflow environment can be attributed to managing the sizable volume of documents generated in the course of day to day business activities. In a paper-based environment, substantial time is required for employees to retrieve a paper file, perform an action with it, and then re-archive the file. Thousands of hours are spent each year on this activity resulting in hidden costs to the business. Furthermore, paper, ink, file folders, filing cabinets, filing staff, and other requirements too cost money. Even in an electronic system, you need computers, storage media, and system-administration staff. These costs can be substantially reduced by utilizing an electronic system that enables employees to locate and archive documents within seconds.

Integrated document management software systems that help ensure compliance with ISO requirements, FDA Current Good Practices (GXP), and other global regulatory requirements, are in high demand. By integrated, we mean that these document management systems are connected with the rest of a company's quality management system (CAPA, Change Control, Training Management, etc.). See the advantages of using integrated document management software systems:

- **Complete Document Management Software Solution<sup>4</sup>**: automates task assignment/routing, scheduling, follow-up, tracking, escalation, review, and approval for all document-based processes. Includes email notification of tasks and

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<sup>4</sup> [www.capterra.com](http://www.capterra.com)

collaboration. It is critical that document management systems have these capabilities.

- **Robust Change Control System:** a best-practice form that incorporates priority level, and prompts the user to classify changes in terms of risk as low, medium, or high. Reports give a real-time status of change control tasks and the quality system as a whole. It is important that document management systems have the capability of connecting with a change control system.
- **Integrated Training Management Software<sup>5</sup>:** automates the assignment and monitoring of training tasks, courses, and exams to ensure that personnel are competently trained on changes to documents and processes. It is also important that document management systems have the capability of connecting with a training management software system.

FileHold Workflow software has a graphic design tool that gives users the ability to create pre-defined workflow templates consisting of document review and / or approval activities. Each activity can be pre-configured to define task descriptions, due dates, and reviewers or approvers that have to complete specific workflow tasks.

When workflow is combined with electronic forms (e-forms) paper can be totally eliminated from the information collection process.

Increase customer satisfaction and account for all service revenue.

Make it easier to manage and maintain the accuracy of all your PM & service contracts and installed products across customers and locations using field service management software. Increased visibility into your contract information speeds up your response rates, gets more accurate billing while helping identify new sales opportunities to drive additional revenue;

- use recurring templates to pull in work schedules and pricing to simplify the quoting process;
- Manage recurring service appointments with flexible billing options.

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<sup>5</sup> Feldstein, Sylvan G.; Fabozzi, Frank J. (2008). *The Handbook of Municipal Bonds*. Wiley. p. 614. ISBN 978-0-470-10875-8. Retrieved February 8, 2010.

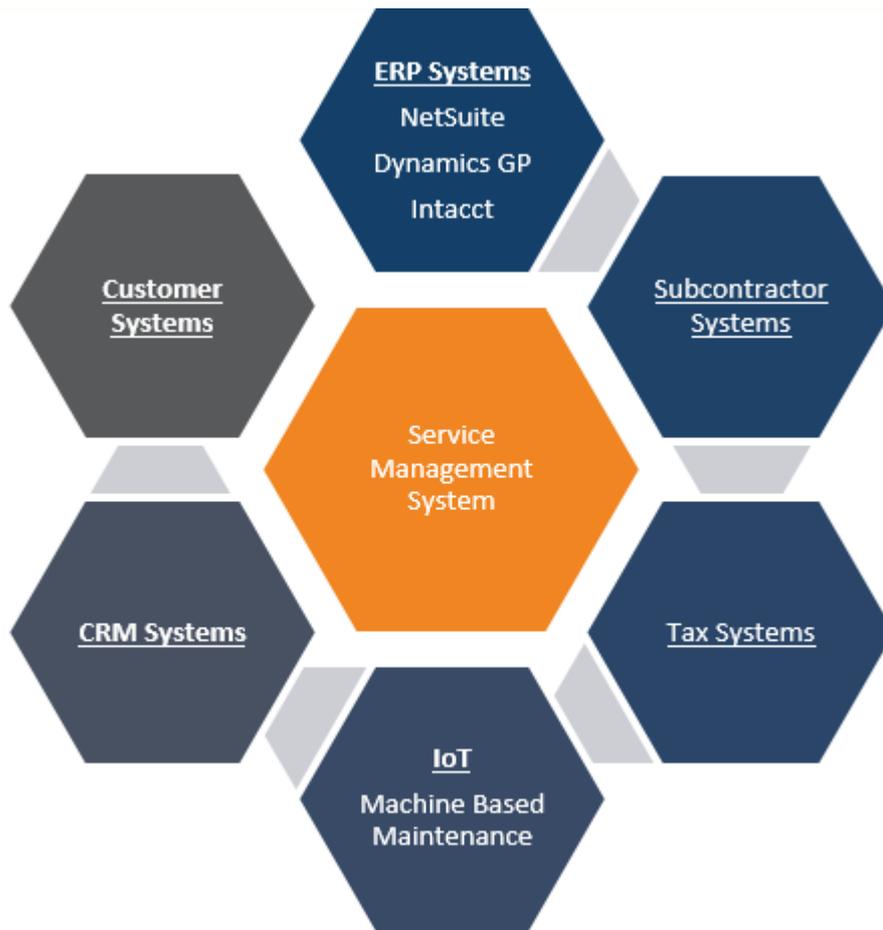


Fig. 4 The system of service revenue

Service offers industry leading fire alarm services and systems designed to easily integrate with other safety and security solutions. We help provide fire detection, signaling and control systems that indicate and warn of alarm or abnormal conditions, as well as help summon fire and rescue services if needed. Our knowledgeable team ensures your facility is kept up-to-date with all relevant codes and regulations.

#### Fire Alarm Services and Safety System Benefits:

- Protect your assets and people with monitored fire alarm systems;
- addressable fire alarm systems pinpoint the exact point of the fire alarm for larger facilities;

- blast mitigation solutions help limit asset damage and injury due to flying glass and debris;
- receive notice of critical condition changes, such as temperature or the presence of water;
- with our enterprise-level security solutions, we can equip you with what you need to keep watch over several locations all at once.

That means remote video monitoring, temperature/humidity alerts and business intelligence to maximize traffic flow.

We can also provide:

- Inventory monitoring, which includes storage area to reduce spoilage;
- intrusion detection systems to control access to critical areas;
- video surveillance systems in key areas to combat internal theft;
- remote alarm systems so you're in control at all times;
- fire and life safety solutions and more;
- Vital protection for your people, facilities, products and processes.

Manufacturing isn't a simple industry.

You deal in materials, processes, inventory, and moving your products to market. Downtime is costly. Business continuity is essential. Fire, security, and life safety protections are vital. Every manufacturer, regardless of size, shares some common key challenges. These challenges can range from safe arrival of parts and raw materials, secure manufacturing processes to protection against theft, accidents and fire, or reliable delivery of finished goods to ensure customer satisfaction. We can take the guesswork out of how to help your to protect the manufacturing business you worked so hard to build. We can help you assess the internal and external threats facing your operations and develop tailored, end-to-end solutions that can improve the safety, security, and productivity of your operations.

From small business to enterprise operations, manufacturers trust our industry-leading fire protection and security solutions. We can design, customize, install and service a comprehensive array of networked and integrated fire alarm, security, sprinkler, suppression and communication systems, addressing any unique hazards in

your particular manufacturing processes, or potential hazards such as theft, material sabotage, and workplace violence. We offer intelligent, networked fire alarm control panels that will tie many of your life safety systems together emergency communication, access control and video surveillance systems. Our value-added security services include around-the-clock security monitoring of critical manufacturing conditions such as temperature and humidity. Whether you're concerned about theft of raw materials or with securing plant operations to prevent cross-contamination and beyond, we bring the advantage of experience across a range of manufacturing facilities, providing customized and turnkey, fire protection, security and life safety solutions, as well as the maintenance and service that keeps them performing at their best.

### **3. PERFECTION OF WORKFLOW AUTOMATION IN MANAGEMENT IN THE SYSTEM OF SAP BUSINESS ONE**

- Expertly planned fire detection systems, leveraging the latest technologies for even the harshest environments;
- comprehensive emergency communications that integrate seamlessly with your fire alarm panel and can provide clear instruction to help you to protect your employees and your facility;
- comprehensive, cost-effective service plans that include ongoing testing, inspection, and maintenance to keep your systems operating reliably;
- advanced fire protection and life safety systems with remote alerts and diagnostics;
- next-generation life safety platforms for added power, Internet connectivity and remote service capabilities;
- sophisticated systems for sites where specialized fire protection and suppression solutions may be needed;
- monitored security systems to help you to protect your building, inventory and manufacturing equipment 24/7/365;
- video surveillance for eyes-on security; digital recording and management of video activity;
- card and biometric access control; Help control access to your front office, inventory and crucial operating areas such as receiving docks;
- arm or disarm your security system remotely and receive alerts for critical events on any Web-enabled device.

Authorization Simplification

Feature

- Authorization Groups renamed to User Groups and relocated under Setup - General.
  - 4 Group Types:
    - Authorization: User authorizations with validity dates; individual users within the User Group can have further refined validity dates.
    - Form Settings: User form settings.
    - UI Configuration Templates: Modified forms set as templates. (PL01)
    - Cross All Types: Applies to all types.
    - Copy Form Settings now has a Groups tab; all users in the chosen group inherit the form settings. Benefit,
    - Manage temporary authorizations.
    - Quickly apply form setting defaults and/or templates (modified forms) to a group of users.

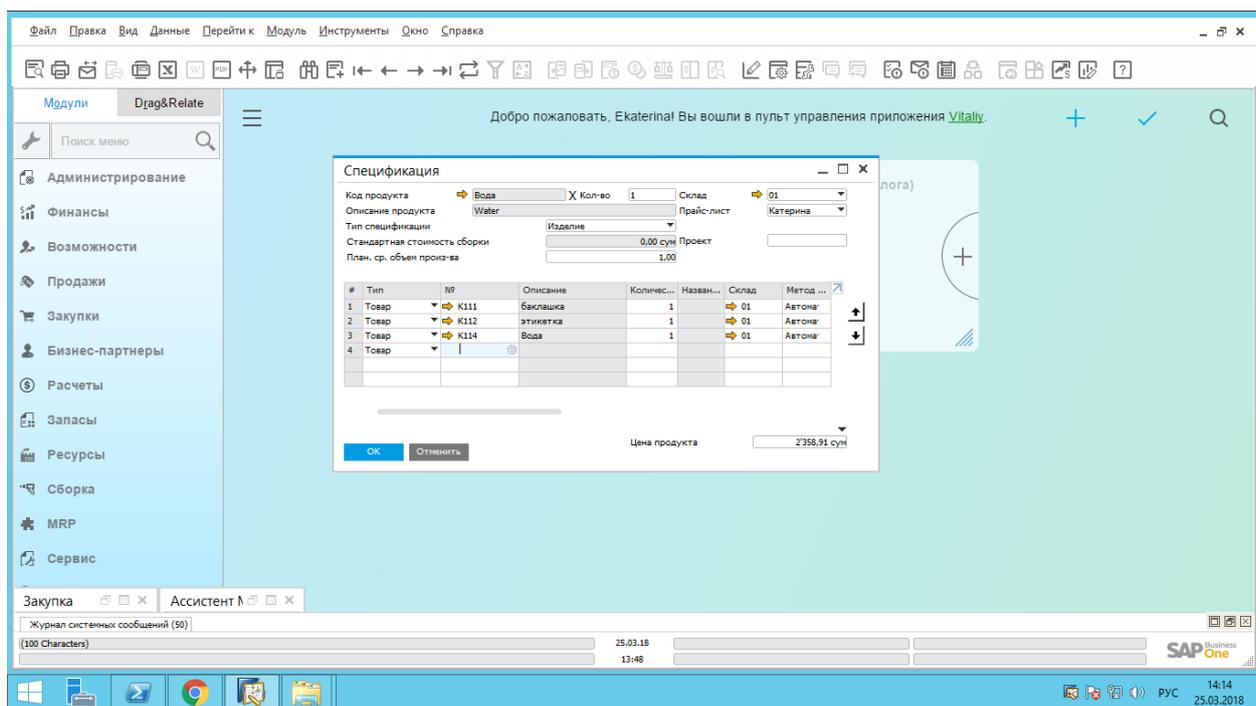


Figure 5. The process of authorization Simplification

## Approval Procedure Enhancements

### Feature

- Enable updating a previously approved document.

- Enable updating a draft document with status Pending/Approved.
- Approval Decisions Report now shows the Draft Key. (PL01) Benefit
- You are now able to amend/cancel a document processed through the approval process.
- Approver always sees the latest version of the document to be approved.
- Ensures approval is obtained every time the approval criteria have been triggered whether adding or updating the document.

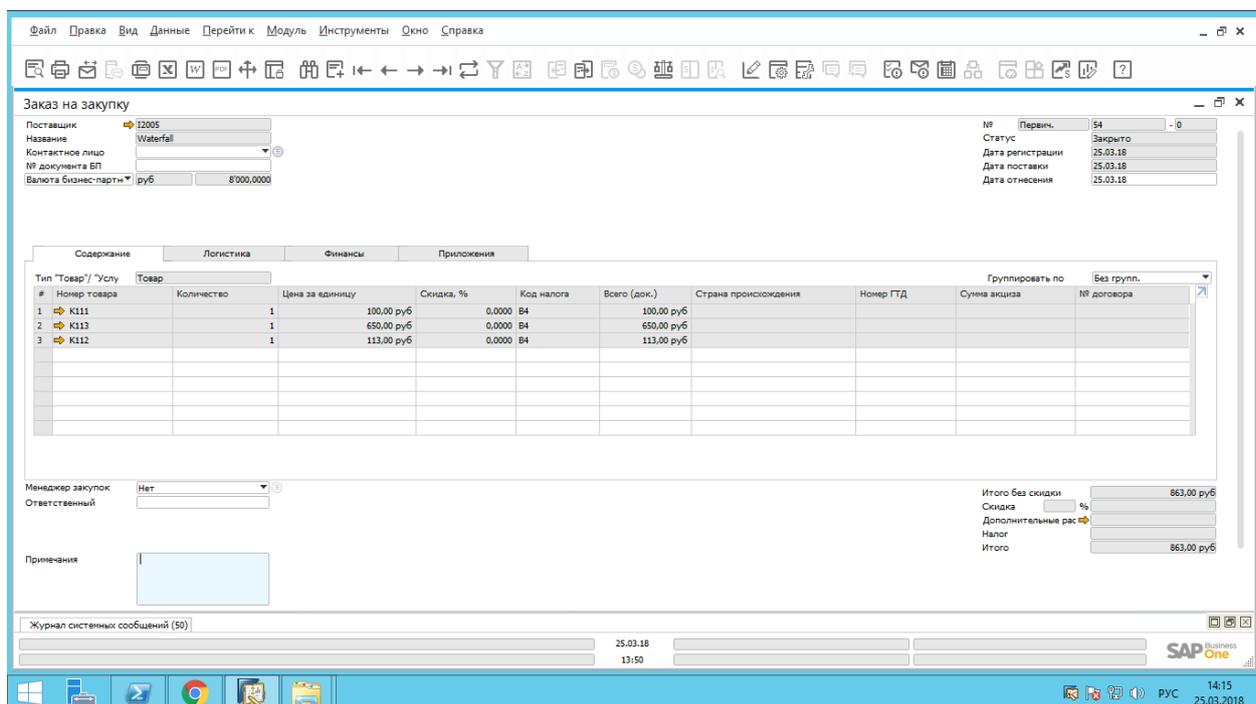


Figure 6. The process of approval Procedure Enhancements

## Settings Support

### Feature

- The User – Setup form is enhanced to include various user-specific options, that previously used to be in the General Settings form.
- New icon on the toolbar enables users to access their user setup form and personalize it.
- The User Defaults form is extended and includes Display tab. Benefit
- Better accuracy and clarity of company level settings vs. user-level settings.

- Enhanced usability – all users gain access rights to their own personal preferences (subject to authorizations).
- Better coverage of user defaults settings, enables more efficient implementation.

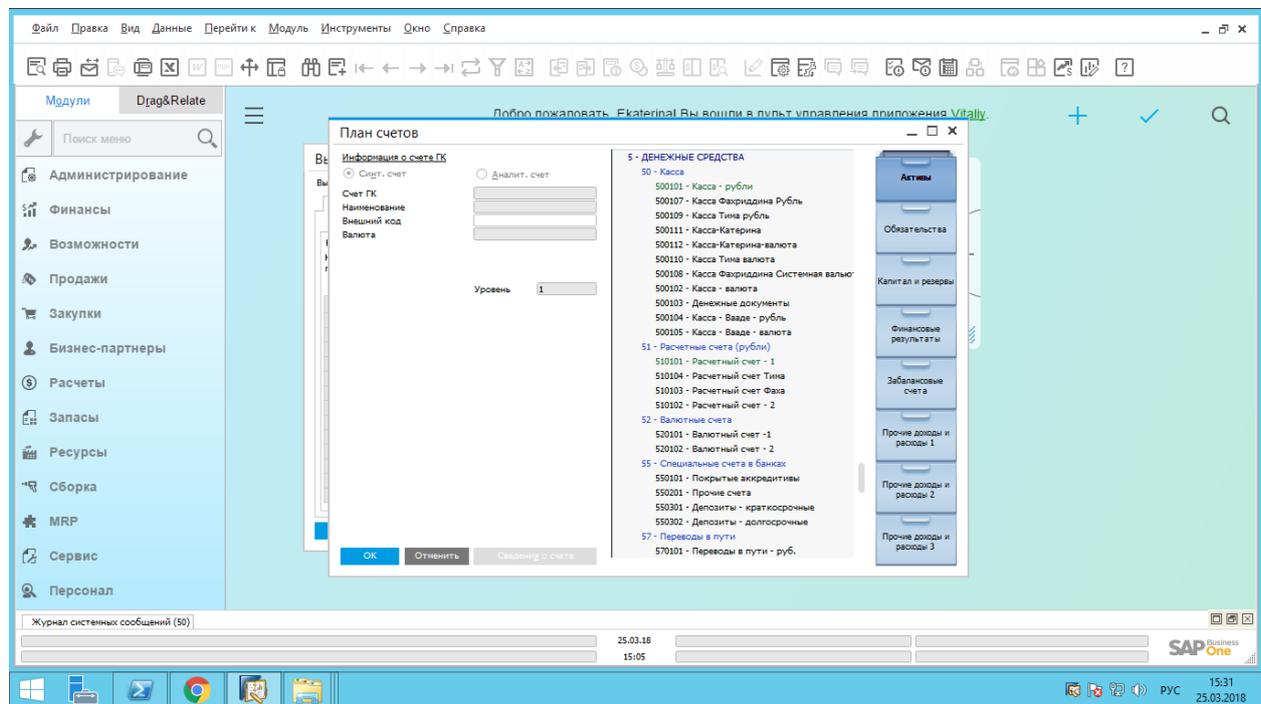


Figure 7. Settings Support

## Import from Excel (1/2)

### Feature

- Journal Entries added to Import from Excel.
- Import Serial and Batch numbers from Excel.
- Additional Authorizations added for data import.
- Benefit
- Simpler, efficient import process.
- DTW not required for importing these objects.

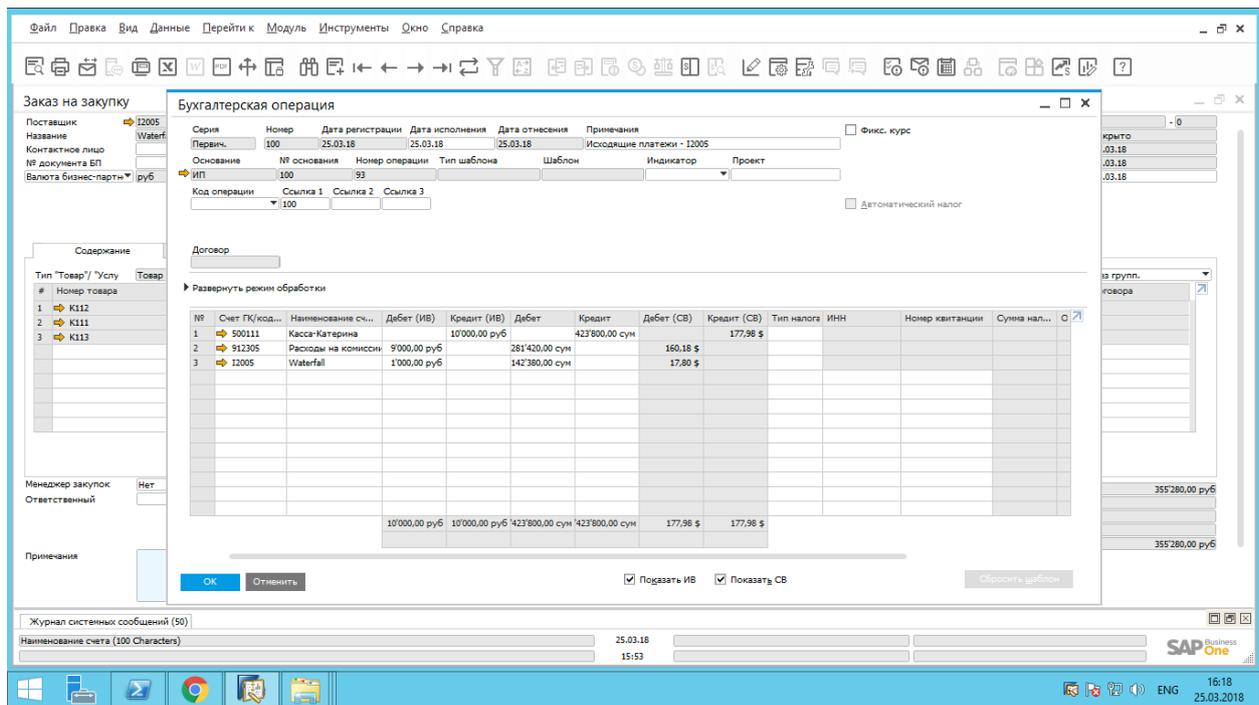


Figure 8.The process of import from Excel (1/2)

## Change Log Cleanup Utility

### Feature

- New Change Log Cleanup Utility available.
- Enables users to clean out the change log to reduce the size of a company database.
- Users have the ability to determine which objects from the change log entries should be deleted and restrict the deletion to a specific date range.
- Utility subject to appropriate user authorisation.
- Benefit
- Improve performance when running upgrades due to reducing amount of data to be upgraded.
- Companies running SAP Business One for a long time with a large change log are able to delete old changes that were registered.

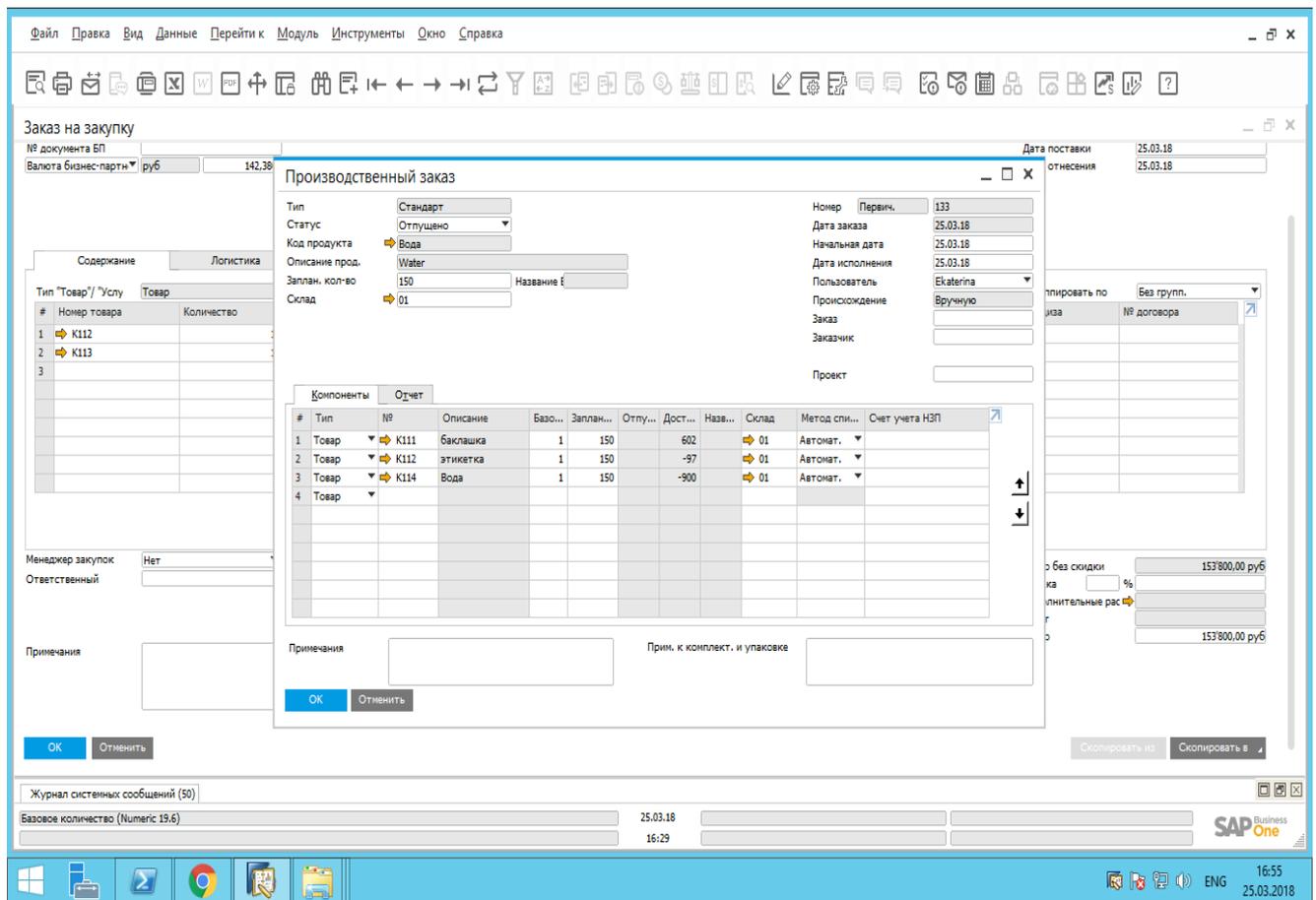


Figure 9. The process of changing Log Cleanup Utility

## Multiple Ways to Input Dates

### Feature

- New way to add dates in date fields
- To enter a new date in the date field you can use the following two methods:
  - 1- Use arrow keys
  - 2- Use operands
- +/-N : add/subtract N days
- +/-ND : add/subtract N days
- +/-NM : add/subtract N months
- +/-NY : add/subtract N years
- NOTE: You can only use D,M,Y (not case sensitive)
- NOTE: Do not leave a space between the operand, number and period Benefit

- Quicker date input
- Ease of Use

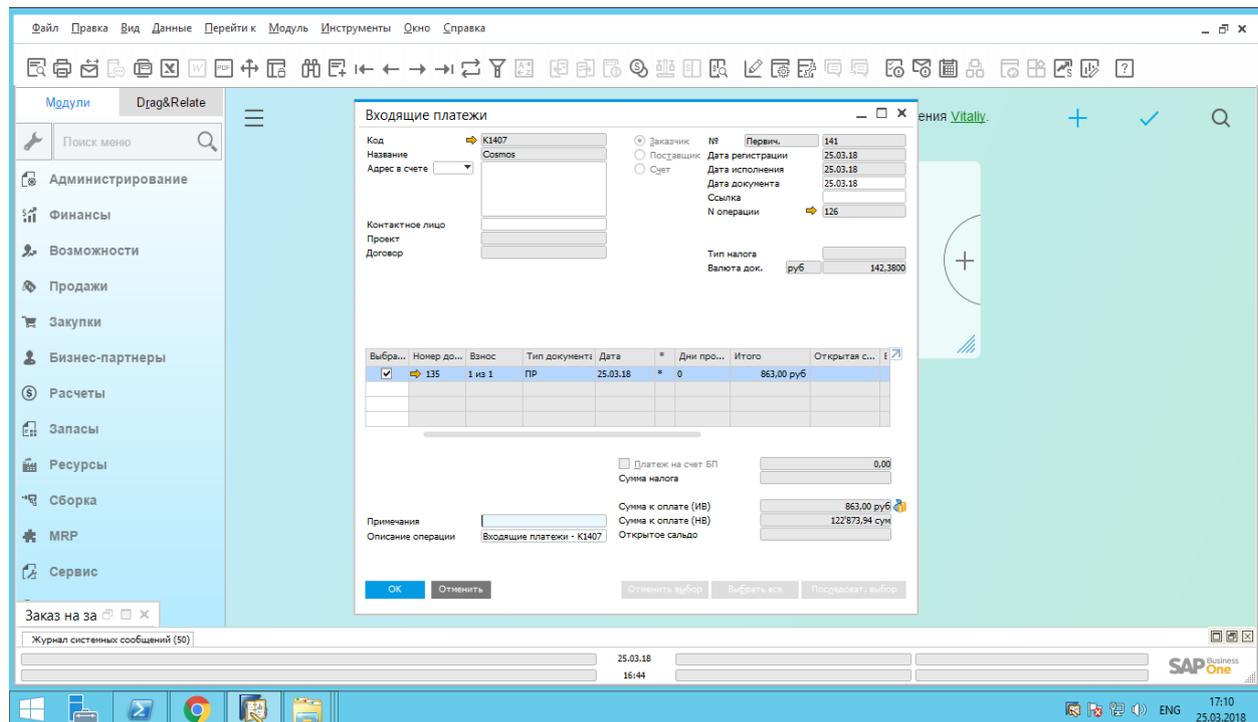


Figure 10. Multiple Ways to Input Dates

Summary. With analytics powered by the SAP HANA platform, the SAP Business One application lets you take advantage of the latest advances in in-memory computing technology for analysis and reporting. You gain real-time access to information to support decision making – and a way to explore it in detail without IT assistance. As a result, you can make better decisions faster and increase employee productivity by putting your users in control of information.

### Key Features

- Analytics and reporting – Create and run reports on up-to-date data in SAP Business One in seconds, without IT assistance, and perform what-if analysis with the data you use most
  - Productivity tools – Use predefined content and multidimensional data sources to analyze data and build reports, and use Microsoft Excel to explore and investigate real-time data
  - Predefined dashboards and reports – Gain access to a variety of prebuilt reports, customized around the business processes you use most
  - Search – Find and access all data in SAP Business One with freestyle enterprise search

## Business Benefits<sup>6</sup>

- Better, faster decision making thanks to fast reporting, enterprise search, and access to more data than ever before
- More efficient employees by empowering them to generate standard and ad hoc reports in real-time using Excel without IT assistance
- Higher ROI by leveraging transactional and operational data stored in SAP Business One to make the right decisions
- Secure, long-term investment with a complete solution from a single vendor

To meet the analytics requirements of small businesses, we've brought together SAP Business One with the power of the SAP HANA platform. SAP HANA enables you to analyze large amounts of data at the speed of thought – giving you instant business insights and the ability to transform your organization into a real-time business. The analytics powered by SAP HANA run behind the scenes of SAP Business One, a single integrated business management application for small businesses that supports all core business functions across your entire company. This means all of the transactional and operational information within your SAP Business One application is available for instant insight. You can see your business as it exists right now – not as it existed when you did your custom data extract, which was the case with previous generations of analytics and reporting technology. As a result, users at all levels can make better decisions faster because they have real-time access to information – along with the ability to explore and investigate more information before making those decisions. For example, people can run simulations or “what-if” scenarios instantly, as well as access fast-running reports and dashboards that leverage the SAP HANA<sup>7</sup> database. In addition, they can access all your data in SAP Business One with freestyle enterprise search and query large amounts of data instantly. This means they can utilize more complete information for more accurate

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<sup>6</sup> What we do ABI Archived 2009-09-07 at the Wayback Machine.. Abi.org.uk. Retrieved on 2013-07-18.

<sup>7</sup> Minkina, V.A., From information support to information management of activities of the organization, Nauchn.-Tekh. Inf., Ser. 1, 2015, no. 4, pp. 19–23. Google Scholar

insight. Equally important, this solution can help increase productivity by putting users in control of information. For instance, they can create and run ad hoc reports without IT assistance and use the Microsoft Excel interface to explore and report on data – all from within SAP Business One. You benefit from empowered employees, lower operational and IT costs, and faster information processing.

Run your Business Based on Trusted, Real-Time Insight SAP HANA is a breakthrough technology that accelerates analytics many times faster than traditional tools, giving you the ability to instantly generate reports and answer questions as quickly as you can ask them. We've organized data in a special way that leverages a separate server for the in-memory computing engine for SAP HANA in order to reduce the analytical workload on the server running SAP Business One. This facilitates fast data search, access, and reporting. What's more, there are constant updates between the two servers. For example, the SAP Crystal Reports® software and prebuilt dashboards and reports that come with SAP Business One are vastly accelerated for real-time insight. Plus, when you invest in this solution, we provide additional dashboards to help you flex your reporting muscle. These dashboards cover sales opportunities, inventory turnover analysis, delivery analysis, service calls, purchase order quotations, and more.

Perform Multidimensional Analysis without IT assistance With analytics powered by SAP HANA, SAP Business One eliminates the need to waste days waiting for IT or a consultant to prepare and consolidate data from hundreds of forms, databases, and spreadsheets. All users familiar with the Microsoft Excel Pivot Table can use spreadsheets to run their own analyses on live data and create ad hoc reports in minutes. Spreadsheets can be plugged into the in-memory computing engine's server – without IT assistance. With the click of a button, you can open a spreadsheet and instantly populate it with live data in SAP Business One. If any data changes in SAP Business One, it changes in your spreadsheet. Armed with a custom “window” into your business.

Keep IT Simpler and easier to Manage For most small businesses, keeping IT effective but simple to manage is a priority, as they don't often have the IT resources to deploy and maintain complex analytics software. One of the benefits of this solution is that there's no longer a need for third-party analytics software that complicates your IT landscape. You can deploy it without any disruption of normal business activities. And once implemented.

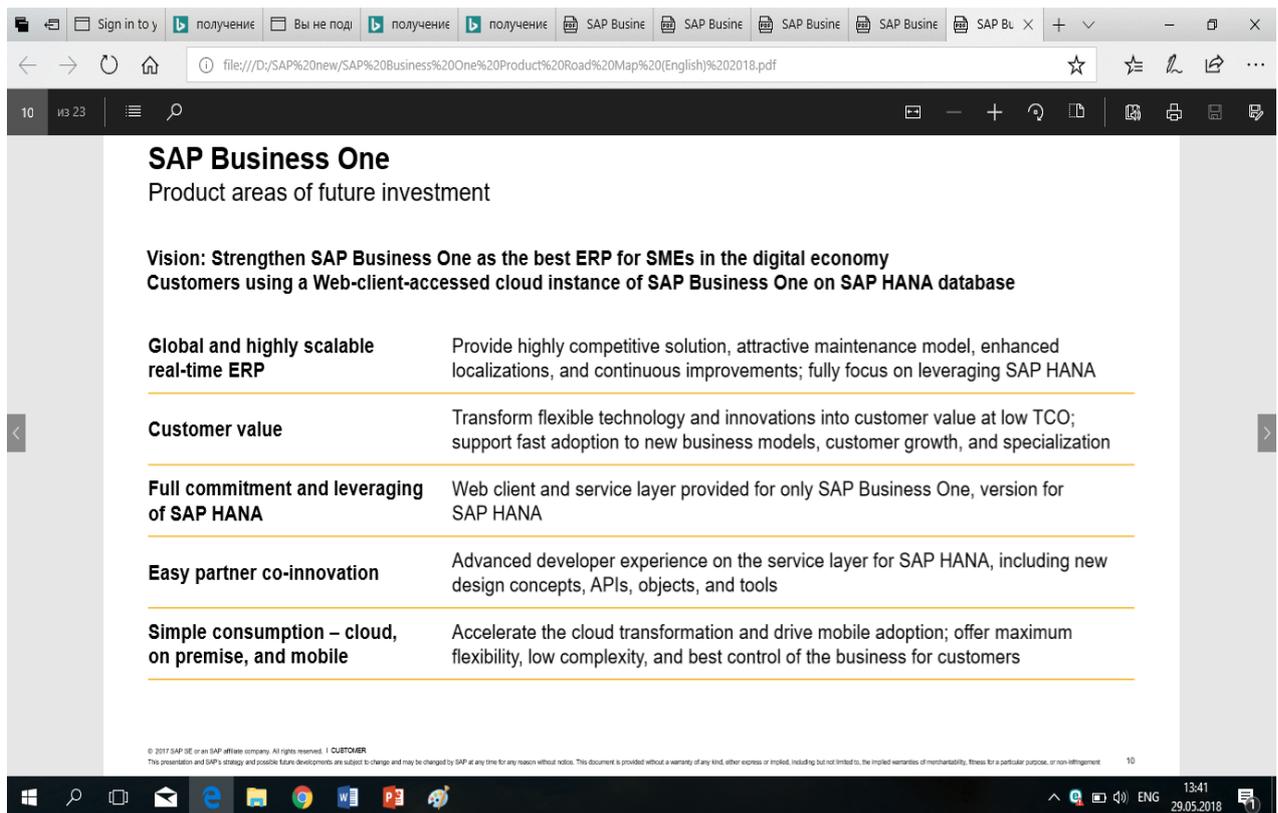
ERP, analytics, and reporting software comes from one software vendor – SAP. All functionality is available through the familiar interface to SAP Business One, so no end-user training is required to get everyone leveraging the power of real-time analytics and reporting.

3.1 Introduction of additional opportunities for electronic document management in the system of SAP Business One.

**SAP Business One solution stack**  
Customer needs and the value propositions of the product



Pic 2. SAP Business One solutions



Pic 3. Global vision of SAP Business One

### Planned innovations –core Global and highly scalable real-time ERP

This is the current state of planning and may be changed by SAP at any time.

Feature value Enhance coverage in key market segments (wholesale distribution, retail, professional services, and manufacturing) Cover new business processes and continue delivery of enhancements and new functions, based on market feedback on Customer Influence

- Production module enhancements: outsourcing/job work, order cancelation, ability to reopen a closed order, and new reports;
- service module enhancements, PM billing wizard for service, service module equipment card, ability to link to multiple BPs, items, and fixed assets;
- cRM module enhancements;
- intention-based search and chatbot;
- predefined, built-in analytics content;
- microsoft Office 365 integration;

- extension in multiple branches and blanket agreements (contact management);
- project management enhancements; time sheet: support of UDFs, availability of distribution rules;
- renew architecture leveraging SAP HANA;
- enhancements to recently introduced Microsoft Excel-based reporting;
- integration of SAP solutions adding value for SAP Business One customers.

Planned innovations –integration framework Broaden system and business network capabilities

This is the current state of planning and may be changed by SAP at any time.

Feature

Enhanced product features, usability, performance, security, and supportability

- Multiple Web browser supports (Safari);
- lifecycle management for cloud operations and built-in multiple tenancy deployment;
- BPMN-based business process management layer with graphical design user interface on top of scenario processing and graphical runtime;
- end-to-end tracing concept, tracking of messages across components;
- additional development-oriented programming model with built-in multitenancy;
- single-board computer edition with sensor adapters and the integration-platform-as-a-service (iPaaS) edition for partner clouds;
- refactored and optimized locking service Extended scenarios for the integration framework;
- new SAP Anywhere solution integration scenario Intercompany integration solution for SAP Business One;
- support for new SAP Business One releases, further simplification and improvement of the solution;
- adoption of service layer on SAP HANA.

## Feature value

- Data provision to any external system and data consumption from any external provider;
- meeting legal requirements with a high degree of automation;
- optimized partner support by realizing requirements for flexible integration in customer projects;
- harmonization of subsidiary landscape for drastic reduction of TCO and streamlined business processes.

Organizations have both active working documents and long term records that are kept for research or compliance. File Hold records management software manages both electronic documents and electronic records including rules and reports for archiving and disposition dates.

Disposition reports can be generated as required and are based on the document type, associated metadata, document age and archive policies. Documents are automatically designated as either active or inactive (records). Inactive documents may be automatically archived by File Hold software. Documents can be scheduled for automatic deletion based on easy to configure disposition rules.

Records may only be deleted from the library in accordance with their retention/disposition schedules or by a designated corporate records manager

Information management in today's companies becomes bigger and bigger problem of management in in every operational levels. Having in mind that information flow, with material, power, financial and operational base of functioning and survival of every organized system this is matter that has to be considered and dealt by top management which wants to survive in today's conditions of globalization and hyper-competitiveness. The problem grows exponentially with size of company and is independent of business activity.

Document as basic bearer of business content more and more changes its form. Most of documents are in electronic form, and also can stay in it if it is regulated with law what is the case in Republic of Croatia and European Union.

Increasing efficiency and effects are imperatives which bring globally present competitiveness and they cannot be achieved without business documents managing system. The only business question that remains open is when to initiate the implementation of business documents management system. Certainly those who decide earlier for such solutions can earlier expect business benefits.

Document workflow software and approval software improves operations by automating business processes such as Accounts Payable<sup>8</sup> approvals and Contract collaboration. The File Hold Workflow module is for complex internal workflow activities. File Hold Courier provides secure access to documents in File Hold to anyone with an email address. Workflow is applied to documents needing to pass through reviewers and approvers before they are ready for general distribution. Document workflow provides instant reports on the status of documents in the review process.

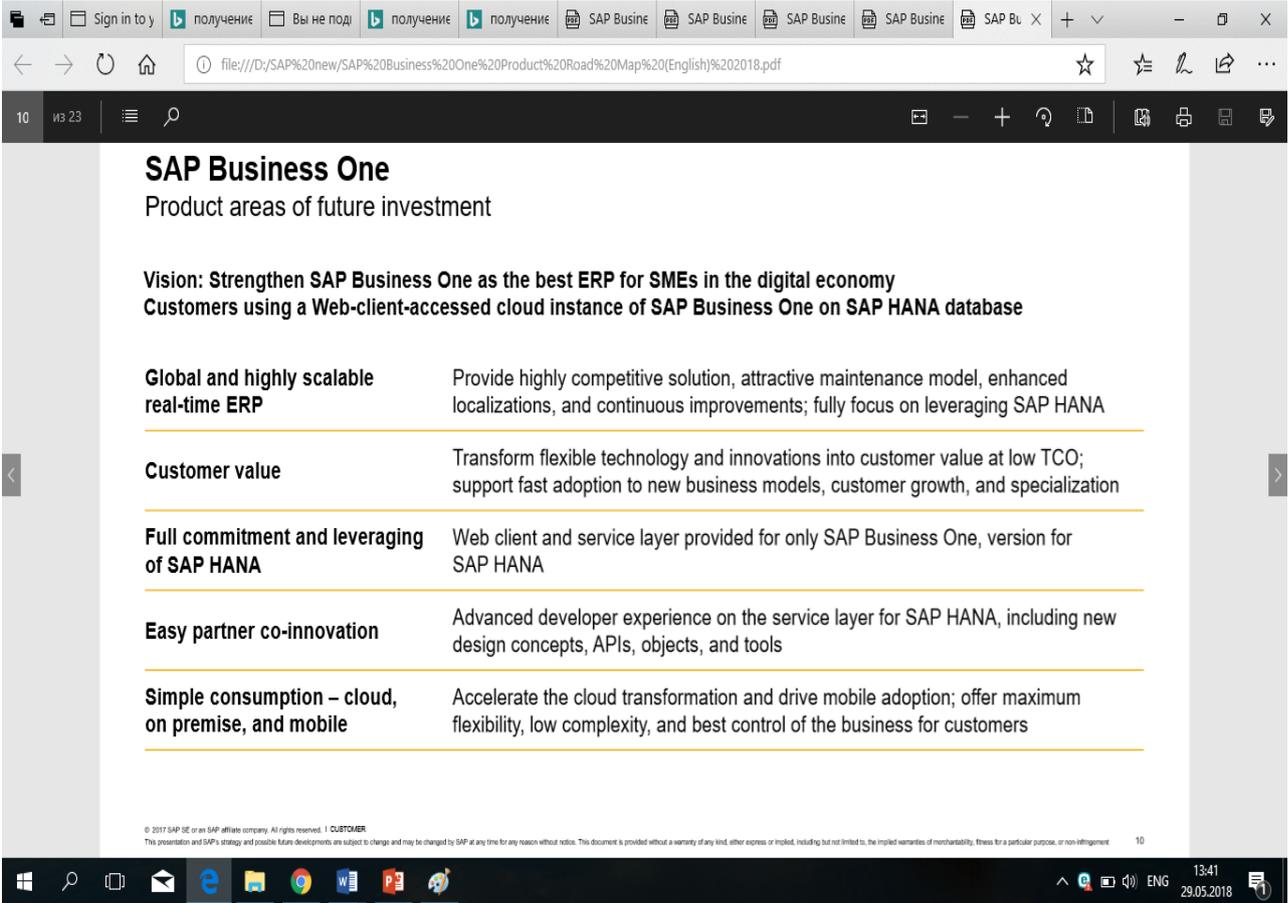
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<sup>8</sup> ADB staff estimate

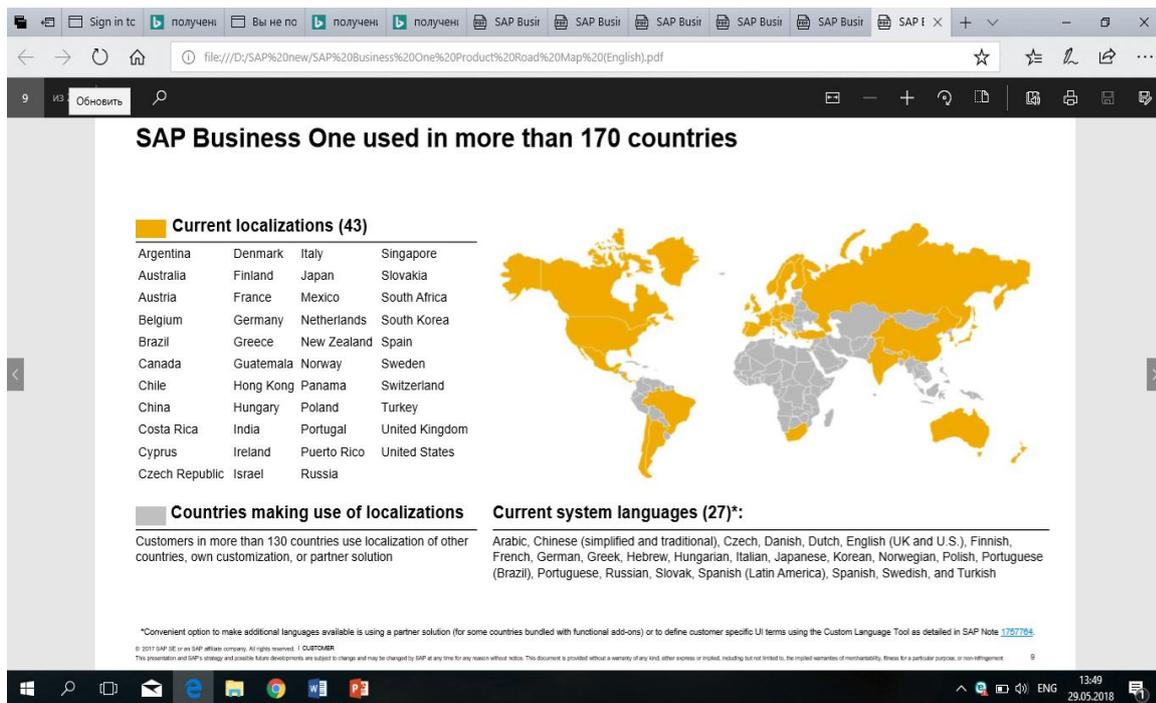
this document, except if such damages were caused by SAP’s willful misconduct<sup>9</sup> or gross negligence.

All forward-looking statements are subject to various risks and uncertainties that could cause actual results to differ materially from expectations. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of their dates, and they should not be relied upon in making purchasing decisions.



Pic 4. Vision for future investment

<sup>9 9</sup> Boldijar, Vlad. 2010. The future is in the East, CIS Insurance Market. Xprimm.



Pic 5. The vision of countries using SAP Business One

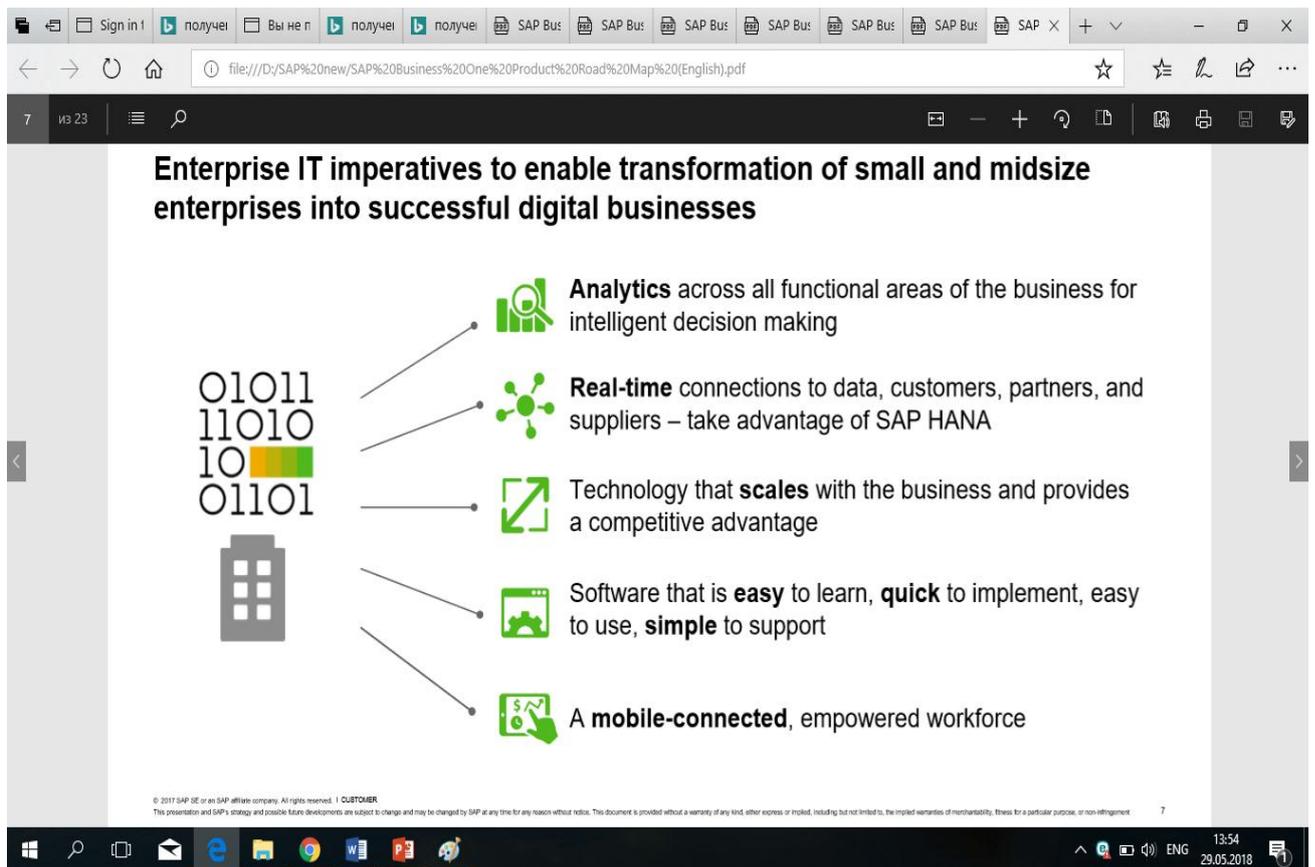
3.2 Management of business processes of the organization in the form of a corporate electronic document management system.

Enhance coverage in key market segments (wholesale distribution, retail, professional services, and manufacturing) Cover new business processes and continue delivery of enhancements and new functions, based on market feedback on Customer Influence

- Production module enhancements: outsourcing/job work, order cancelation, ability to reopen a closed order, and new reports;
- service module enhancements, PM billing wizard for service, service module equipment card, ability to link to multiple BPs, items, and fixed assets;
- CRM module enhancements □ Intention-based search and chatbot;
- predefined, built-in analytics content;
- microsoft Office 365 integration;
- extension in multiple branches and blanket agreements (contact management);
- project management enhancements; time sheet: supportof UDFs, availability of distribution rules;

- renew architecture leveraging SAP HANA;
  - Enhancements to recently introduced Microsoft Excel–based reporting
  - Integration of SAP solutions adding value for SAP Business One customers
  - SAP HANA 2.0 support and adoption of relevant features
  - Continuous optimization and acceleration of core business processes and complex reports
  - Better real-time visibility and deeper analytics scenarios based on pervasive analytics
  - New apps such as demand planning and payment/invoice automatching
  - Enhancement of service layer, exposing existing business objects through a RESTful http interface, as well as enhanced app framework for partners’ extension
- Extension of mobile scenarios by leveraging SAP HANA :
- SAP HANA as a platform for accelerated partner innovation;
  - ability to make faster, better-informed decisions, as more business users have the capability to retrieve any required information completely independently with intuitive and easy-to-use features;
  - comprehensive views of key information, such as customers or financials, which offer efficiency optimization;
  - realization of more-sophisticated business processes; new scenarios that help in tackling “unsolvable” problems;
  - exposing the full potential of SAP HANA to the ecosystem;
  - efficient partner development with service layer and tools within the app framework;
  - multiple Web browser supports (Safari);
  - lifecycle management for cloud operations and built-in multiple tenancy deployment;
  - BPMN-based business process management layer with graphical design user interface on top of scenario processing and graphical runtime;
  - end-to-end tracing concept, tracking of messages across components;

- additional development-oriented programming model with built-in multitenancy;
- single-board computer edition with sensor adapters and the integration-platform-as-a-service (iPaaS) edition for partner clouds;
- refactored and optimized locking service Extended scenarios for the integration framework;
- new SAP Anywhere solution integration scenario Intercompany integration solution for SAP Business One;
- support for new SAP Business One releases, further simplification and improvement of the solution;
- adoption of service layer on SAP HANA;
- simple and extremely flexible capabilities that make the integration framework the key differentiator for SAP Business One;
- data provision to any external system and data consumption from any external provider;
- meeting legal requirements with a high degree of automation;
- optimized partner support by realizing requirements for flexible integration in customer projects;
- Harmonization of subsidiary landscape for drastic reduction of TCO and streamlined business process.



Pic 6. The vision of successful DB

- Core
- Web client extended functionality
- Optimized scalability/performance
- Continuous innovations, project, CRM, and service Globalization
- Expansion to new markets/regions
- Integrations to electronic fiscal services
- Brexit requirements Analytics
- Insight to action (data mining)
- Predictive, pervasive, and scalable
- Built-in content Mobile
- Grow solution base, extension platform Extensibility
- Business network integration
- Service layer evolving toward extension platform; semantic layer Cloud Hybrid deployment

- Simplified cloud tools
- Extension repository
- Production module enhancements: outsourcing/job work, order cancelation, ability to reopen a closed order, and new reports
- Service module enhancements, PM billing wizard for service, service module equipment card, ability to link to multiple BPs, items, and fixed assets
- CRM module enhancements
- Intention-based search and chatbot
- Predefined, built-in analytics content
- Microsoft Office 365 integration
- Extension in multiple branches and blanket agreements (contact management)
- Project management enhancements; time sheet: support of UDFs, availability of distribution rules
- Renew architecture leveraging SAP HANA
- Enhancements to recently introduced Microsoft Excel-based reporting
- Integration of SAP solutions adding value for SAP Business One customers
- Enhanced capabilities
- Increased attractiveness for new and installed base
- Solid core foundation for building vertical solutions
- Users enabled to consume core business processes across multiple platforms
- Simplification, greater customer and partner satisfaction; reduced TCO

There are thousands of small logistics companies in China that advertise as freight forwarders and export trade brokers. Almost anyone will say they can do this job because they have connections to trade services. But so many things can go wrong and result in supply chain disasters. If a company cannot get goods to market in time for the season or the sale, or to meet peak demand, the company's logistics network has failed.

Small freight forwarders can provide personalized service when a company needs special care, but they may also add time and frustration to your supply chain.

Because they are independent businesses, small, independent Chinese forwarders rely on a network of agency relationships and one-off favors to move freight. Essentially, these small forwarders and brokers are just cargo coordinators. They typically do not own any of their own equipment, make no investments in capital equipment or systems, and rely on subcontractors to provide trucking, air, and ocean freight. Their networks are only as strong as the weakest link. It is common to see small forwarders like this in tier-two or tier-three cities, moving cargo in tricycle carts from manufacturing sites to airports. Some of these companies also subcontract the preparation of export documentation, including US Customs' 10+2 reporting—the information now required to be processed before an ocean shipment, bound for the United States, can leave a foreign country—which can cause delays in China if documents are not properly prepared. Companies should select a freight forwarder or broker with a global network of company-owned offices, standard procedures, and information technology (IT) systems capabilities that comply with the complicated export and import regulations.

Global logistics providers that have established offices across China, such as Expeditors International of Washington, Inc., CEVA Logistics, DB Schenker, Kuehne & Nagel International AG, among others, offer advantages, including:

- Standardization and consistency of procedures worldwide;
- Communications standards and protocols;
- Global IT systems to track the many documents required for global trade shipment progression and compliance with trade regulations;
- Negotiated rates and schedules with air and ocean carriers;
- Standard documents and assistance with completing them;
- Landed cost and total cost estimations;
- Familiarity with International Commerce Terms of Sale (Incoterms).

## **4. LIFE SAFETY AND ECOLOGY.**

### 4.1. Safety precautions on the “Accelerated Business Consulting”

Even in the most low-key workplace, safety issues can pose a danger to employees, clients and visitors. To keep your facilities safe and accident-free, take precautions that are designed to prevent problems and keep people away from danger areas. By taking action in advance, you can make your workplace a safer and more comfortable place.

It's vitally important to take safety precautions when working with electricity. Safety must not be compromised and some ground rules need to be followed first. The basic guidelines regarding safe handling of electricity documented below will help you while working with electricity.

#### - Warning Signs

In many workplaces, there are certain areas that tend to be dangerous. In an office, this might include a bathroom floor that gathers condensation and causes slips; in a factory, a machine that moves in an unexpected way can be a danger to passersby. Warn your employees and visitors about danger areas by putting up signs. Use signs that are visible before a person reaches a spot that might cause trouble and make them easy to read and understand. Use graphics to illustrate correct physical positioning, and user-test the signs before settling on a design.

#### - Education

One of the easiest ways to prevent dangerous incidents in the workplace is education; when staff members know how to handle themselves in a safe manner, they will be better able to avoid accidents and injuries. To help your employees be aware and observant about safety issues, hold in-services that bring problem areas to their attention. In addition to standard safety topics like slips and falls, schedule in-services that deal with industry-specific issues that are common in your business, machinery, production processes and facilities. For the most effective in-service, stick

to one or two topics and include a hands-on portion to encourage participation and make the session more memorable.

#### - Health Issues

When you work in close quarters, communicable diseases can wipe out a significant portion of your workforce in a short time. To minimize the chances of losing productivity due to sick days, encourage employees to practice healthy behaviors. Put up information sheets about hand washing and set out dispensers of hand sanitizing gel. Encourage employees to stay home when they are feeling even slightly ill, and set up flexible sick time systems. When possible, allow employees to work from home when they are sick so they can remain productive without losing pay or costing the company additional paid leave.

#### - Risk Mapping

If you work in a facility that poses physical hazards to your employees, you can create a risk map that points out danger areas. Start with a large diagram of your workspace and ask for employees' help in identifying possible hazards. Once the map is completed, schedule a meeting to review it; take a tour of the facility with the map so employees can see the hazard areas for themselves. Often, the simple awareness of a problem can be an effective precaution.

1. Avoid water at all times when working with electricity. Never touch or try repairing any electrical equipment or circuits with wet hands. It increases the conductivity of electric current.

2. Never use equipment with frayed cords, damaged insulation or broken plugs.

3. If you are working on any receptacle at your home then always turn off the mains. It is also a good idea to put up a sign on the service panel so that nobody turns the main switch ON by accident.

4. Always use insulated tools while working.

5. Electrical hazards include exposed energized parts and unguarded electrical equipment which may become energized unexpectedly. Such equipment always

carries warning signs like “Shock Risk”. Always be observant of such signs and follow the safety rules established by the elect

**6.** Always use appropriate insulated rubber gloves and goggles while working on any branch circuit or any other electrical circurical code followed by the country you’re in.

**7.** Never try repairing energized equipment. Always check that it is de-energized first by using a tester. When an electric tester touches a live or hot wire, the bulb inside the tester lights up showing that an electrical current is flowing through the respective wire. Check all the wires, the outer metallic covering of the service panel and any other hanging wires with an electrical tester before proceeding with your work.

**8.** Never use an aluminium or steel ladder if you are working on any receptacle at height in your home. An electrical surge will ground you and the whole electric current will pass through your body. Use a bamboo, wooden or a fibreglass ladder instead.

**9.** Know the wire code of your country.

**10.** Always check all your GFCI’s once a month. A GFCI (Ground Fault Circuit Interrupter) is a RCD (Residual Current Device). They have become very common in modern homes, especially damp areas like the bathroom and kitchen, as they help avoid electrical shock hazards. It is designed to disconnect quickly enough to avoid any injury caused by over current or short circuit faults.

**11.** Always use a circuit breaker or fuse with the appropriate current rating. Circuit breakers and fuses are protection devices that automatically disconnect the live wire when a condition of short circuit or over current occurs. The selection of the appropriate fuse or circuit breaker is essential. Normally for protection against short circuits a fuse rated of 150% of the normal circuit current is selected. In the case of a circuit with 10 amperes of current, a 15 ampere fuse will protect against direct short circuits whereas a 9.5 amperes fuse will blow out.

**12.** Working outside with underground cabling can be dangerous. The damp soil around the cable is a good conductor of electricity and ground faults are quite

common in the case of underground cabling. Using a spade to dig at the cable can damage the wiring easily so it is better to dig at the cable by hand while wearing insulated gloves.

**13.** Always put a cap on the hot/live wire while working on an electric board or service panel as you could end up short circuiting the bare ends of the live wire with the neutral. The cap insulates the copper ends of the cable thus preventing any kind of shock even if touched mistakenly.

**14.** Take care while removing a capacitor from a circuit. A capacitor stores energy and if it's not properly discharged when removed it can easily cause an electric shock. An easy way to discharge low voltage capacitor is that after removal from the circuit is to put the tip of two insulated screw drivers on the capacitor terminals. This will discharge it. For high voltage ones a 12 Volts light bulb can be used. Connecting the bulb with the capacitor will light up the bulb using up the last of the stored energy.

**15.** Always take care while soldering your circuit boards. Wear goggles and keep yourself away from the fumes. Keep the solder iron in its stand when not in use; it can get extremely hot and can easily cause burns.

## 2. Ergonomic features in the workplace.

### Benefits of a Workplace Ergonomics Process.

Finding the right "ergonomic"<sup>10</sup> chair is a common problem especially for people who want to purchase new equipment to make workstations safer and healthier places. There are many "ergonomic" chairs available but it can be a mistake to purchase one simply because it is labelled "ergonomic".

Ergonomic chairs are designed to suit a range of people; however, there is no guarantee that they will suit any one person in particular. For example, a chair could be too high and the arm rests too far apart for a short, slim person. In addition, chairs may not suit every task or arrangement at the workstation. A chair becomes ergonomic only when it specifically suits a worker's size (body dimensions), his or

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<sup>10</sup> <http://ergo-plus.com>

her particular workstation, and the tasks that must be performed there. It is possible to find the right chair although it is not always easy.

Several basic concepts should be considered:

- One chair does not fit everyone. The users' body dimensions must be used when selecting a chair so that it does not strain one part of the body while fitting another.

- Collect data about the user's body height. The optimal seat height is about one quarter of the body height. This is only a rule of thumb since the torso-to-leg ratio can vary widely.

- There is no chair suitable for every activity. For example, dentists require a different chair than do industrial workers or computer operators

- Consider maintenance and repair costs. Check with the manufacturer for items to inspect for and how often inspection should be done.

Here are five of the proven benefits of a strong workplace ergonomics process:

- 1. Ergonomics reduces costs.** By systematically reducing ergonomic risk factors, you can prevent costly MSDs. With approximately out of every in workers compensation costs attributed to MSDs, this represents an opportunity for significant cost savings. Also, don't forget that indirect costs can be up to twenty times the direct cost of an injury.

- 2. Ergonomics improves productivity.** The best ergonomic solutions will often improve productivity. By designing a job to allow for good posture, less exertion, fewer motions and better heights and reaches, the workstation becomes more efficient.

- 3. Ergonomics improves quality.** Poor ergonomics leads to frustrated and fatigued workers that don't do their best work. When the job task is too physically taxing on the worker, they may not perform their job like they were trained. For example, an employee might not fasten a screw tight enough due to a high force requirement which could create a product quality issue.

- 4. Ergonomics improves employee engagement.** Employees notice when the company is putting forth their best efforts to ensure their health and safety. If an

employee does not experience fatigue and discomfort during their workday, it can reduce turnover, decrease absenteeism, improve morale and increase employee involvement.

**5. Ergonomics creates a better safety culture.** Ergonomics shows your company's commitment to safety and health as a core value. The cumulative effect of the previous four benefits of ergonomics is a stronger safety culture for your company. Healthy employees are your most valuable asset; creating and fostering the safety & health culture at your company will lead to better human performance for your organization.

Having a small business means your work is never done, which translates into long hours sitting at a desk. This can often lead to workplace injuries and muscle fatigue. Back, neck and wrist pain are common complaints of many entrepreneurs, small business owners and their employees. Pain affects more than just your body. Having an uncomfortable office set-up reduces your productivity and enthusiasm, impacts your work and can even cause permanent damage to your health. Carpal-tunnel syndrome, tendonitis, tension neck syndrome and ruptured discs can all be caused by a poorly designed workspace. But workplace injuries can be reduced or even prevented with correct workplace ergonomics.

Every person is built differently and thus the standard office configuration may not be the 'right fit' for some people. By using a proper ergonomic system to tailor a workspace to an individual, you can improve the comfort, safety and quality of work for your business.

An **ergonomic computer workstation** is essential to any office. The science of ergonomics is about creating equipment and tools to fit the worker. Ergonomic furniture is designed to create maximum comfort and productivity, and works to prevent repetitive strain injuries. Consider the following ergonomic features when you are designing your computer workstation.

A good base for any computer workstation is an ergonomic desk. If your desk is not ergonomically designed, then your computer workstation will never reach its full

potential to provide you with maximum comfort and productivity. The following components are essential to any ergonomic desk:

- The desk has to be a stable work surface with no bounce or wobble.
- It must have enough room to place your computer monitor, keyboard, and mouse in front of you. If there is not enough room on the desktop to accommodate the keyboard and mouse (in addition to the monitor), then it must have a pull out tray.
- Your computer monitor needs to be positioned at least an arms length from your body.
- Your legs must be able to slide under the desktop or keyboard tray.
- It must be able to accommodate necessary desk and work accessories, so that they are readily available for use.

#### Ergonomic Computer Chair

While you are seated at your computer workstation, it is important to have a computer chair that provides proper body position and lumbar support. Your computer chair should allow you to sit with your knees bent at a 90 degree angle, while your feet rest flat on the floor. If you are shorter in stature, you should use a chair with adjustable height or a foot rest. An adjustable height chair is also useful to ensure proper viewing distance of your computer monitor.

In addition to proper body position, computer chairs should also provide back support. A good quality desk chair should encourage you to sit upright with your back straight. It should also conform to your lower back to provide lumbar support and reduce back strain.

#### Wrist Rests for Your Keyboard and Mouse

Using a computer keyboard and mouse for several hours at a time can place great strain on your wrists if they are not properly positioned. This strain can lead to wrist soreness, pain and other symptoms of repetitive strain injury.

In order to keep your wrists straight while working, use padded wrist rests in front of your keyboard and on your mouse pad. Some keyboards and mouse pads can

be purchased with wrist rests already attached, or they can be purchased separately. Padded wrist rests are an essential component to an ergonomic computer workstation.

#### Computer Monitor Filter

If you use this ergonomic computer accessory, your eyes will thank you. Computer monitor filters - also called monitor filters or glare filters - reduce strain to your eyes caused by frequently looking at a computer monitor. The filters reduce computer screen glare, and can make you more comfortable while looking at the monitor by reducing brightness.

#### Typing Stand

These ergonomical wonders are a must-have for your computer workstation. Typing stands can be positioned in front of, or to the side of, your computer monitor to assist you while creating or transcribing documents. Instead of putting strain on your neck by constantly looking up and down at a document while typing, the document can remain at eye level.

Incorporating ergonomic furniture and accessories into your computer workstation is a great way to benefit your health and your work simultaneously. When you are creating your computer workstation, incorporate an ergonomic desk and computer chair, wrist rests for your keyboard and mouse, a computer monitor filter and a typing stand for the best ergonomic computer workstation.

Your chair can make the difference between injury and efficiency. Pick a chair with adjustable features that can be personalized to your body, and then adjust the rest of your workstation components and materials to your new sitting position. Look for a chair with customizable seat height, seat pan depth, backrest height and armrest height and position.

- Feet should be supported by being placed flat on the floor or on a footrest
- Knees should be at approximately a 90 degree angle with thighs parallel to the floor
- Sit at the back of the seat towards the backrest of the chair
- Seat should support hips and thighs with a 2-4 finger-width space between the edge of the seat and back of the knees

- Lumbar support should fit the natural curve of the lower back
- Armrests should support forearms with shoulders relaxed and elbows at approximately a 90-100 degree angle

## 2. Place Your Keyboard and Mouse Correctly

- Elbows should be at approximately a 90 degree angle with forearms supported by armrests

- Elbows should be in a relaxed position when using the keyboard and mouse
- Wrist rests should only used when not typing

## 3. Adjust Your Monitor to Reduce Neck Pain

- Maintain a neutral head position as much as possible
- If using one monitor, place it directly in front of you at approximately an arm's length away

- If using dual monitors, they may need to be placed slightly father back
- Dual monitors should be angled with the far right and left ends of the monitors angled towards you and the centre positioned farther back to form a "V" shape
- Direct line-of-sight should be the top third of text

## 4. Hold Your Telephone Right

- If the telephone is used frequently, use a headset
- Avoid holding the telephone between the ear and shoulder

## 5. Adjust Your Office Supplies

- Avoid repetitive reaching by placing frequently used materials within easy reach
- Choose office supplies with ergonomic features, such as pens with cushions and low pressure staplers

## 6. Use a Document Holder

- If you frequently refer to paper documents, use a document holder

## 7. Take a Walk

- Remember to take breaks and get up and move for about five minutes out of every hour

Take a moment to ensure your workspace is ergonomically correct. Adjust your chair, move your monitors and stretch your legs. These small changes will increase your productivity, improve your product or service and most importantly, protect the health and safety of you and your employees.

### **Conclusion**

Keep in mind that just because these forwarders are larger does not mean they are more expensive. Very often, the size of the forwarder allows them to negotiate for better volume rates from ocean and air carriers.

Make sure logistics providers have systems capabilities

In the past, logistics was all about moving boxes and getting space on aircraft and ocean vessels. In the early 1990s, with the wide implementation of enterprise resource planning (ERP) systems at most companies, visibility and synchronization became king. Companies could then truly see the impact of disruptions in scheduling caused by delays in transit. As a result, logistics progressed from moving boxes to moving information.

Now, it is extremely important to know where freight is in the supply chain, inventory levels by location, and what is expected to move from your suppliers. This is because manufacturers and retailers need to plan for arrivals or delays using their own ERP or other systems. Without accurate logistics information about shipments from China, entire supply chains can be disrupted—or worse, shut down.

Logistics providers should be partners in gathering and reporting information to help manage a company's supply chain. To accomplish this, logistics providers have to make large investments in their own systems. The ability to provide information is

no longer an option, but a basic service offering. Companies should be able to search and schedule online, transmit information electronically (such as Advance Shipment Notices and trade compliance information), and receive automated notices when there are delays or disruptions. Logistics providers should have sufficient IT staff to integrate or interface their systems with any company's systems.

Closely tying IT systems creates a deeper level of partnership that must be monitored and managed. Importers should plan to go to China on a regular basis to review the logistics operations and the associated IT systems. Start with a written audit plan and review sample transactions every time you visit.

#### Compare rates and services

Business conditions in China change rapidly. Companies need to be aware of pricing in the market and service offerings. One of my clients was very surprised to find out that while their logistics provider seemed to have competitive pricing, they were five years behind in systems capabilities and had not made other process or productivity improvements for several years.

I recommend that companies forge a long-term relationship with their logistics providers and encourage and monitor productivity improvements through IT systems, shared forecasts, and strong quarterly evaluations. But it is also very important that companies stay current with the marketplace. On trips to China, visit other facilities and talk to other providers to make sure service offerings are competitive and up-to-date.

It is also prudent to go through a bidding or request-for-proposals (RFP) process every two to three years. Even if a company does not want to change providers, this process will at least provide an opportunity to review the business in depth and determine where improvements can be made.

A company's purchasing department can help write an RFP that stays within company guidelines and includes all of the questions required to attain comparative information. Companies can also engage a consultant if assistance is needed in the RFP process for logistics providers. Consultants will bring marketplace information and objective rigor to the process.

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